OFFICIAL RECORDS
OF THE
WORLD HEALTH ORGANIZATION
No. 94

FIRST REPORT
ON THE
WORLD HEALTH SITUATION
1954-1956

WORLD HEALTH ORGANIZATION
PALAIS DES NATIONS
GENEVA
May 1959
NOTE

The Ninth World Health Assembly in May 1956 invited Members of WHO to prepare, as a step towards the fulfilment of their obligations under Article 61 of the Constitution, a report covering as far as possible the period 1954 to the end of 1956.1 At the same time the Assembly requested the Director-General to prepare for the Eleventh World Health Assembly the first report on the world health situation, summarizing those reports.

In June 1958 the Eleventh World Health Assembly discussed the report prepared by the Director-General, thanked the Member governments for their assistance in providing material and invited them to submit amendments for the final report.2

The “general survey” presented as Part I of this volume contains a synthesis, under broad subject headings, of the reports received from Member States. The reports themselves, with the amendments submitted by the governments, are reproduced in Part II.

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1 Resolution WHA9.27: Off. Rec. Wld Hlth Org. 71, 27
2 Resolution WHA11.38: Off. Rec. Wld Hlth Org. 87, 34
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PREFACE

THE present review, covering the period 1954-56, is the first report on the world health situation. The Annual Reports of the Director-General have dealt with the work of WHO year by year, and a comprehensive account of the Organization's achievements in various countries has been presented in this way. This Annual Report has deservedly become an essential feature of the functions of WHO, and the accumulated experience derived from ten years' activity has made a genuine contribution to international history. Nevertheless, for various reasons, the obligation accepted by Member States in Article 61 of the Constitution of WHO to report on the progress achieved towards the improvement of health has remained in abeyance during these early years. This fact has been recognized by the World Health Assembly and led it recently to reaffirm the responsibility of the World Health Organization to review the health situation in the world and to confirm that this is another essential function of the Organization.

The services that WHO was privileged to give to many nations in such matters as education and training of personnel, the control of communicable diseases, and public health administration have been documented in a number of publications, including the Bulletin of the World Health Organization and the Technical Report Series; but deeper analysis shows how important it is also for each country to have an opportunity of telling its own story about its health situation. As countries differ so much in size, population, and resources, it is essential that each account of the progress of the health services should be illuminated against a background of reality. It would be absurd to expect a small, sparsely populated country to have the same design for health as a highly industrialized state of enormous dimensions; yet its story of overcoming difficulties might be well understood by and become a source of great encouragement to other countries on the same path of progress.

For an international organization like WHO one of the methods of serving Member States is to present faithfully in clear, simple outline a picture of the state of health of each country and territory, based on the information at present available, and to focus a spotlight with the correct degree of intensity on new developments. By this means each country would keep the world informed of its proposals and undertakings, and so all the peoples would become more familiar with one another's problems in an intelligible relation to resources of personnel, money, and equipment. Furthermore, the world would discover what is being done in the great endeavour to improve health on a global scale. I would ask the national health authorities, therefore, in reading this report, to direct their attention especially to the efforts which are being made, often against mighty odds, to promote the health and welfare of peoples who were previously little known to them. That is the reason why the description of the health services of each country is preceded by a brief, very simple, background of reference and allusion which can readily be followed by all. National health authorities have, of course, a detailed knowledge of their own situation and services, and they may well feel—in the larger countries especially—that some of the information is too obvious for serious presentation. Yet, when one reads a review of an unfamiliar country, a minimum background of general information is greatly appreciated, as giving the health situation in a realistic setting and showing its stage of development.

Even in its infancy this report serves two distinct purposes. One of these is to provide a description (so far as information is available) of the health situation in each political or administrative unit

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1 Resolution WHA11.38 of the Eleventh World Health Assembly, June 1958 (Off. Rec. Wld Hlth Org. 87, 34)
of population, whether independent or non-self-governing, so that a really world-wide consideration of the health of the people is possible. It is probably the first time in international service that the countries of the world have supplied the material for such an extensive coverage in a single field. The general information presented is not as universal as it should be, and, needless to say, is far from adequate, but it does at least provide the background necessary for an understanding of world health. Only gradually, and with the active co-operation of all Member States, will it be possible to build up a complete picture. This cannot be done in a year—possibly not in a decade; but each advance in the exchange of experience is ground gained. Effective and continuous international co-operation may be confidently expected, when the national health administrations realize how similar are their problems in essentials to those facing other countries, and understand the ineluctable stages of progress from one era to another.

The second purpose of this report is to cast a strong light on various aspects of public health work, as it is observed in different countries, from the standpoint of modern medicine, not as an isolated discipline, but as a living branch of the social and biological sciences.

The first seven chapters, which have been prepared as an introduction to the 157 brief country reviews, serve, not as a summary, but as a synthesis of the subjects dealt with in the reviews and presented by the individual countries. The varying ideals and practices of health do not represent what is happening in any one country, but they do give a composite picture of a series of outstanding events and efforts in many lands. The main part of the report thus offers a comprehensive review of the present "health situation" of the world in a collective sense.

What of the future? In dealing with a branch of the social and biological sciences directly connected with human welfare, a report on the health situation would not be complete unless all social, cultural, and economic aspects affecting the health of a population were taken into consideration. From the point of view of WHO this is particularly important because of the definition of health written into its Constitution. Present knowledge and experience in the fields of medicine and public health have enabled workers to plan their activities so as to erect reasonable safeguards for the mental and physical health of a people, but the lack of comparable information on "social well-being" confronts them with many problems that are beyond their control. Health administrators are considering these pressing questions and becoming familiar with the social and economic hazards affecting the health of the people, and in this way are moving towards the goals of social well-being.

This first report on the world health situation is in some respects incomplete, but to make a beginning is an act of faith. This is the rough framework of a structure which I believe will become in the passage of the years stable, well-knit and fully representative of reality.

Myrand

Director-General
INTRODUCTION

In his Introduction to the Annual Report for the year 1954 the Director-General observed that the most encouraging aspect of the requests received by the World Health Organization during the year was the active desire shown by many countries to obtain WHO's help in working out long-term plans for the progressive and orderly development of their public health services. This trend, as many countries have shown in their returns, is of the utmost importance because it represents a movement towards an organized system of planning and achievement. The advance goes further than that, as the Director-General pointed out: it indicates an increasing readiness to undertake joint action in solving problems that affect more than one country—as is well demonstrated in the considerable number of inter-country and inter-regional schemes.

In the Report for the following year it was pointed out that the beneficial effects of the campaigns for advancement would constitute concrete gains for public health only if we can succeed in effectively strengthening national health services. From these and other indications we can see that nations, large and small, are aware of the value of self-help in taking responsibility for the development of their own services; and that they seek services mainly in three directions: the world struggle against communicable diseases, the strengthening of the health services which have already been established, and the raising of standards of education and training for all types of health worker.

Hitherto, and quite rightly, the World Health Organization has stated year by year the aims of a health programme and the steps it has taken, at the request of one country and another, to move towards these aims. Nevertheless, one can discern an uneasy feeling that in some instances the very inaccessibility of the mountain peaks of health and welfare has served to discourage a country, when a more modest goal might have offered encouragement. Before reaching the heights it is essential to explore the land that lies between.

This idea may be simply illustrated by reference to the education and training of health personnel. Ideally it may be desirable to have in all areas a full quota of highly trained medical and nursing staff, with the whole range of auxiliaries that a fully developed service demands. Yet this very plentitude might well defeat its own ends by making people unnecessarily sickness-conscious. In addition, the ideal would be so remote from reality in some countries as to be a positive hindrance to progress. We must be content with a more simple approach: to secure the highest practicable level of medical care and build on that. The best beginning is to look closely at what there is—what is technically and educationally possible in a given country or region—bearing in mind the limitations imposed by customs, traditions, and resources, and in the light of these considerations to review the situation during the period covered by the report. That is the kind of foundation on which we can build. It is true that a carefully worded and comprehensive description of the state of ideal health has been written into the Constitution of the World Health Organization. It is right and proper that such ideals should be set out; but it is essential that the contemplation of these goals should not detract from action to meet the immediate urgencies of health care and health promotion. First consideration should therefore be given to the range of achievement compatible with steady progress in a community, and the aim should be to show what can be done here and now to promote health in the broadest and most practicable sense of the word.

How can this be done? The first step is to invite peoples to speak for themselves and tell their own story of both difficulties and achievements. This has recently been carried out, and many governments have answered questions, simply and with a deep sense of public duty, about the health and welfare of their people. Others, who have not yet been in a position to compile full and accurate statistical data, have supplied valuable information obtained from sample surveys which gives a very good indication of general trends in such matters as population and indices of health. Some countries have not yet produced basic figures, but it is hoped that future developments will be in that direction, as these data are of such great importance to the world community.

There are several ways in which the story of a people can be told, and each of them has its own particular advantages and drawbacks. The first method, as has been indicated, is to maintain careful records of events as they happen—events such as birth, death
and sickness and the appropriate rates, infant and maternal mortality, causes of disease and death at various ages, nutritional and educational states, and so on. In the second place, the history of a people may be written currently by experts—advisers selected on account of their specialized knowledge of particular subjects—and by others who have an inquiring mind and a ready pen. And thirdly, at a level which is even more important, the history of a people can be written continuously by the people themselves. In every area of the world there should be a growing volume of written experience covering the progress of each nation and state, year by year, setting out in simple terms the existing situation and the ways in which the next stages can be planned and reached. In many ways the story as told by the nations themselves is the most vital one; it may be faulty in detail, biased in one way or another, or even distorted by conflicting opinion, but it is nevertheless what the people thought and said at a particular time.

Preventive medicine without records is like a ship without a compass. Vital statistics have contributed immensely to the advancement of knowledge, because they have given direction to its progress. As our knowledge of the causes of things increases, the need for more extensive records increases also. Nevertheless, we must constantly evaluate our statistics to find out whether they are in fact leading us forward or merely providing routine figures for general administrative purposes. In the assessment of the health and well-being of nations we can no longer be content with the normal statistical material, useful as it is in giving outlines for comparison. A broadening of statistical information is essential in areas where the ordinary returns are poor in quality and in quantity. In cases like these it is of course possible and often desirable to institute a series of special surveys—such as, for example, of housing, communicable disease, chronic sickness, mental ill-health and the problems of the aged. These surveys, carried out by specialists, have very great value; but they are open to certain objections, notably in areas where the co-operation of the people is at any time difficult. There is always a considerable risk of overlapping when each survey requires, as it commonly does, visits to individual homes or to the same groups of field workers. The same background has to be explored, the same questions have to be asked over and over again, by different groups of specialists; and the inevitable end-result is the exasperation of the people exposed to this procedure. In addition, there is the risk that a series of specialized inquiries, sound as they may well be in themselves, will lead by their very specialism to a somewhat biased view of the

needs of the country as a whole. For this reason alone there is a great deal to be said for the general survey of a limited area, especially when the workers and the ordinary people on the spot feel themselves to be partners in the enterprise.

What is the value for a country of an annual report written by the national director of health? The answer is threefold. In the first place it makes a unique contribution to health progress by encouraging local officers to report on the situation in their areas, as they see it, accurately and in simple terms. In this way they feel that they are making a really personal contribution to the records of their country and are taking part in the building of a service. The second point is that the national director himself is engaged in an important and interesting work of correlation, bringing together local information on health, written perhaps in different languages and covering districts with widely varying customs and traditions. It is good that he should feel responsible to his own people and government for reporting on the health situation. His reports will be of value to his whole department as the years go on, as they will enable exact comparisons to be made of the service as a whole, as well as of its more-detailed components, such as maternal and child health or communicable diseases. In addition, it is generally found that annual reports on the health of a community are of great interest and value to neighbouring medical officers, partly for comparative purposes and partly because they sometimes serve to clear up problems that refuse to be contained by man-made boundaries. In producing his annual report the director of health is giving an account of his stewardship. In regard to the expenditure of time and money, he is offering comparison with other activities and expenditures and is encouraging sound rivalry and team-work with other departments of government. In our times the national director of health cannot do his duties in an isolated compartment: health, medical care, education, and environmental progress are inseparable community functions.

There is a third justification for the issue of an annual report by the national director of health. The world has become a small place, and all countries are neighbours. His nation now lives in a parish of the world community. His report therefore circulates among peoples who have joint interests, many problems in common, and activities which can be successful only as co-operative efforts. In the country reviews, contained in Part II of this work, the principal aim has been to set out in simple terms two descriptive accounts of each country and its people. The first part, which is the background information, consists
of a short summary of generally ascertainable facts. The reason for giving this straightforward general information is that it sets the stage, as it were, for the important second part. There have been so many changes in recent years in government and boundaries and in material developments that it seems desirable to sketch a simple, factual background for the review prepared by each country. These descriptions have been obtained from recent books of reference, published reports, and other official and generally accessible records. There are probably still errors of fact and interpretation, as well as gaps in the information presented, and efforts will be made to ensure that future editions of the report are more complete.
Part I

GENERAL SURVEY
CHAPTER 1

INFLUENCES AFFECTING THE HEALTH OF THE PEOPLES

1. CLIMATE
AND OTHER GEOGRAPHICAL CONDITIONS

In order to draw a picture of the world health situation one has to collect and sift a great deal of evidence, statistical and otherwise, about the state of health of the peoples, the prevalence of disease, and the records of death in every country and territory. If this mass of evidence is plotted on a map, the effect is that of a painting of the pointilliste school, in which every dab of the brush, while having no individual significance, contributes to the general effect. In this case, the general effect is quite clear. The darker shades, if they represent the higher levels of mortality, generally show in the tropical and equatorial countries. Indeed the darkening of the map is apparent in the comparison not only of countries but also of parts of countries; even the latter may be large enough to cover several climates. Examples are the United States of America, Chile, China and even Italy.

A closer examination of the map reveals further that those countries which are contiguous and generally share the same climatic conditions have very similar levels of health. This is true also of countries which, although far distant in different hemispheres, enjoy similar climates.

If we compare a health map with one which delineates education we can see that health and education, expressed in terms of literacy and high learning, are closely correlated. If we could draw a map expressing economic development, not in the form of national agriculture, mining or oil production, but in terms of the buying power of average individual incomes, we could see once more an association between health and economic development, and the pattern would be clear enough to eliminate the effect of chance. Health, education and economics do not, of course, influence climate but, as we shall see, they have been themselves largely influenced by it and by other geographic factors.

Even a general, if rather sketchy, analysis of the past influence of geography on health has its place in a document on the health situation as we observe it today. It helps to place present health developments in their proper perspective and, in fairness to those countries in which the present showing appears unsatisfactory, draws attention to the natural handicaps under which they have been labouring. The process may help us to forecast what further progress may be made as well as to appreciate the significance and merit of the advances that have already been achieved.

The health effects of isolation and agglomeration

Apart from the general consequences of man's isolation or agglomeration on his social and cultural development, there were certain immediate and direct results. Complete isolation in the narrow field of public health resulted, after one or two generations without outside contacts, in the loss of acquired immunity to many of the commoner infections. An isolated people may be healthy and their physique sound if the food supply is adequate, but they become increasingly susceptible to certain infections. If traders or seamen from without come into contact with them, carrying the germs of even the milder diseases, an epidemic breaks out in the community and often proves very serious and widespread. This accounts for the heavy destruction of isolated settlements, as, for example, in the islands of the Pacific, as a result of the introduction of measles, or, more recently, the widespread crippling from poliomyelitis among similar populations.

Agglomeration, on the other hand, whether in nomadic tribes or villages, creates more opportunities for immunizing doses of the commoner diseases; frequency of infection and therefore of immunity increases with the size of the population concerned. In the large urban communities the chances are greatest for acquiring infection and building up resistance at an early age. So long as the population of villages had little contact with the large towns, the people remained relatively healthy, but they fell an easy prey to communicable diseases, notably tuberculosis, when their contacts with the towns became frequent. That is why the “sturdy” country recruit
often spent a substantial part of his first year of military service under medical care, while the physically inferior town-bred recruit went unscathed. That is the reason also why in urbanized countries communicable diseases were first regarded as the scourge of large cities, but in the course of time they invaded centrifugally the more remote towns and villages, eventually to dwindle.

As regards tuberculosis, for example, this process was observed in most European countries during the last century and is still going on in many parts of Africa, South America, and Asia.

Infection of the population and resulting immunity are not, of course, the only effect of human agglomeration. Whether in village or town, the congregation of human beings leads to the pollution of the water supply and of the soil, causing water-borne and food-borne diseases to which fly-breeding adds its quota. Human congregation in villages has also increased the establishment and maintenance of parasitic diseases of all types—particularly malaria—by providing a permanent human reservoir. One of the great developments of the past century has been the control by conscious sanitary effort of these natural breeding-grounds of disease.

Urban development has created its own health problems—chronic and acute respiratory diseases resulting from air pollution; occupational diseases, including pneumoconiosis; and psychosomatic conditions and cardiovascular diseases resulting from various stresses of modern life. These ills are too much in the minds of present-day health officers to need more than a passing mention.

Breaking the chain between climate and health

In a general way the present-day distribution of mankind over the earth’s surface, favoured in the temperate zones and to some extent hampered in the tropical zones as regards both health and social and economic development, does confirm the strong association between health and geographical factors. On the other hand, we must recognize that modern techniques are modifying these factors to an increasing extent. Thanks to the increase in scientific knowledge and its application, the chain of influence between climate and health can now be broken at almost any point. Modern transport makes it possible to feed men in barren areas and to furnish them with dwellings comfortable in either glacial or torrid zones. New methods of medical care are protecting human beings to an increasing degree against the various organisms to which they have been a natural prey.

For all practical purposes the living environment of man has been controlled and improved beyond measure by the development of mechanical devices. The range of the habitable world is being extended year by year by developments in central heating and air conditioning and protection by modern insulation against excessive heat and cold. New methods of land irrigation devised by man’s ingenuity and perseverance have greatly enlarged the scope and range of food production. Water has been harnessed for the production of electricity, and for land irrigation in zones which would otherwise be arid. The sea itself has been swept out to provide more fertile land; it has been explored for all its treasures of food and is now being brought into subjection for the production of unlimited heat and power.

2. ENVIRONMENTAL CONDITIONS

The influence of environmental conditions on the health of an area has a direct and an indirect, or secondary, effect. The provision of uncontaminated water to a city results directly in a fall in the water-borne diseases such as typhoid fever and other enteric infections. The secondary effect is dependent upon the use made of health services by the citizens.

The relation of better health to improved environment has been so well established that it scarcely needs further substantiation. A study of the falling death and sickness rates during the past century illustrates either that there is a direct relationship to the awakening which took place during this period in sanitary science, or that both trends have been the result of some common factor, such as marked social betterment. The evidence strongly suggests that there are many direct relationships: for example, in the city of Philadelphia before 1906 the rates for typhoid fever reached heights of between 600 and 700 cases of sickness per 100,000 population. In 1906 filtration was installed in the city water supply and four years later the typhoid case rate had dropped to less than 100 per 100,000 population. The practice of chlorination was begun in 1913 and since that time the annual sickness rate has been invariably below 50. Today, it has virtually reached vanishing point.

In the United Kingdom of Great Britain and Northern Ireland a similar direct relationship can be observed. Not only have the large cities of the United Kingdom been supplied during the century with comprehensive water and sewage-disposal systems, but at the present time there are few communities of more than 2500 people that do not have a public...
water supply and, in most cases, a sewerage system as well. A constantly increasing number of smaller towns and villages are now served also by regional systems of water supply and drainage. These sanitary improvements have had a direct effect on the typhoid death rate. During the period 1901-05 the average annual death rate for typhoid fever in the cities of over 8000 population in the Registration Area was 34.6 per 100,000. In some cities it not infrequently rose to over 100. By 1915 the rate in all the cities of the Registration Area had fallen to 11.6. In 1930 it was 2.9 and by 1948 it had dropped to only 0.1. It is obvious that the proper handling of water supplies and sewage disposal has been responsible for most of this decrease, although some of the improvement is of course due to better methods of treating the disease, to vaccination, and to better general environmental sanitation.

Examples of this kind could be multiplied by reference to progress in environmental sanitation in many of the world’s great cities in the past generation, and in the extension of water supplies to many towns and rural areas. Certain conditions must be fulfilled, however, before a supply of pure water can exercise its full secondary effect. In the first place, it must be readily accessible to the homes of the people. If a housewife has the choice between a contaminated well at her doorstep, and a standpipe in the village centre or even by the roadside a hundred yards away, she will choose the well, so long as its water is clear and palatable. Her choice will be fortified if the public supply has been chlorinated or treated in such a way as to cause an unpleasant taste or smell. She will also use—for washing at least—soft rain-water from a nearby tank in preference to hard water from a pump down the street. The first requirement is therefore accessibility.

The second requirement, which follows close on the first, is convenience in use. A family is not likely to maintain cleanliness readily—of body, clothing or premises—unless the water is supplied by a pipe inside the house to a sink fitted with a drain. The maintenance of cleanliness and health is immensely eased if there is some means of heating water in the house.

In the greater part of the warmer climates of the world provision of this kind is hardly more than the shadow of a dream. In the colder zones it comes near to being a necessity of life. In the economically less developed countries the present position is far from encouraging. There are wide variations in the extent to which cities are providing safe water. Most of them have at least limited piped supplies protected by chlorination, but there are many towns in the warmer zones where the public supply is unsafe. Frequently its quantity is also poor and too limited to reach the suburban slums—just where it is most needed. The result is that many of the inhabitants of these rapidly growing, unplanned, crowded districts have to go long distances to get water from public taps; or, worse still, they are supplied by tank trucks or water vendors. Others, especially in the smaller towns, have to get their water from unprotected wells or polluted streams. In some recently swollen African cities health conditions are often worse than in the rural areas from which the people have migrated, largely because most of the water-supply and waste-disposal systems are quite inefficient. Even when a system has existed, it has generally failed to keep pace with the growing needs. Large numbers of these city populations live outside the controlled limits and use unfaced wells which are often close to latrines. It is small wonder that the incidence of enteric infections is very high indeed. A great deal of infection by amoebic dysentery in the African towns is related to want of food control; and milk supplies are unsafe because of the water used for cleansing, or because of adulteration.

In Latin America the recent phenomenal growth of urban areas has led to great shortages of water supply and sanitation. In the larger cities from 10 to 30 per cent. of dwellings are without these facilities, and, of course, the position is much more acute in the hastily built slum dwellings. Many areas quite recently built are supplied “collectively” with water—that is, from a water tap in a common yard. The condition of small towns and villages in Latin America and Asia is often characterized by poor housing, deficient water supplies and electricity, and in many areas by a lack of settled community life. Almost every Latin American country has introduced a low-cost housing programme, but as a rule the slums grow faster than the housing projects. On the other hand the health and medical care services are very much better in urban than in rural areas, and quite a number of towns show a slow fall in the indices of sickness. For example, infant mortality rates during the past ten years in Mexico City, São Paulo and a number of other crowded areas have fallen for the first time below 100 per 1000 live births. Many of these cities have also shared in the general decline of mortality from tuberculosis. There is no doubt that the chlorination of water supplies, vaccination campaigns, the use of DDT, the expansion of medical services and health education have all contributed to this material improvement.

The striking contribution which the countries of the Eastern Mediterranean have made to the health of
their peoples during the past decade or so has been in the conquest of major epidemic diseases. There have been notable victories over cholera, but the most sustained progress has been made against malaria. Village and small-town populations are still gravely hampered by debilitating endemic diseases which can be cast out only by a marked improvement in housing and other environmental conditions and by the widespread impact of health education. There is an urgent need to train and employ far more medical, nursing and auxiliary personnel.

South-East Asia is an immense area in which the variations in culture and tradition and in land and climate are so great that it is hard to generalize. At the same time there are certain broad influences affecting the health of the peoples that can be woven into a common pattern. On the environmental side the position has been complicated by the phenomenal growth of population during the past two decades: Calcutta has grown from 1 197 000 inhabitants in 1931 to 2 548 677 in 1951; Delhi from 348 000 to 1 191 104, and Karachi from 248 000 to 1 009 438 in the same period. And so the tale is being told with ever-increasing urgency. Malaria still holds the first place as a maker of poverty, depression and chronic ill-health of body and mind. The control of tuberculosis is rendered difficult on account of the poverty of the people, their wretched housing conditions, lack of sanitation and open spaces such as parks, and overcrowding in both town and countryside.

The association between bad housing conditions and the people's health is less obvious in the warmer regions than frank disease and malnutrition. Lack of shelter does not produce immediate suffering, and even overcrowding is mitigated by the fact that many activities are normally carried on in the open air. Bad housing conditions are widespread, and there are broad, serious effects of crowding, want of ventilation, noise, dirt and infestation which deserve special attention.

In the temperate and colder climates of the world, environmental and housing conditions are on the whole better than in the tropical and subtropical regions. One obvious reason for this is the fundamental need for warmth and running water, as well as for reasonably solid housing construction. These conditions are faithfully reflected in good general health, low infant mortality rates and reasonable freedom from the common infections and endemic diseases. A distinctive feature of the northern countries is imaginative planning of towns and their surrounding districts, and the effective control of unauthorized construction of every kind. Environmental conditions in some southern countries, such as Australia and New Zealand, correspond more closely with those in countries economically comparable in the north than with conditions in South-East Asia, although migration to the cities is causing some anxiety in town planning.

A slum has been defined as "a residential area occupied predominantly by poverty-stricken people living in housing which is so deteriorated, so sub-standard, or so unwholesome as to be a menace to the health, safety, morality, or welfare of the occupants and the adjacent community".1 The most important factor in the creation of a slum area is poverty, which drives people into low-standard housing and so exposes them to the depressing influences of structural decay, lack of environmental services, and, as a rule, gross overcrowding.

3. GENERAL INFLUENCES

Social, educational and cultural background

In the brief reviews of individual countries which are included in this report an attempt has been made to provide an outline of the social, educational and cultural background of the people. It is virtually impossible to give indications of progress in terms of figures except in rare instances. Social conditions have to be judged in relation to their setting and whether this is an agricultural or primarily an industrial one. It is abundantly clear that one of the most urgent matters to be studied on a world basis today is urbanization. From a health point of view, the movement from rural to urban conditions requires both a mental adjustment to the rapid change in the way of life and a physical adaptation to changes in housing, distance from work, methods of transportation, and so on.

Hindrances to social progress

The greatest hindrances to social progress—disease, ignorance and poverty—are being attacked by governments throughout the world with increasing vigour. When conditions are estimated by the usual indices it is apparent that many of the diseases that cause sickness, misery and economic loss are already coming under control.

As regards ignorance, general advances have been shown recently in an imperfect way by estimates of

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1 Graves, L. M. & Fletcher, A. H. (1941) Enforcement and subsidy in the control of slums. In: American Public Health Association, Committee on the Hygiene of Housing, Housing for health, Lancaster, Pa, p. 28
illiteracy. Fundamental education, on the other hand, is introducing knowledge and skill in practical living before regular schooling is established.

The advance against sheer poverty has been very uneven, although the world has made great strides in both industrial and agricultural production. In the less developed areas, however, progress has been hampered by the rapid increase in population, the distractions of war, and the uneven balance between industry and rural occupations.

Social security measures, better provision for conditions of work and various improvements in the general welfare have had less effect on isolated and impoverished rural groups. But there is a growing recognition of this anomaly and many governments are making a new effort to deal with it, partly by improved agricultural measures, partly by providing better conditions of land tenure and partly by a general advance in health and social security.

Cultural effects based on traditions and beliefs

The struggle against disease, ignorance and poverty has been retarded by the persistence of superstitious beliefs and practices. The association of disease with an offended deity is an almost world-wide example of this, and substitution treatments are still maintained in many advancing communities. The path from magic to medicine has often been slow and difficult.

The introduction of machinery has often been resisted partly on the ground of its breaking of ties and customs. In more recent years, opposition has developed largely on economic grounds, especially when the machinery tended to supersede traditional handicrafts in the home. In this case the fear of poverty through unemployment has generally been the main consideration.

Adjustment to the machine age is a long process of social education. Some of the most urgent social problems and needs of the present time are not of long standing but are associated with the very process of change and development. In all parts of the world men seem to know more about the production of machines than they have yet learnt about the effects that these machines will have upon their culture and their health.

More recent problems

In this age of machinery and atomic energy, the impact on health of technological discoveries has, at times, been considerable. One of the most striking problems is the one which has become associated with the use of atomic energy. Fortunately, scientists themselves have been awakened in time to the risks deriving from radiation—for example, the contamination of the environment by radioactive material and the occupational exposure of certain groups or workers, such as atomic energy workers, doctors, radiologists, dentists and nurses. Possible injury from an unnecessarily extensive use of x-rays and other types of radiation for the diagnosis and treatment of disease has also received its share of consideration.

The machine age has produced many other troubles that are only gradually being appreciated, such as the emission of noxious gases, the production of "smog", the general atmosphere of noise and bustle and the increasing strain of city life. What has been learned in the countries which became industrialized at a relatively early period can and should be applied to nations which are only just entering the industrial phase. The "assisted take-off" by which a number of countries are likely to pass into their own industrial era ought to carry with it a thorough knowledge of the social and cultural hazards that accompany too rapid mechanization.

Rural and industrial communities: standard of living

The rural community. It has been indicated that it is not so much the change from rural to industrial life that upsets the balance of persons and communities, but rather the stresses involved in making the necessary individual and family adjustments to the new conditions, especially when the development takes place in the rapidly growing industrial cities.

In the older and simpler communities support for the aged and the sick, the mentally sick and the mentally handicapped, is generally found within the village community. When migration to the cities occurs, these facilities, simple though they be, are lost, and there is often an unhappy time-lag between the period of that loss and the acceptance of responsibility by the government. Every government is struggling with these difficulties, but the transition from simpler to more complex organization, from lower to higher standards of living, is a difficult process which requires all the available resources of a people.

In some ways the relation of health to the standard of living is a very direct one. In agriculture, for example, mass disease in the rural population means a reduction of manpower. In 1942, for example, there were at least two million cases of malaria in Greece. In 1949 there were 40,000. The scientific operation against malaria resulted in a saving of working days per man which was the equivalent of
adding between 100 000 and 200 000 workers a year. These estimates do not, however, reflect the darker shadows of this picture. Not only are days lost through manifest sickness from malaria and other diseases, but even the relatively minor infestations which do not cause actual absence from work—or at least only occasional absence—constantly produce depression and inefficiency and in every sense limit capacity for work. One of the first effects of a successful campaign against disease is not only an increase in working capacity but a direct increase in interest and active co-operation on the part of the people.

In the past quite a number of countries have been hardly aware of this great burden of lethargy and mental sickness until the introduction of mass attack on disease practically changed the character of the people and made them much more effective as citizens and members of both the local and the national community.

Agriculture is essentially an occupation with peaks of activity requiring a great deal of flexibility in the use of labour. One of the hazards that applies to conditions of employment on the land is the comparative lack of security. Droughts are all too common in the subtropical regions of the world; floods are an even worse threat to crops and stock and, in India and China particularly, are a serious hazard to agriculture and other industries. Disease of plant and animal life is itself a great cause of insecurity, especially where there is no developed system of quarantine or notification; and, finally, the want of storage and transport facilities often results in a failure to distribute agricultural produce while it is still in good condition for sale.

The industrial community. Industrial conditions have now become stabilized in many countries. Hours and conditions of work, the welfare of workers, compensation for sickness and injury, the provision of facilities for recreation and holidays with pay are now well established.

It is much easier to create stable standards of living in the large, highly mechanized factory than in the small industry or handicraft jobs. In many of the less developed countries of the world cottage industries are far in the majority. This applies to many large and populous areas of the world, such as India. One of the inherent difficulties of small industry is that of control by inspection, and this applies to both health and other conditions of work.

In principle, as a matter of both health and fairness, the eight-hour day has been widely accepted, and a further reduction is frequently permitted where the workers are employed in dangerous or unhealthy occupations.

The maintenance of employment. The maintenance of full employment is a matter of the utmost importance to governments in the rapidly developing countries. In many countries undergoing industrialization the only unemployment is that which results from change of occupation and not from lack of available work. Seasonal fluctuations do occur, but not to the same extent in industry as in agriculture.

Migrants. The condition of migrant workers is always less satisfactory and may involve great hardship and mental strain. The difficulties include housing, education and, on occasion, inequality of treatment.

Child labour. The minimum age for employment is usually between 12 and 16 years. In areas where there is a great deal of family poverty, many children are employed in villages and rural districts as early as five or six years of age. The inflexibility of this situation has given rise to two attempts to mitigate the evil: first, the offer of certain forms of social assistance through the schools, or family allowances, and, secondly, experiments with schemes of what is called practical education, which enable the children, while attending school, to contribute to some extent to their own support.

Women's work. A considerable proportion of agricultural labour in Asia and the Eastern Mediterranean is represented by women working for their families on the land. In industrial areas of all kinds there is a substantial percentage of women engaged in part-time or whole-time industrial employment. In countries where industrialization is in process, special regulations have sometimes tended to keep women out of factories, where conditions are relatively good, and to leave them in unregulated jobs, where conditions are almost certainly much inferior and wages are smaller.

One of the less unsatisfactory means of adjusting this balance is to provide special priorities in the social and health services, and there is a widespread feeling that maternity protection should be borne by the community.

Standard of living. There are many special problems related to the standard of living. The first and the most obvious is insufficient income, which may arise through sickness or economic difficulties, or, as is only too frequent at the present time, an increase in the cost of living. The depression of living standards has given rise, at the instigation of many governments, to a number of social services, including
insurance arrangements, compensation, provision for pensions, etc.

Persons under disability. Problems of the handicapped raise serious issues, especially when the handicap involves either a total inability or a limited capacity for work. Blindness in some societies is a matter of great gravity, and a good deal of it could have been prevented by timely health measures.

Finally, old age has begun to take its place in social organization. From time immemorial non-industrial communities have been traditionally responsible for the care of their own aged. In modern industrial communities certain difficulties have arisen, partly owing to the increased expectation of life. In addition, the lack of domestic help and the small house accommodation have added to the difficulties of families in caring for their own aged relatives. For these reasons compulsory old-age insurance has been introduced in more than 30 countries and a pension is assured in many.

Diet and family budget. Family budgeting is a matter of great importance. The main difficulty arises from the fact that budgeting is, at best, a complicated and difficult process. The purchase of food and other goods often follows traditional lines and is not related by the people themselves to their immediate needs. A poor diet may be the consequence of traditional eating habits and beliefs and partly due to sheer poverty. It is clear that any hope of improving the standard of living in terms of diet depends on educating the people in healthier practice and in estimating the best budgeting on the available income. A low standard of living is the end-product of a vicious circle, poverty leading to malnutrition and eventually to ill-health, which aggravates the initial poverty.
CHAPTER 2

THE STATE OF THE PUBLIC HEALTH

1. THE MEASUREMENT OF HEALTH

One of the fundamental questions to which an answer is anxiously awaited by the health administrator is: How should the state of the public health be measured? No satisfactory answer has yet been put forward. Indeed, the problem is difficult in the extreme because we do not yet know how to assess objectively the state of health of even a single individual in the community. "Health", said Galen, "is a sort of harmony", not a fixed quantity but one changing as the quality of nature changes from birth onwards. Equally true is it of the health of population groups or nations which, from younger age-structures in the less developed areas or countries, have passed or are passing into population structures with a preponderance of the aged. Furthermore, the term "health" conveys something like the meaning of "wholeness" since, if the individual is to be healthy, every part or unit of which he is composed must also be healthy and capable of meeting the demands made upon him. As Haven Emerson put it, "We see two healths: that of the individual and that of the community; i.e., personal and social health, necessarily interdependent but not wholly synonymous. These two healths remain distinct, not identical, social professional and intellectual experiences and administrative disciplines".1

In the post-war years considerable interest has been shown in the study of the problem of measuring levels of health. This question has arisen from the requirement, under the Charter of the United Nations, that the United Nations shall promote higher standards of living. How is one to measure whether the standard of living or level of living of one community is higher or lower than that of another, and whether the level of living for a community is showing improvement? So far no single index or measure of the standard or level of living has been accepted, and it is suggested that the problem should be approached in a pluralistic manner (i.e., by considering separately the various components of living representing values which could be expressed quantitatively). Among the components suggested, "Health, including demographic conditions" appears first in that list. This indication has set health workers thinking on how best to devise suitable measures for the state of the public health.

The definition of health is wide, embracing physical, mental and social well-being. While health statisticians have devised several indices to compare some of the negative aspects of physical health, it is to be noted that so far no suitable index has been put forward to qualify the status of a community's mental health or its state of social well-being. Indeed, a study of the health and demographic component of levels of living raises several difficult and as yet unsolved problems, demanding an examination of the many elements of the health component itself. For example, the various health statistics in current use have been separated into three groups:

1. those associated with the health status of persons and populations belonging to a given area;
2. those relating to physical and environmental conditions having a more or less direct bearing on the health status of the area; and
3. those concerned with health services and activities directed to the improvement of health conditions.

Within each of the above three classes one might seek indicators for different aspects of the problem on the principle that comprehensive indicators would be of great value both for international comparisons and for the assessment of changes over a period of time within a given area, supplemented by appropriate special indicators of various types and levels of aggregation. On the available evidence it is hardly practicable to recommend categorically any particular comprehensive indicator, but the following were suggested as possibilities:

1. Percentage of deaths of persons of 50 years and over in relation to the total deaths. Using 50 years as the limiting age, it is clear that, hypothetically, if all persons lived to 50 years of age, the index would

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be 100; if, on the other hand, no one reached that age, the index would be zero. The primary data are comparatively simple to collect and the method of construction is straightforward. In the less developed countries there is a preponderance of persons under 50, and accordingly the percentage of deaths at 50 years and over is lowered. This "proportional mortality indicator" has many advantages over the remaining indices.

2. Expectation of life. This is a comprehensive figure but, because it is related to censal periods coming as a rule at ten-year intervals, its usefulness is rather limited in public health administration. The index is available at present for only a small number of countries.

3. The crude death rate. This rate is conditioned by age and sex distribution, yet in spite of this limitation death and birth registration may be the only sources of data accessible in a large number of countries.

It is widely agreed that the expectation of life at birth, at one year, or at any other age quoted is theoretically the best indicator; but it is sorely restricted to a few countries and to infrequent intervals. For practical purposes the "proportional mortality ratio" offers the greatest possibilities in this range.

Of the specific health indices the infant mortality rate is valuable. This is especially true of the period from one to eleven months, because it is less influenced by pre-natal and intra-natal causes of death. On the other hand, it would not be so widely obtainable as the ordinary infant mortality rate.

The value of the death rate for communicable diseases is limited because medical certification is not reliable in many parts of the world. The total death rate in the 1-4 age-group might be a useful special indicator where accurate age-recording justified its use.

The indicators mentioned above, with the partial exception of the first, are, on the whole, negative indices of health. It would be of great interest and importance to secure some readily obtainable indicators of positive health. The question has been widely canvassed but so far no indicators that will give a broad picture, yet with sufficient detail, have been agreed upon. Considerable advances have been made, however, in the study of physical and environmental conditions and their bearing on levels of health. One of the most interesting on which information has been secured from the returns of a surprisingly large number of countries is the water supply. This includes the number of people in cities and elsewhere receiving a piped supply in relation to the total number of people, the extent to which water supplies are purified and the general adequacy of supplies. This information brings far greater response and is obviously far more accurate than any returns on the extent to which the water-carriage system is used for sewage disposal, the methods of dealing with refuse and other waste material, and the pollution of rivers.

In addition to this it might well be possible to devise an index of the level of housing and even of town and country planning which would give satisfactory data about positive health. This information has been presented by a considerable number of territories in which industrial development has not taken place so far, but it has not yet reached a stage which would permit accurate figures to be compiled.

2. SOURCES OF STATISTICAL INFORMATION

Until a decade or so ago health administrators generally had recourse to two major sources of information for numerical study of community health problems:

1. Legally registrable records of vital events, such as births, deaths, marriages, etc. From these have been derived fertility as well as mortality rates, by age, sex, geographical area and cause of death. One of the most commonly used yardsticks of health—namely, the infant mortality rate—was obtained through these sources, and in more recent years refinements and progress in the method of recording causes of death have permitted the carrying-out of special studies on individual disease problems, as well as the separate examination of neonatal and perinatal mortality. Such indices as expectation of life or the number of productive years of life lost through premature death have also been derived from these sources.

2. The notifiable-disease reporting system is primarily established for controlling the spread of infection and giving relief to the person affected; and it has accumulated a good deal of valuable epidemiological and statistical information by which preventive measures could be improved and current epidemiological records of the history of these diseases built up.

These data belong to the broad field of sickness in the community, but have never been regarded as a reliable index of the level of total sickness, firstly, because the number of diseases for which information is notified is relatively small in comparison with the whole multitude of diseases, communicable or other-
wise, affecting the community; and, secondly, because in its operation the notification system is defective (for example, for some diseases only a minor fraction of the total occurrences is brought to the notice of the health administrator).

In view of the growing recognition of the need to assess the state of ill-health in relation to the economic and social well-being of the population, there is an increasing desire to obtain a deeper understanding of the total sickness experience of the community. We need precise information on how many persons fall sick in each age, sex or occupational group, how frequently each person is sick, for how long, how severely, and from what diseases. One requires to know also how much is spent on the care of the sick and what are the yet unmet health needs of sick persons in the community. The desire to obtain information on these aspects has opened up a broad, highly complicated field of morbidity statistics, but it is the one in which considerable advances are being made. The problems being tackled are those of arriving at suitable definitions and terminology as well as of administration—that is, devising ways and means of obtaining the required information according to set plans, especially by sampling procedures.

As an initial step, the following broad classification of countries by stage of development has been adopted, no attempt having been made to allocate individual countries within this classification:

1. countries with no complete enumeration of population and more or less deficient in public health and vital registration systems;
2. countries with a complete or partial census and with a well-developed public health and vital registration system for parts of the population (e.g., for large towns) but not for all areas;
3. countries with a complete census and well-developed facilities for obtaining morbidity statistics.

The sections of the population within a country or area that would be covered by different methods of morbidity ascertainment are as follows:

1. whole population of country (or representative sample of it);
2. population of selected locality (or sample of it);
3. selected types of persons in whole population (or samples of them);
4. persons applying to selected health services;
5. all sickness at one point of time;
6. all sickness during a given period of time;
7. selected diseases at a point of time and (d) selected diseases during a given period.

Among the various kinds of morbidity statistics a few important ones only can be considered in some detail, with special reference to their range of usefulness and their advantages and deficiencies as sources of information on morbidity.

Sickness surveys

With the object of obtaining the maximum information through sickness surveys many local and national studies on morbidity have been undertaken in the past. The experience so far gained in the United States of America, Canada, England and Wales, Ceylon, Denmark, and Japan has made it abundantly clear that the survey method, covering either a whole population or more usually a representative sample of it, is a promising method for obtaining various types of health statistics. It also broadens the interpretative base for morbidity data obtained by other means and contributes to planning health services and health programmes. The survey method is not only widely applicable in the more advanced countries, but may also be employed effectively in countries where the possibility of obtaining morbidity data from registration or record systems is extremely limited and where the same organization could be responsible not only for the planning of health services but also for conducting morbidity surveys to further this object.

Among the advantages of the survey method are the following:

1. it makes it possible to link morbidity data with a variety of social and economic conditions;
2. the population covered is automatically defined;
3. it offers a means of linking the data in existing medical records with those obtained from the general population;
4. if probability sampling methods are employed, the information can be obtained with precision at the smallest possible expense;
5. the method is flexible and can be utilized to provide answers to a wide variety of questions of practical administrative as well as scientific importance; and
6. if the objects of the investigation are not continuous, once the specific aim has been satisfied the survey can easily be stopped and the trained staff turned to investigate other problems.
The survey method requires the services of experts in sampling theory, in the planning and operation of field surveys, and in the analysis of morbidity data.

**Census enumeration of certain defects**

The data obtained by this method are in many cases underestimates of the real incidence of such defects within the community; but in certain countries where such defects are widespread, and where no other sources of relevant statistical information are available, census enumeration could be useful.

**Notifiable communicable diseases**

As has been stated already, information collected through notification systems in various countries prevents accurate comparisons of the real incidence of the disease; the incompleteness of notification affects to a varying and sometimes high degree the value of statistics of infectious diseases. The degree of incompleteness varies considerably between different diseases, between different countries and parts of the same country and from one period to another. Furthermore, the criteria by which these diseases may be defined in various countries for the purpose of notification and the variety of procedures used for correcting diagnoses and avoiding duplication of notification detract from the value of these data.

**Hospital in-patient and out-patient records**

It is generally agreed that hospital case records are important sources of morbidity statistics because they are actual or potential archives of precise and comprehensive diagnostic assessments of laboratory and autopsy findings, and of information about the past medical history of the individuals concerned. Difficulties of interpretation arise, however, because of the highly selective character of hospital morbidity data, and generalizations about the population from such selected material are difficult because the amount and direction of bias is not known. The population exposed to risk is also not known. Nevertheless, morbidity surveys can provide a useful link between the general morbidity in the population and the selected morbidity treated in the hospitals. For some areas of the world, hospital records may be the only source of information, and, provided due caution is used, a good deal of knowledge of the prevalence of sickness in a community can be obtained from them.

**General practitioners' records**

Attempts have been made, especially in the United Kingdom, to utilize general practitioners' records, both as sources of general morbidity statistics—as a means of carrying out longitudinal studies on families—and to obtain statistics on special diseases. This source provides information about the incidence of disease and injury as seen in general practice in relation to the sex and age of the patients. It also supplies data about the proportion of these illnesses which give rise to admission to hospital for in-patient care. Some practices provide information about the occupations of patients as a basis for studying morbidity in relation to occupation.

**Social security and national health insurance records**

Social security records are among the oldest sources of morbidity statistics. Although they have been used for this purpose for many years, their use has not until lately been anywhere on an extensive scale. They could provide useful information on sickness connected with certified incapacity, particularly in regard to morbidity rates, seasonal variations, and occupational distribution. In a number of countries, such as England and Wales, France, Germany, Italy, Norway, Portugal and the United States of America, the national committees on vital and health statistics are actively engaged in studying the utilization of these records.

It is to be emphasized that insurance statistics provide information on the sickness of a selected population, and the sickness reported is of a special kind—that which causes absence from work, usually for a minimum specified period. Insurance statistics do not therefore provide morbidity or mortality data representative of the total population, but, within the limits described above, the information does cover a wide range of sickness reported in a routine manner among a large group of people.

**Records of health and welfare centres and educational institutions**

Records of medical examination at health and welfare centres and educational institutions (including colleges and universities) constitute an important source of morbidity statistics. There is the additional possibility of making use of these records for follow-up studies of the physical development of children and of the progress of defects and diseases.

**Records of sickness absenteeism in industrial, civil service, and other occupational groups**

Morbidity statistics from this source also possess considerable value. But there are pitfalls in the
Sickness and recruitment records of the armed forces

The sickness and recruitment records of the armed forces could be utilized as sources of morbidity statistics, with reference to: (a) obtaining data on a cross-section of persons in young-adult age-groups classified by degree of physical fitness and according to body measurement; (b) having continuous morbidity data on this particular section of the population; and (c) preparing follow-up (longitudinal) studies.

Use of sampling techniques in measurement of health

It has already been shown that in some surveys, instead of covering the entire population, a sample alone is studied. Indeed, for large populations a total coverage is generally not expedient because of the prohibitive cost involved, the want of trained staff, and the long waiting period before the entire mass of statistics can be analysed. When there is a need for quick but elaborate information on various items of health at frequent intervals, the use of sampling techniques is preferred. We can obtain more accurate information on the population with a few reliable, trained investigators working on a properly selected sample than would be possible with a large team of untrained investigators employed on a full-scale survey. There are, of course, certain items of information which cannot be got from examining a sample, but then we must balance the probable inaccuracy of the sample against the economies effected. The error associated with an estimate obtained from a sample can be calculated, and we can then decide whether or not we are prepared to accept the error. For this reason, in almost all branches of statistical studies on human populations, sampling procedures are gradually replacing complete surveys. In the recent past, considerations of accuracy and of keeping down the cost have led to rapid advances in the technique of sampling and in the standardization of methods and terminology. Considerable interest in this matter has been shown at the international level, and certain recommendations have been issued for the preparation of reports on sampling surveys and for the standardization of terminology so as to ensure clarity, comprehensiveness and international comparability in the reports.

3. TRENDS IN THE STATE OF HEALTH OF VARIOUS COUNTRIES IN THE COURSE OF DEVELOPMENT

With the progressive development of countries there has been a general trend towards the improvement of their state of health. This has been particularly striking in the decline of infant mortality and in the increase in the heights and weights of growing children, due no doubt to a rise in the standard of living and to a general improvement in nutritional status. In many countries the steady advance towards the conquest of some of the most serious and widespread communicable diseases has been a feature of recent development. Nevertheless, industrial progress, now as in the past, carries its own risks, especially when the speed is abnormally high. The movement of people in the direction of new sources of employment requires to be carefully watched, in case it should outrun the capacity for planning.

Overcrowding of families in cities is a danger to health in an immediate physical sense. As the populations of countries increase, there is a growing movement from rural areas to towns. This is greatly accelerated when rapid industrial progress takes place. Unless careful and far-sighted planning is undertaken in good time, health conditions deteriorate progressively with urban growth, as was evident in the great industrial cities and manufacturing towns of the West European countries in the 19th century. It may be said in general terms that before the 20th century health conditions throughout the world, as reflected in general and infant death rates, were worse in urban than in rural areas. What is more, these conditions in the crowded unplanned cities actually deteriorated as time went on, until strong environmental health measures were taken. The inhabitants of crowded areas suffered more from recurrent epidemics of the major diseases like cholera, plague, yellow fever and smallpox than did their rural neighbours.

Since the beginning of the present century a remarkable change has taken place in the more organized industrial towns, to such an extent that in the majority of those countries for which reliable data are available the general levels of health are rather higher in the major cities than in the country as a whole. This improvement has been due in the first instance to the great advances in environmental sanitation which took place towards the end of the 19th century, and in the second place to the rapid developments in the personal health services which are an outstanding feature of the present century. Unfortunately, the
mental advances have frequently failed to keep pace with the needs of the growing population, and personal services have lagged far behind. There are indications that the community programmes of rural areas will soon catch up with the town services in efficiency and in their combined contribution to health and welfare. Without doubt the unfavourable state of the growing city populations is due in part to sheer lack of financial resources and the high cost of environmental sanitation in congested areas. But there are other elements. In many cases the health needs have been positively crowded out by the industrial scramble, and what ought to have been well-planned services to promote health and prevent sickness have now become costly and less efficient attempts to remedy harm already done and to restore what should not have been sacrificed. The result in a large number of the urban areas of the less developed countries is that disease and chronic ill-health still impose an enormous and unnecessary burden of cost, misery, maladjustment and wasted productive power.

Some causes of ill-health have been more prominent in rural than in urban districts, and are actually brought to the great towns by rural immigrants. This is broadly true of trachoma and a number of intestinal parasites. Other diseases, such as malaria, bilharziasis and yaws, tend to diminish more quickly in the cities because of better control of vectors and, to some extent, earlier and more effective medical treatment. The result in a large number of the urban areas of the less developed countries is that disease and chronic ill-health still impose an enormous and unnecessary burden of cost, misery, maladjustment and wasted productive power.

The intestinal diseases spread by contaminated food and water are also found more frequently among urban populations. The great wave of industrial development brings special dangers in its wake. The larger factories, and those which are well-established in industrial towns, are increasingly subject to inspection and regulation on both health and engineering sides. In the more developed countries the provision of medical facilities is usually compulsory. In the growing industries, however, and especially in expanding small factories and workshops, protective regulations are much less common and are difficult to enforce.

As time goes on, more and more governments are realizing these dangers and are taking measures to prevent them. The medical care services in cities are improving, and there is a healthy, growing demand for them. The ever-present danger is that these services will fail to keep pace with the march of urban development and progressive industrialization. The loss of employment from sickness may readily cripple an industrial development.

In summary, it would be fair enough to make a generalization by saying that the well-being of countries in the course of development at the present time depends on a number of conditions which at best reinforce one another. These are as follows:

1. Industrial development is sufficiently orderly to permit a parallel increase in the social and health services, both personal and environmental.

2. The growing population is absorbed by industry in a steady flow and does not flood the area.

3. The incoming people are able to provide themselves, or are provided with, good low-cost housing which does not absorb too high a proportion of their income.

4. The incoming population contains a good proportion of strong and capable workers and is not overwhelmed by economically low-grade and ill-nourished immigrants, whose occupation of areas is a burden on the housing and health services and so contributes less than nothing to the economy.

5. The resident population, as development proceeds, is a well-balanced cross-section of a normal community, i.e., in age and sex distribution.

6. There is a reasonable prospect of regular, as opposed to seasonal or sporadic, employment for the incoming people.

7. The arrangements made for immigrants include reasonable working conditions under well-enforced regulations, proper hours of work, and an absence of exploitation, especially of women and children.

8. Residential planning offers opportunities for community life and community activities, such as religious and social institutions, schools, shops, and adequate transport.

Reduced mortality at certain ages

As has been shown, there are important tests of healthy and ordered development. Among the signs of progress, a considerable number of countries have been able to show a declining general death rate and
a striking fall in infant mortality. In addition to this, the reduction in endemic diseases and the decline in the common infections have been demonstrated by a welcome diminution in death and disablement in the age-group 1-5 years.

It is perhaps hardly necessary to draw further attention to the remarkable and widespread reduction in infant mortality, especially in the period from 1 to 12 months, and to point to its association with the steady improvements in both environmental and personal health measures. Successful campaigns against the great scourges, such as malaria and tuberculosis, have improved the prospects of life and health both in childhood and in early adult life. Reduced mortality in childhood first became notable in economically advanced countries with the conquest of some of the commoner infectious diseases and the reduction in the killing powers of others. This has been most clearly demonstrated in scarlet fever and diphtheria, as a result of modern methods of treatment, and, in more industrialized communities at least, measles and whooping-cough have followed the same trends. The net result is that the childhood age-groups have shown in the more developed countries a remarkable reduction in both mortality and sickness. The reduced mortality from tuberculosis of the bovine type has been a very gratifying improvement in the childhood period, and in many countries the steady disappearance of glandular and joint infections is a most promising trend. The period of infancy still gives rise to difficulties and the adolescent community suffers still, although the prospects are very hopeful. The reduced mortality in general from tuberculosis and the shift in the incidence of the disease to the older age-groups have been remarkable developments, although one must remember that modern treatment has in many cases reduced the deaths without affecting to the same extent the prevalence of the disease. In many parts of the world communicable diseases still constitute an important cause of mortality and morbidity but the general trend is towards steady improvement, especially in the younger and more susceptible ages.

Reduction in mortality from certain diseases

Malaria. One of the most remarkable improvements in the world health situation has been due to the widespread control of malaria. As a rough approximation it may be said that today’s figures of prevalence and mortality are half what they were twelve years ago: the present number of deaths stands at 1.5 million and the total number of cases at about 150 million. In practically all the countries where malaria still constitutes a public health problem programmes of control are now being carried out; indeed, in regions other than Africa most countries have introduced nationwide schemes. In six countries of Asia—Afghanistan, Burma, Ceylon, India, Indonesia, and Thailand—recent estimates indicate that control programmes have already protected 121 million people out of the 250 million living in malarious areas. Pilot projects have been started in a few countries and territories of Africa, including French West Africa, French Cameroons, Liberia, Nigeria, and Tanganyika. The main object of these schemes is to collect information for planning large-scale anti-malaria programmes. In some instances a fresh approach has had to be made because in certain districts anopheline mosquitoes are developing resistance to insecticides. Nevertheless, practically complete eradication of the disease has been secured in Italy, the United States of America, British Guiana and French Guiana, large areas of Argentina, Ceylon, Thailand, and Venezuela. In many of the remaining parts of the world eradication work has been started and the disease has become relatively insignificant as a health problem.

Treponematoses. It is estimated that some 50 million people are infected with yaws, but its elimination is now a practical target for all campaigns. Active projects are now in operation in the Cameroons, French West Africa, Ghana, Liberia, Nigeria, Sierra Leone, and Togoland, in Africa; India, Indonesia, Laos, Malaya, and Thailand, in Asia; and also in some of the Caribbean islands, Haiti, the Philippines, Guinea. These campaigns are in different stages of development in the various countries, but they have already achieved a substantial decrease in the prevalence of clinical yaws. Nearly 90 million persons have been examined, and 22 million have been treated as active cases or contacts. At re-surveys of these populations it has been found that clinically active yaws has fallen from an average prevalence of about 10-12 per cent. to 1 per cent., and in some areas no active cases whatsoever have been discovered. This means that the transmission of the disease has largely come to an end, so that, while the progress of the disease has been checked in persons infected when the campaign was begun, new infections have been very few. The future extension of the campaign against yaws, now that most areas of high prevalence have been covered, will carry the work into the less affected districts, where some adaptation of technical policy will no doubt be required. The importance of adequate provision of rural health centres in the
supervision of yaws, until eradication is complete, is apparent.

The battle against endemic syphilis is proceeding in Bechuanaland, Iraq, and Syria; and it has achieved almost complete success in Yugoslavia. The prevalence of venereal syphilis has for some years been relatively low in the more developed countries; and in fact the reduction in antisypililitic measures in some of these countries has led to a slight increase in the number of new infections. In the less developed countries syphilis is largely an urban disease. Its prevalence has decreased since the introduction of penicillin, but more accurate information about the extent of infection and more active control measures are necessary. Internationally assisted campaigns are at present being undertaken in Ethiopia, Iran, Morocco, Pakistan, Spain, and Taiwan.

Bilharziasis. Bilharziasis is of great health importance to the world because of its very wide distribution and also on account of the socio-economic aspects of the disease. Wherever it occurs it is a handicap to economic development. Special efforts are now being made to secure control. Surveys have been made in Africa, the Eastern Mediterranean, and in some areas of the Western Pacific, and control projects have now been established. Further special research to find a more efficient drug applicable to mass treatment, and on chemical molluscicides with a stronger residual effect, is needed to improve the efficacy of present measures for the control of bilharziasis.

Onchocerciasis. A good deal of progress has been made in the control of this disease, which affects nearly 20 million people in tropical Africa and is prevalent also in Central and South America. Effective methods have now been developed for fighting both the parasitic worm and the insect vectors. Successful campaigns have been carried out against onchocerciasis in Guatemala and Mexico to reduce, by surgical removal of the nodules, the incidence of blindness and other disabling eye lesions.

Mass treatment campaigns have been started in areas of endemicity in French Equatorial and West Africa, the Cameroons, and the Belgian Congo.

In addition, control measures against the different species of the Simulium vectors, based on the use of insecticides against either the adult flies or their larvae, or both, have been satisfactorily carried out in several countries of Africa and America. Local eradication is claimed to have been obtained in limited areas of the Belgian Congo, Kenya, and Uganda.

Trachoma. It is estimated that trachoma and infectious conjunctivitis affect no less than 400 million people. They present a grave social problem because of the high percentage of blindness they cause. The percentage of trachoma infection among children can be very high, and in some territories of North Africa it often reaches as much as 70-90 or even 100. In other territories of Africa, evidence during the last few years has shown that trachoma is a more important problem than it was hitherto believed to be in certain areas of French territories in West and Equatorial Africa, Ghana, Kenya, and South Africa. A very high incidence has been detected in several areas of the Eastern Mediterranean as well as in regions of Iran, India, Indonesia, and China, in Asia.

Recent epidemiological investigation has shown that the disease is present and may also reach a high incidence in some areas of Western Australia, Papua, and various islands of the Pacific.

The disease is prevalent in some countries of South America and has been shown to exist among Indians in certain districts of Central and North America.

In Europe, trachoma still exists in many countries, particularly in some areas around the Baltic and Mediterranean shores, and is still a public health problem of considerable importance in certain areas of Spain and Yugoslavia.

The bacterial types of conjunctivitis (mainly those produced by the Koch-Weeks bacillus), which may cause blindness and other complications in themselves, produce yearly epidemics and are associated in varying frequency with trachoma in the different countries. This association prolongs and makes the evolution of trachoma more severe.

Local treatment by several antibiotics has produced very satisfactory results, and mass treatment campaigns have been successfully started and are in progress in Morocco, Taiwan (China), Tunisia, Egypt, Spain, Yugoslavia, Indonesia, and India.

Leprosy. The satisfactory results obtained in the treatment of this disease and the realization that only certain cases are really infectious have led to a new policy of leprosy control, which has stimulated the ever-increasing interest of governments, international and national organizations, and research workers.

The new policy of leprosy control is based on the abolition of indiscriminate and permanent segregation of all cases and its replacement by early diagnosis and mass treatment carried out either at home, in outpatient clinics or in special institutions where only infectious cases are to be temporarily isolated. Whenever applied, the new technique has rapidly gained the
confidence of the affected populations. Patients, no longer hiding in fear of life-long segregation, have come forward spontaneously in great numbers to ask for treatment.

The resulting increase in the number of registered cases has confirmed the great importance of leprosy as a social and public health problem in many countries. The total number of sufferers throughout the world is probably more than 12 million, and possibly as high as 15 million. Large-scale control measures have been started by many governments, including those of Brazil, Venezuela and Paraguay in South America, and Burma, Thailand, the Philippines, Indonesia, India, and Ceylon in Asia.

In Africa, where the most important campaigns are being carried out, covering hundreds of thousands of patients, mass treatment is under way in territories of French West and Equatorial Africa, the Cameroons, Belgian Congo, Nigeria, and Uganda. Important control activities have also been started in Ethiopia, the Sudan, Kenya, and Spanish Guinea.

In view of the fear and prejudice which for centuries have accompanied the name of leprosy, the social aspects as well as the medical ones must be seriously considered. In particular, the cured patients, who must not only be physically rehabilitated, wherever possible, but also receive the necessary training to enable them to earn their living in society, stand in need of special attention.

Trypanosomiasis. Many areas of Africa south of the Sahara are affected by trypanosomiasis, and the mortality and morbidity rates for this group of diseases have a serious effect on the productivity of African territories. Methods of control by chemoprophylaxis and vector eradication have caused a substantial decline in the incidence of these diseases, and the administration of chemical drugs has reduced the death rate, but there are still many active or potential endemic foci.

Changes in age-composition

In the countries where industrial development took place many years ago there has been a striking change in the age-composition of the population. As is well known, the steady improvement in environmental conditions in the course of the 19th century was responsible for a fall in the death rate, and the development of the personal health services in the present century still further increased the expectation of life at birth. In this sense at any rate one can speak of the young countries and the old. Taking the latest available figures continent by continent, one gets this remarkable picture:

<table>
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<tr>
<th>Country</th>
<th>Date of census</th>
<th>Percentage of population at age 60 and over</th>
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<td>Egypt</td>
<td>1947</td>
<td>6.0</td>
</tr>
<tr>
<td>Mauritius</td>
<td>1952</td>
<td>5.6</td>
</tr>
<tr>
<td>Union of South Africa (white population)</td>
<td>1951</td>
<td>9.7</td>
</tr>
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<td>Canada</td>
<td>1950</td>
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Increased liability to old-age diseases

In the economically developed areas more and more attention has had to be paid perforce to the chronic degenerative and malignant diseases. The span of life has extended, and these diseases and the general care of the aged have become an important province of the health authority. During recent years the epidemiology of many of the chronic degenerative diseases has been carefully studied, but so far no general means of prevention has been discovered. This group belongs essentially to the technologically advanced countries because of the important changes in the age-composition of the population, leading to an increased liability to the diseases of old age. The cardiovascular diseases affect, in the main, middle-aged and elderly persons; their incidence is therefore profoundly affected by age-distribution. There may, for example, be a relatively low over-all mortality from this group in a country with a high birth rate and therefore a high percentage of young people, while at the same time age-specific death rates show them to be important causes of death. Thus the general mortality from heart disease is much lower in the Netherlands than in Norway. (Rates per 100 000 of the male population are 306.0 and 358.8 respectively.) But mortality for men above 40 is about the same in both countries—namely, 932 and 936 per 100 000 respectively. This is due to the fact that
young people and children constitute a much higher percentage of the population in the Netherlands. Again it has been shown that in almost every country for which data are available male mortality from cardiovascular diseases—in all age-groups—is higher than female mortality. For both sexes there is a rapid increase with advancing age. Degenerative heart disease is now the most frequent cause of death in North America, in most of Europe and among the more prosperous groups of the population in the other parts of the world. This cannot be explained solely as the result of the reduction of other causes of death, or of the changing structure of the population. Some other factor must be involved, probably connected with modern modes of living and possibly with some particular item in the diet.

The increased incidence of cancer of the respiratory system has given rise to much speculation in recent years. The development is most striking in highly industrialized countries. Among women the mortality from this form of cancer is much lower than among men and is also increasing less rapidly. As in deaths from cancer of the lungs, mortality from cancer of the digestive organs is also higher among men. In populations in which the expectancy of life at birth is high, one must also regard as inevitable an increase in the more chronic respiratory diseases. A good deal of epidemiological research is now being devoted to this subject. In England the 16 million male industrial workers had 4 625 000 episodes of sickness and injuries in 1953-54 which lasted for four or more days. This represented a total of over 200 million working days lost. Ten per cent. of this certified incapacity for work was ascribed to bronchitis (20 million days), and asthma accounted for a further 3 million days. Rheumatism, arthritis, sciatica, etc., accounted for 17 million days, and no doubt many of these diseases occurring in the latter half of working life. In men aged between 45 and 64 years, the acute respiratory infections in terms of incapacity for work represented about 15 per cent. of the total; bronchitis, 17 per cent.; arthritis and rheumatism, 15 per cent.; injuries accounted for a further 16 per cent.1

4. DEVELOPMENT IN PHYSICAL AND MENTAL HEALTH
NUTRITIONAL STANDARDS

Developments in physical health

In attempting to assess very briefly the health outlook and activities of a large number of countries and territories one cannot fail to be impressed by the existence of some patterns among the variations. On the whole, the northern countries of Europe are distinguished by a sense of fulfilment due to the steady fall in the common indices of ill-health. This has been no sudden change, but a regular, predictable response to a series of well-designed programmes to promote personal and environmental health. In many of these countries the people themselves play a conscious part in health and educational activities. In the great majority of services, compulsion is far in the background, but enforcement could be applied if necessary.

The pattern changes, but shows many positive values, in countries like the people’s republics, which have adopted as part of their plans of development a programme of health and education. The Union of Soviet Socialist Republics has had a relatively long period in which it has been able to bring many of its plans to maturity; and the results in the health field are impressive. Special advances, with positive results available to the world of science, have been made in the campaigns against communicable disease, notably the diseases transmissible from animal to man. The organization of medical care through a system of “hospital-polyclinic” combined units is proving to be an excellent example of the combination of prevention and treatment, without any breach of continuity. The USSR is the outstanding example of an exclusively State-controlled medical service, and its progress is being watched and studied with the greatest interest. A number of other countries with a more recently formed State medical service are moving along the same lines as the USSR, but they have not yet had the same range of experience. Reports from such countries as Poland and Romania are encouraging. They show satisfaction with the results already achieved and a keen interest in further advance. In Poland, for example, the fall in infant mortality, under exceptionally difficult conditions, is demonstrated by rates of 139 per thousand live births in 1938 and 71 in 1956. Qualified attendance during childbirth was provided in 1956 for nearly 90 per cent. of mothers, and 37 per cent. of infants under one year had the benefit of attending a clinic. Similar experience has been reported from Romania. It should be added that in these countries stress has been laid on physical education as a means to positive health, and there has been a great development in athletic activities.

Developments in mental health

Advances in mental health do not necessarily follow the same lines as those in physical health. There has

1 MORRIS, J. N. (1957) Uses of epidemiology, Edinburgh, p. 10
been considerable progress in the organization of teaching and in the promotion of mental health in the community by educational and publicity methods. In particular, it is satisfactory to observe the trend, in an increasing number of countries, towards closer integration of the mental and the physical health services. This is well illustrated in the larger part taken by general hospitals in the care of early mental breakdowns, and in co-operation between outpatient clinics in both mental and general hospitals. The organization of associations for the promotion of mental health has now spread widely. On the other hand, much remains to be done. A substantial number of countries, however, are setting up mental health programmes, and some are developing field work side by side with hospital care. They are beginning to speak of mental health rather than mental disorder, and this positive attitude is in itself a good sign.

Nutritional standards

One of the outstanding aims of world health work today is to achieve higher nutritional standards and a more positive state of nutritional health. Among the many difficulties in reaching this object in some parts of the world is the widespread prevalence of several deficiency diseases, of which kwashiorkor, or protein deficiency, is the most serious from the public health point of view.

The first complete clinical account of this disease was given in Ghana, but the prevalence in the world is not known. The condition is associated with insufficient protein intake, especially around the period of weaning. The majority of sufferers are between 9 and 36 months old. It seems that this may be a total protein deficiency or a lack of balance of the amino-acids.

The prevention of the disease involves fundamental changes in the way of life of the people and requires co-operative efforts on the part of health, agricultural, fisheries, economic, and education departments. A great deal of research of both the laboratory and the field type is going on, and most of it is devoted to discovering ways of feeding children and providing sufficient protein without using the costly foods such as milk, eggs, etc. A great deal of progress has been made in this extensive research, and there are now some protein-rich vegetable foods on trial. Special work has been done in Uganda, Coonoor (India) and Guatemala, and recently in other centres of investigation.

The technical approach towards the prevention and alleviation of protein deficiency and other forms of malnutrition is a very important foundation for all subsequent work. At the same time disorders connected with insufficient or unbalanced food have to be approached from an educational point of view, because it is difficult to persuade people to change traditional food habits, quite apart from any question of cost or technique. The most effective channel is possibly education in nutrition through the maternal and child health centres.

Efforts have been made recently to control and eradicate pellagra. Studies were carried out in Yugoslavia, Egypt, and Basutoland. Epidemiologically the disease is most frequently associated with grossly restricted intake of food, with little variety, and with a predominance of maize in the diet. The reduction of pellagra is not a gigantic problem and it is essentially dependent on altering the diet pattern rather than on providing any specific treatment. This may mean a change in agricultural policy with the addition of certain special techniques. Some demonstration programmes indicated that the enrichment of maize with niacin in the small mills was an effective measure which could sometimes be introduced without difficulty.

Other nutritional diseases include the deficiency group of which beri-beri is one of the most important. It is well known that beri-beri usually occurs among those who consume a diet composed mainly of highly milled rice, and it is rare in those whose diet is based on any other cereal.

Endemic goitre is another deficiency disease which bears much responsibility for poor social and economic conditions as well as for ill-health. It has been estimated that there are some five million persons suffering from goitre in India alone. Although it is generally admitted that endemic goitre can be prevented by the administration of appropriate amounts of iodine, the practical difficulties that the less developed areas have to face are serious. Considerable advances have recently been made in the technique of treating crude salt with iodates, and programmes of prevention are now going ahead in Latin America and in India and some other countries of Asia.

Anaemia constitutes a public health problem of great magnitude, particularly in the under-developed and tropical areas of the world. Malnutrition underlies most of these anaemias, which affect particularly certain vulnerable groups in the population —i.e., expectant and lactating mothers, infants and young children. The high rates of maternal mortality in some countries are unquestionably influenced by the prevalence of anaemia. Since it is usually a chronic condition, anaemia impairs health and working capacity and hence leads to economic loss.
These brief illustrations give some indication that a great deal of positive work is being done throughout the world on nutritional problems. Extensive research is being undertaken into the causes of actual nutritional diseases and also into simple and cheap methods of prevention. A special feature of recent years has been the development of health education in the nutritional field, especially by securing the co-operation of the people themselves at the community level.
CHAPTER 3
ADMINISTRATION OF HEALTH SERVICES AND ACTIVITIES

1. THE ROLE OF VARIOUS GOVERNMENT DEPARTMENTS

In this section we are not considering specific health administration but the participation of other government departments in the many and varied activities which go to make a national health programme at the administrative level. It is noteworthy that in recent years a substantial number of governments have given practical recognition to an integrating tendency by amalgamating certain central departments, such as health and welfare, health and social security, or even health, education, and welfare. On the other hand, some nations have shown a trend towards further differentiation of departments, perhaps mainly on account of the unwieldiness of the large central administrative units for some functions which have been greatly expanded. An illustration of this is the separation of personal from environmental health service, the latter including housing and town planning. This may be a necessary consequence of a very great post-war expansion of housing activities both for slum clearance and for new building to relieve overcrowding. In practically every country, however, there exists at the governmental level a group of departments with common interests in the broad field of health, and, at the least, an arrangement for cross-representation by officials. The departments most commonly concerned with health in this broad sense are education, food, housing and town planning, social welfare and social security, labour, and transport.

Education and health

In the practical issues the most important relationship between an education department and a health department at governmental level is the school health service. The actual organization varies, as in some countries school health work is under the direct supervision of the education department, while in others it is regarded as part of the functions of the ministry of health. It does not matter very much which administrative arrangement is made so long as there is no lack of continuity in the mental and physical care of the child between infancy and school age.

A second feature of common interest to the two departments is physical education and especially its mental counterpart in the promotion of the team spirit in organized games and in all forms of outdoor recreation.

The third feature, and in many countries the central one of the educational system, is to achieve the greatest possible degree of literacy. This might seem at first sight a commonplace with very little direct connexion with health. It must be admitted nevertheless that the literacy of a people is a positive influence on health even at the simplest level of being able to read and write. A person who can read is at least open to health education.

The main object of compulsory education is to ensure that children grow up with enough learning to carry on the ordinary affairs of life and to exercise their duties as citizens. Primary education is enough to meet the minimum requirements, and it is essential that health education should be introduced at this stage, because an understanding of health needs and activities is part of the equipment of every citizen. Children who reach the stage of receiving secondary education ought to have a much more elaborate concept of health, derived partly from specific teaching, but mainly from practical instruction through games and other outdoor activities and from more general teaching in such subjects as geography, nutrition, and the art of living together. At the higher levels of education, especially in the training of teachers and other professional workers, health instruction should be regarded as one of the required subjects. Every effort should be made to instruct students so that they may become teachers in health.

At the present time one of the most urgent features of participation by the education department is to introduce in each area an appropriate syllabus for education in health. It is clear that a syllabus of this kind cannot effectively be undertaken unless the school-teachers are trained in the subject themselves. Many of those who are concerned with teachers’
training hold a strong belief that health education ought to be a general subject in the course of training, and not primarily a special subject for the few. This does not, of course, exclude training in health education as a special subject for those who wish to practise it as such—indeed specialists in health education are greatly needed. The advantage of general training in addition means that all who take part in the teaching profession are aware of the health aspect of education (see Chapter 4, section 5, page 45).

Housing and town planning

In a large number of countries the establishment of a special department to deal with housing and town and country planning is an innovation. This is partly due to the fact that, where economic development has taken place recently, the problem has only just come to the fore. As often as not the homes of the people in under-developed areas are of very light construction and everyday troubles of urbanization do not occur. Design and lay-out cause little difficulty when there are no water supplies or drains to be considered or when traffic is negligible. The returns from various countries, including those in which there has, as yet, been very little movement from rural areas to the towns, show that there is one outstanding hazard to health—the overcrowding of families in their homes, however simple the structure may be. From a very few territories comes the reply that they have no housing problem except overcrowding. Indeed, a typical answer runs like this: "We are not troubled by housing problems, for every man is his own builder and all his materials with the exception of roofing iron and cement are abundant and cost practically nothing... The only real housing problems are overcrowding and insufficient ventilation".

Housing problems are universal, but two aspects are a special danger to health, viz, overcrowding and dilapidation—a personal factor and an environmental one. Overcrowding is liable to be found, even in the most remote villages, where families are herded together. It exists in an aggravated form in areas of high density where not only the individual householders but the entire community have to live in a crowded space. Through the years we see the overcrowding sequence constantly repeated from one territory to another. It is doubly injurious to health when it is accompanied by slum building and a total neglect of planning. The steps in the sequence are generally these: first, a more or less rapid development of industry takes place in a district; second, in consequence of this there is a rapidly growing movement of people from the country to the towns, where industry provides employment; and, third, this movement stimulates the building of houses. Unfortunately, when the industrial development itself is ill-contrived the housing is planned in such an atmosphere of haste that no proper consideration is given to the health aspects. In the more developed countries today—especially when industrialization has taken place long ago, as in Western Europe—, the immediate problem is usually one of creating an industry capable of building more adequate houses for the lower income groups. The damage so far as slums are concerned has already been done, and all too often the construction of new low-cost buildings has the double effect of raising the price of materials and labour and, at the same time, of increasing the density beyond a maximum compatible with health. In countries which are less developed, many houses are built locally and often by the occupants themselves. The need here is slightly different because it depends more on local training in the trade and on skilled use of local materials. It should be observed that overcrowded conditions are not necessarily confined to cities. Unfortunately, they can also be created, to an extent detrimental to health, by the mere agglomeration of a number of ill-designed and badly built villages.

We are not concerned in this chapter with housing and town planning except in relation to the role of government departments in the protection and promotion of health. As we have seen, the two hazards that stand out clearly are overcrowding and dilapidation. We have seen too that overcrowding has two aspects—the effects within the dwelling unit and the general effects of an excessively high density area. Unfortunately, there is little diminution of these hazards, because of certain factors: (a) the rapid increase in population, especially in countries which have not the means or the organization to provide low-cost housing and properly planned towns and villages; (b) the rapid industrialization in many hitherto backward areas. This causes rapid migration to the industrialized towns, most of which are entirely unable to meet the inflow in the sense of providing reasonable accommodation. This situation gives rise to the squatting of migrants in the older towns themselves and their outskirts, and, in addition, around new factories. The role of the government departments is admittedly a very difficult one, but in broad terms it means, first, a central planning of areas in which low-cost housing can be provided; second, the economic planning of the building industry in such a way as to develop a coherent housing scheme; third, the insistence, by legislation, on a reasonable water supply and the disposal of waste; and, fourth, a close
link with the ministry or department of health at the centre in order to provide for inspection, education, and, in the last resort, control of the crowded areas.

Housing and town planning offer almost insuperable difficulties in areas undergoing urbanization. In addition to the government control referred to above, the devolution of powers upon local authorities who are in daily touch with the problems is essential. Indeed the role of the central department in relation to health is one of general planning and of setting up model schemes of lay-out and construction; but the actual conduct of housing and town planning must be undertaken at the regional or local level in close cooperation with health departments.

The main objects of a town and country planning scheme are: first, to secure a lay-out of houses, industries, shops, and public services that will create a properly balanced community; second, to provide all necessary services—e.g., hospitals, clinics, health units,—to maintain health and to care for the sick; third, to provide environmental services sufficient in scope and extent to assure the conditions necessary for a healthy community (this includes an adequate and safe water supply, piped to individual premises, and a proper system for the disposal of wastes, including drainage and sewage disposal); fourth, to supply adequate lighting, heating and ventilation to individual premises; fifth, to avoid the risk of air pollution by industrial plants and domestic heating arrangements; sixth, to provide sufficient open spaces, both around the area and close to the dwellings, for the healthy recreation of both adults and children; and, seventh, to do everything possible to prevent injury to natural beauty.

Housing problems, as opposed to town planning schemes, are more concerned with the details of construction and lay-out. The primary difficulty is most frequently the clearance of existing unfit houses and the relief of overcrowding.

Social welfare and social security

Government departments devoting their services to social security are of comparatively recent growth. Insurance itself, on a national scale, goes back only to the German experiment towards the end of the 19th century, and the British system of national insurance dates from the year 1911. Of recent years, however, a number of governments—notably in South America—have started a bold experiment by setting up a special department for social security. In the more lately developed countries the trend has been towards centralization of social welfare services, particularly the great schemes for insurance against the hazards of life—sickness, unemployment, widowhood, and old age. The provision for war pensions has also been included in the sphere of a ministry of social welfare. Most of the social security schemes depend on contributory insurance, a system that is feasible when there is full employment and stability in the social structure. It can be applied only imperfectly and with great difficulty to ill-paid, irregularly employed workers of the casual type. Such workers, including domestic servants and self-employed artisans and traders, are not usually covered by social insurance schemes, or even by legislation for the protection of health and safety. In Mexico, for example, in 1954, the total number of persons entitled to social security benefits (medical services, and sickness, invalidity, and maternity payments) was less than one million out of a national population of about 30 million. It is thus evident that the major risk to health in social security systems is that of “feeding the fat with the cream and the lean with the skimmed milk”. In other words, those who stand nearest to the margin of poverty and ill-health are the least likely to benefit from such provisions. For this reason alone—and there are many others—it is essential that the department dealing with social assistance should work in close touch with the ministry of health, to ensure that health services and some form of relief from poverty and suffering are available for those who do not qualify for official insurance schemes. The existence of a plan for social security is not in itself a sufficient guarantee of the health and well-being of the people. The real test is the proportion of families covered by the various schemes.

Work and health

In the central government of the various countries and territories there are many different patterns of labour administration. Taken at random, these include labour and welfare, labour and national insurance, labour and national service, and so on. The relationship with the health service also varies, but the principal association is in connexion with the supervision of working conditions, the prevention of industrial hazards and diseases, and the organization of an industrial health service. In some countries all these functions are directly administered by the ministry of labour, while in others the more strictly medical duties are the responsibility of the health department, leaving the technical inspection to the department of labour. There are arguments on both sides: on the one hand it is stated that a country's health service should be a unity, and that the worker is the same person whether he is at home or in the
Transport and health

The measures taken by peoples to protect themselves from the introduction of disease from without extend far back into antiquity. Among the most elaborate codes of this kind in the written history of man are the regulations set out in the Hebrew scriptures, chiefly in the Book of Leviticus. Restrictions of this sort were especially important where disease was carried from country to country by shipping. Indeed it may be said that quarantine was the foundation of public health in a restrictive sense. Actually in the United States of America it went further than that, because an Act of Congress of the year 1796 placed quarantine under the Secretary of the Treasury, and in this way the marine public health service was initiated. Out of this service grew the United States Public Health Service.

In European countries and in many maritime cities elsewhere quarantine regulations have been in force for many years and, with increasing transport, the variety and incompatibility of such regulations have led to difficulty and delay. It is only in recent times that order has been achieved out of a chaos of national restrictions. Nevertheless, the regulations of one country and another, although in many ways effective in keeping out such diseases as plague, were useful reminders to governments of the dangers of communicable disease and of the need to establish some organization to check dissemination. As early as 1725 the threat of plague in England led to a short-lived governmental measure, but it was not until the last quarter of the 18th century that the governmental aspects of public health received orderly attention from the authorities.

Public health services proper—as a government organization—belonged to the 19th century and were made necessary and urgent by the great development in industrialization which took place in Western Europe, especially in Great Britain.

In earlier days, as has been indicated, transport by sea was the most usual method for the transmission of diseases such as plague, cholera and smallpox. In the long journeys from East to West, however, it was highly probable that any disease contracted before embarkation would be manifest before the ship sailed into port. Quarantine regulations thus had considerable practical value in enabling the sick to be taken to hospital, the ship disinfected, so far as was necessary, and the contact passengers either isolated or kept under strict observation by the appropriate health department. All this has been changed by the invention of the aeroplane. The speed of transport by air has now made it certain that many of the communicable diseases will not appear until long after the arrival of passengers from a foreign country, and therefore the old quarantine has had to be modified by the new circumstances. Most countries are now handling both local and international air services and thus the need for protective measures has become virtually universal.

2. THE ROLE AND STRUCTURE OF HEALTH ADMINISTRATIONS

The national level

The development of national health administrations has, on the whole, followed a similar broad pattern since the end of the First World War. The concept of national guidance in health matters has spread far, even in countries—such as those of Western Europe—which had hitherto depended on local government alone or in combination with voluntary bodies, fo
their public health services. This has not necessarily amounted to centralization, except in certain countries, but it has involved as a rule a supervisory service, both financial and technical, aimed at securing greater uniformity of action and co-ordination of major services such as water supplies, the control of communicable disease, and the supervision of town and country planning. In countries where there is a federal government, the states or provinces usually have executive powers and are to that extent decentralized. Even under these conditions, however, there has been a trend towards the exercise of greater control from the centre by means of financial grants to promote certain medical services, and especially in the form of overriding powers in the event of widespread epidemics. Sometimes, as in housing and town planning schemes, there are concurrent powers, exercised by federal and state or regional authorities, or by a central government and its local authorities.

After the end of the Second World War health administrations at the national level developed rapidly, as political leaders became more conscious of the importance of social and economic development and of health as an essential element in that development. National health authorities in many countries have prepared nation-wide schemes for campaigns against the major epidemic diseases and provided basic medical services in remote areas where the population has been deprived of such facilities. Each of the 157 countries or territories reviewed in this report has some kind of central health administration, and 76 of them have established a ministry of health or its equivalent at the centre. Many of these departments have an elaborate organization for both general administration and technical direction and supervision. Under general administration the usual divisions of health activities, together with routine administrative and financial units, are represented, including, in a number of countries, a division of international health. In the technical field institutions are being set up for research and field investigation, directly under the central administration. Such institutions—the national institute of health, the national academy of medical sciences, public health laboratories, serum and vaccine laboratories, and others—have proved valuable in raising the standard of public health practice. In a few countries a special commission has been established in the ministry of health for the planning and co-ordination of nation-wide programmes.

The role of a national administration is essentially one of co-ordination and supervision, if both regional and local government is well developed. However, recent experience has shown that there are certain functions which ought to be preserved and strengthened at the national level. The first of these is international activities. Public health practice cannot be confined within national boundaries, and what is happening across a frontier or even over the sea is of immediate interest to any country. One of the prime measures to be taken is to secure a good system of intercommunication to ensure immediate notification of the occurrence of epidemics or of other disastrous events. Another important feature of international work is exchange of experience and collaboration in services which require collective action.

An additional function of a national administration is to plan nation-wide, long-term programmes, including the co-ordination of all types of health services in the country by maintaining common working arrangements with other government departments engaged in any branch of health activity, such as education and training of medical and para-medical personnel, occupational health, medical care, food and nutrition, and social security. As regards the entire area of operation, national administrations in many countries have also taken an important part in the continuing study of the health needs of the people, with the object of giving guidance and financial and technical aid to the local services. This role is becoming increasingly important, in the form of providing advisory services and technical assistance through the agency of specialists in various branches: public health administration, epidemiology, nursing, health education, school health, nutrition, maternal and child care, public health laboratories, and sanitary engineering. In addition to these technical functions it is also part of the duty of the central department to advise the government on the provision of financial aid (grants-in-aid) to the state or local health administrations, taking into consideration the balance of needs and resources between urban and rural areas. In most countries it also has the duty to prescribe and maintain standards in a great variety of conditions, extending from professional training to the protection of the public in relation to foods and drugs, housing and environmental conditions, and measures of public safety.

The state, provincial or regional level

At the intermediate level the situation varies greatly according to the powers delegated to the health authority. At one end of the scale is the state or province which undertakes all functions except a small number reserved for a federal or supreme governmental authority. At the other end is a highly centralized type of national government,
generally in a small country, with no intermediate organization at all but with local authorities more or less directly under the executive control of the national government. Between these extremes there are different forms of regionalization, varying according to geographical and political circumstances. The Commonwealth of Australia is perhaps characteristic of one extreme, because of the geographical difficulties, which have in fact been successfully overcome by the arrangements adopted. In this case each state government has a minister responsible for the health services, a chief medical officer and a full range of staff dealing with all problems of medical care, the prevention of disease and the promotion of health; within the scope of the powers delegated to it, each of these states could be regarded as a national government in itself, and for health services it is divided into local authorities with limited executive powers. Towards the other extreme, one might take the country of Israel as an example, with its concentrated population and no intermediate level of health administration. Certain large countries also tend to concentrate the executive power in the central government. But the trend is to delegate normal services to the local health authorities, which have considerable powers to act, so long as they conform to the main pattern designed by the central administration.

From the technical point of view the intermediate authorities, whether provincial or regional, generally find they can work more effectively in conjunction with local authorities. Their function is to provide specialist services in medicine and public health in order to assist the local services to raise their standard of work, as well as to solve some of the problems which are beyond their capacity. Regional hospitals, public health laboratories, regional sanitary and epidemiological stations, control of river pollution, regional planning, water supply and sewage-disposal schemes are some of the examples of the specialist services existing in a number of countries. As useful additions to the general structures of state or provincial administrations, regional health demonstration and training centres, medical supply depots, serum and vaccine manufacturing laboratories, etc., have also been established.

In general, the two essential functions of an intermediate health authority are the organization of any system which naturally goes beyond local boundaries, such as (a) general and special hospital services and specialized laboratory or investigation work, and (b) the planning of services which require the cooperation of more than one local authority, such as control of river basins or town and country planning.

The local level

At the local level the emphasis lies on executive work. Larger local authorities, in town and country, carry out in detail such schemes as have received higher approval in personal and environmental services. As we approach the smallest health unit, the tendency is to link more and more closely the treatment, the preventive services, and the promotion of health. The essential features of the work carried out at a local health centre or unit are medical care, communicable disease control, health education, environmental sanitation, maternal and child health including ante- and post-natal care of the mother, the care of the pre-school child, and, in co-operation with the education authority, the whole range of medical provision for the child of school age. The care of the aged and the chronically ill and rehabilitation of the disabled are sometimes also the functions of the local authorities.

In a number of countries the local authority, particularly in urban areas, also makes arrangements for the examination and preliminary care of adolescents when they are leaving school and going into industry; but a special service is necessary for their placement and medical care in industry.

In the control of communicable disease the local health department has a role of capital importance. A health officer at the local level is not concerned with the precise clinical and laboratory study of the individual patient nor primarily with the broad epidemiological aspects of the outbreak of a communicable disease. He is concerned, however, with the immediate protection of the people whom he serves by isolation of the sick and by taking all precautions against the spread of the disease.

The promotion of health by educational means is primarily a function of the local department. Assistance may be obtained in the preparation of more expensive methods of demonstration by film and television, but it is of the greatest importance that health education should be directed first to local problems which the people in the area actually see and understand. This is especially true when there are wide variations of custom and tradition between one area and another under the same national government.

In many countries local health units have been established, particularly in rural areas, to provide both curative and preventive services, with doctors, nurses, midwives, sanitary inspectors and auxiliaries working as a team. A local unit is not limited to the work of the local health officer and his full-time staff. To an increasing extent it is a centre for the work of

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the general practitioners of the area and of nurses dealing on a day-to-day basis with patients. It is here that medical treatment and health promotion should be united by the health officer working in close co-operation with the family doctor and the population. It is here, too, that the actual organization of field studies and trials finds its focus. In all field research it is essential that the general practitioner should feel himself part of and partner in a team and not just a scribe sending reports to a remote authority. His best work is done when he can discuss his everyday problems with other members of a health team whom he can see personally.

In addition to this, it has been shown in many areas that there is a widespread movement towards the extension of home care under the general practitioner, especially for the aged and the chronically sick. This is the reversal of tendency which had been operating between the two World Wars—a kind of pressure (possibly related to the difficulties of housing and domestic service) to admit the elderly and the chronically ill to hospitals in preference to treating them at home. The result was that institutions were being used to an increasing degree for this group of cases, and hospital beds, especially in the small and more general units, were becoming occupied largely by patients who were likely to remain for an indefinite period. Since the Second World War there has been a real risk of hospitals becoming swamped with long-term cases.

There was, however, a growing realization that it was not enough simply to set up health units in little towns and villages and leave it at that; the essential element was to secure and maintain community participation. As Winslow pointed out, health is not something which can be imposed by a fiat from on high.

"Its attainment depends on the interest and willingness of individuals and groups to assume responsibility for the solution of their own problems on a well-informed basis. People are more prone to accept acceptable health practices in their daily lives if they have had a part in determining the changes desired in partnership with the professional health workers." ¹

This valuable concept has been steadily accepted and is being extended to cover the wider area of community participation, not in health alone, but also in such activities as agriculture and home economics, nutrition services, education, social welfare, and other programmes which can readily be integrated at the local level. Community development in this sense requires a small, coherent body of people with many common interests.

THE DISTRIBUTION OF FUNCTIONS IN THE HEALTH SERVICES

1. MEDICAL CARE, INCLUDING HOSPITAL, CLINIC, REHABILITATION AND HOME SERVICES

Hospitals

The organization of medical care among the nations of the world has followed several different patterns. Some of these are the legacies of old tradition, and others are related to the degree of social and industrial development. In a number of countries, for example, the hospital has won a unique place in the loyalty and affection of the people, while in others it has been looked on as a temporary unit run up hastily to meet the threat of some pestilence and discarded when the immediate danger is over. In many of the highly industrialized communities today the local hospital is constructed and tended with lavish care, and its design and capacity, its up-to-date equipment and services, are objects of pride to the community. It is hardly doubted, in all these varied circumstances, that the purpose of the hospital is to heal the sick, or at least to provide the highest possible quality of therapeutic care. Where the ravages of the far-reaching communicable diseases are barely held in check, it is natural that the urgent cure of the sick should occupy the minds of government. Nevertheless, the introduction of large-scale methods of protection against the widespread scourges like malaria has begun to alter the more conservative attitudes. The treatment of the sick still assumes the first place in medical care, but the success of campaigns against malaria, yaws, leprosy, and tuberculosis has begun to catch the imagination of those responsible for the health of their people.

These advances, important though they are, do not carry us far enough into the realm of preventive medicine. The question that arises in many countries, in both urban and rural communities, is the proper place of the hospital in a comprehensive public health programme. It is in the first instance dedicated to the treatment of the sick, but its functions in the restoration of sick and injured persons to the fullest possible mental and physical capacity have not yet been very widely realized. It is to be observed that, with the decline in the seriousness of the commoner infectious diseases on one hand and the increase in the speed, hurry and anxiety of modern life on the other, accidents have acquired an unenviable prominence as a cause of disability in the industrialized countries. Recent statistics prepared in the Netherlands and a number of other populous and industrially developed countries indicate that accidental injuries at home and on the road are creeping up to the first place in the records of morbidity, especially among children. Industrial injuries, and the long train of incapacities following war, are prominent causes of anxiety in many countries. There are, in addition, a number of diseases which have recently become menacing even in remote areas; the most serious of these from the point of view of disability is poliomyelitis, which is leaving its trail of cripples all over the world. There is one more cheerful aspect, however, in the discovery that a large number of people afflicted by paralytic disorders resulting from such accidents as cerebral haemorrhage and thrombosis, or from chronic degenerative conditions of various origins, can be greatly helped towards functional recovery by modern methods of medical care.

The above considerations bring us to the second function of the hospital as we see it today: the restoration of the disabled to the fullest possible mental and physical activity. This process of rehabilitation constitutes an important advance in medical care. The complete process involves a co-ordination of services if the best results are to be achieved. In the medical world of tomorrow rehabilitation will be one of the great contributions of the hospital to health. But governmental returns of today show that the real difficulties lie, not in accepting the idea of restoration, but in the shortage of trained personnel. In general it may be said that training could well be carried out in most of the countries themselves.

Reference has already been made to the chronic degenerative diseases; and the hospital has an important part to play in prevention as well as rehabilitation. This group includes the long-term rheumatic diseases, cardiovascular disorders, and the neoplastic conditions. It is for the time being a somewhat sinister reflection that the proportion of chronic degenerative
diseases in a community is a positive measure of the state of its health, for these conditions affect mainly the older age-groups, which are only slightly represented in the less advanced peoples. On the other hand some of the long-term infections diseases such as tuberculosis and rheumatic fever do their worst at the younger ages. Reports from island peoples with hardly any industry suggest uneasiness about the spread of both these diseases, especially in recently developed townships. In the countries where environmental conditions have been brought up to a high standard, especially as regards water supply, waste disposal, housing and the relief of overcrowding, the worst features of rheumatic fever and tuberculosis are disappearing.

Carcinoma, another disease of the later age-groups, has been giving rise to increasing concern in the more fully industrialized countries. Cancer is a disease in which early detection and skilled treatment may save life, and in this way it is part of the hospital's function to secure regular clinical examination as a routine, particularly at the middle years of life.

An important group of chronic diseases is associated especially with industrial hazards. The most serious of these is pneumoconiosis. Some of the more recently industrialized countries have not yet reached the stage of taking the full precautions for the protection of the worker against this disease, or for his continued care when it has made its appearance. It is clear, however, from the replies of governments that an increasing number of countries are becoming aware of these risks and are taking legislative action to secure a high degree of safety under working conditions.

There are two further elements in hospital care which have long-term effects for better or for worse. The first of these is intelligent hospital planning according to the needs which a hospital will have to meet within its own community. In many of the economically advanced countries in the past, and in some of the rapidly developing areas in post-war years, there has been a tendency to insist on the construction of elaborate buildings for relatively simple purposes, with the result that money is spent unnecessarily on structural work which ought to change and expand year by year with the advance in scientific technique and discovery. It is true that in areas of high density where land is at a premium it is necessary to build a costly, many-storeyed structure; but this should be regarded as a stern necessity and not as a virtue of planning. The secret is to design the simplest unit that will function well for the comfort of the patients, the work of the medical and nursing staff, and the general requirements of administration—in that order of importance. The hospital should at the same time be capable of rapid adjustment to emergency needs, and of adaptation and, if necessary, of enlargement to meet the changing requirements of medical progress. It is not far from the truth to say that the worst kind of hospital is the one that is likely to outlast a generation; in the planning work of today one of the outstanding difficulties has been the reorganization of outdated hospital buildings. In a number of the returns from individual countries one notes now and then with relief a statement that the old hospital is being demolished and replaced by a building of simpler construction which will have much greater adaptability.

The second element is in a sense the opposite of the first: it concerns the need for making the administrative and residential accommodation relatively permanent. The patients come and go, and their needs are met by the provision of comfort with, of course, all the skill that great professions can supply. The staff, on the other hand, are relatively permanent, and it is desirable to provide for them all the requirements for healthy recreation and for the pursuit of personal interests and hobbies. The administrative offices also require a greater degree of solidity and permanence than the wards and the technical services. On the whole, hospital plans seem to pay too much attention to the heavy construction of patients' accommodation and to the housing of apparatus which may be obsolete in a short time or require extensive additions and modifications, and to give too little care to the needs of the more permanent residents, medical, nursing, and auxiliary.

These considerations lead us to the question of providing for the training of personnel in the larger institutions. It is impossible to establish a sound pattern of hospitals and clinics in a country or region, unless staff of all kinds are properly trained both in the practice of their own skills and in working as a team. Hospital administration itself is a profession of increasing importance as the system expands throughout so many countries. Hitherto, the training schools in the United States of America have been all but alone in this work, but in recent years schools of hospital administration have been created in widely spread cities of the world.

In the training of medical, nursing, and other professional staff it is encouraging to observe from the replies from the more scattered areas that there is a constantly increasing degree of co-operation between territories, to avoid the expense of overlapping and at the same time to ensure the provision, at a central training school, of a high quality of teaching staff. A steady improvement in curricula is also noticed,
with full-length courses for the professional groups. This has the additional advantage that the men and women who have been trained at these centres are in a position to return and take part in relatively simpler courses of teaching for assistants, in districts where it would be impossible to achieve a full quota of qualified staff.

Up to this point we have been discussing the hospital as a single institution; but in a growing number of areas this concept of the hospital is being steadily enlarged to cover an area or region. In this setting the hospital is no longer a unit but a service. Its influence spreads through the area in the form of outpatient clinics, often with a few beds in the remoter and less accessible districts, and health centres in towns and villages. In addition, many countries are developing regional schemes by means of which all the hospitals and other medical care services are joined together to render a two-way service to the community. That is to say, the central hospital receives from all over the region patients suffering from complaints which require highly specialized diagnosis or treatment and is prepared to send out specialists to the local hospitals and health centres for consultation. The peripheral areas, for their part, help to keep the general practitioner in touch with the centre, and at the same time they are the best units for the creation of a combined service of treatment, prevention, and the promotion of health. The rural centre should be a pillar of a hospital system. Both centre and rural clinic have equal parts to play in the service, but the former concentrates its attention on the skills of diagnosis and treatment of the individual, while the latter is primarily devoted to the prevention of disease and the promotion of health, both in the individual and in the group.

The hospital serves an important public health function in the maintenance of accurate records. These medical records are the nucleus of sound research and field epidemiology, and they should serve as a basis for extended trials and studies by general practitioners in the course of their practice and in their work at health centres.

Hospital records are also most valuable indicators of the end-results of hospital treatment—surgical and medical—through follow-up in the out-patient department. A surgeon (let us say) has performed a series of operations, using a new technique. Was this method justified by the immediate and the long-term results? The records of the hospitals and the subsequent investigations in the homes of the people are evidence of the first order. So it is with a new drug or a new form of treatment introduced by the physician.

Clinics and home services

Many countries report that, while their proposals for new hospitals have been subject to financial restrictions, they have been able to go forward boldly with the creation of a chain of outpatient clinics linked with a general hospital. In the more populous townships these clinics are of solid design and fulfil the object of providing a meeting-place for the general practitioner, the health officer and the “visiting” specialist. They also undertake strictly preventive work through maternal and child health clinics, as well as arrangements for health education. There has not as yet been any remarkable extension of mental health and child guidance clinics, but the foundations are at least laid, ready for building upon when time, staff, and circumstances permit. In some of the more difficult areas great use has been made of travelling clinics, and these have been organized by road, river, sea, and air. In islanded areas the seagoing vessel has again and again proved its value as a clinic, and its staff are usually on call by radio.

In some tropical countries and in scattered villages elsewhere a more stable project is the rural health unit. This unit, which generally serves a group of villages, is at its best a fine example of team-work. Its full staff consists of a general practitioner, a group of public health nurses and their assistants, together with engineers and sanitarians, and the necessary auxiliary personnel. A unit of this kind not infrequently becomes the focus for a group of smaller “health stations”, each in charge of a public health nurse, and visited as a matter of routine or according to need by the clinic physician. During these visits prevention, health promotion, and treatment can be combined without difficulty.

The last bulwark of defence against sickness is home care under the family doctor. This is especially applicable in chronic illness and in the medical care of the aged and infirm. There are, however, certain important limitations to the acceptance of home care as a substitute for hospital. These will be considered later (see Chapter 5, section 4, page 76).

2. MATERNAL AND CHILD HEALTH

It is evident from the replies of various governments that the activities of maternal and child health services have won widespread acceptance and understanding. The idea of their function in raising the standard of health and well-being of mothers and children has now passed out of the range of controversy.

The maternal and child health movement is a leading example of community effort, and in many
areas it was in fact the first community health service. The essence of community development lies in its success in creating a team-spirit between the agencies for health, education, and general welfare at the local level. It thus offers unusual scope for voluntary work, but without overlapping or dissipation of effort. This is the key to progress.

The obstacles impeding the integration of the maternal and child health movement with other health services have been considerable, but today there are strong reasons for believing that they are gradually being overcome. One of the initial difficulties was that in certain countries the MCH movement was first in the field and well established at a time when a public health programme barely existed. When this situation occurs, the MCH services are operating against great odds: the lessons which their staff try to drive home gain no support from the local environment as regards either sanitation or the elements of personal health care.

In many countries it is clear that progress is being made towards integration. The secret of further development lies in union with the general health programme; and in this advance voluntary associations have played a full part. It is essential that their interest and active support should continue to be encouraged, and useful ways of doing this have been adopted. The first was to arrange joint meetings between voluntary agencies and local health officers and so to inspire them with the idea of team-work. The second method was to bring into harmony at the community level all the services which touched upon health and welfare and which could be lifted up by self-help. And the third procedure involved the creation of a community organization, capable within its own limits, which serves to stimulate governmental authorities to offer further assistance by means of suitable grants and by expert guidance and friendly supervision. In some areas the community plan has had to lay its major emphasis for the time being on a special campaign against malaria, or on an agricultural project, and the function of the rural health unit is to make sure that each field activity has its proper place in the common purpose, and that it makes its contribution in an orderly way.

In the local services the needs vary a good deal. In some areas—Africa, for example—the MCH programme is co-ordinated with the control of communicable disease. This is not just a matter of administrative convenience; on the contrary, the combined effort is much more efficacious than the two separate endeavours. The MCH nurses and auxiliaries are thus able to get access to families and open the door to those who are investigating com-

municable disease; and on the other hand the strategy against infection smooths the way for work with mothers and infants. Without doubt a considerable part of these efforts is limited in scope and in quality, but each advance encourages further efforts. In the Eastern Mediterranean a shortage of midwives is reported, but the traditional birth attendant is being replaced by trained staff and by hospital facilities. A combined rural health programme for creating one centre for a population of 15 000, with smaller auxiliary units, has been accepted as an aim in one highly populous rural district of Egypt. In European countries there has been striking progress in the establishment of rural MCH services, in many cases as part of an existing health centre system. Training facilities are of first importance, to ensure sufficient staffing as plans are realized. Such facilities include refresher courses in some areas for both doctors and nurses. Schemes for the care of premature infants have also received attention. In Asian countries progress has been uneven but encouraging on the whole. There has certainly been considerable expansion in quantity owing to serious want of coverage; but in some countries attention has now been turned to quality. A great deal depends on the recruitment and training of supervising staff and on well-designed demonstrations. There is a growing appreciation of the need for training in order to replace the traditional birth attendant as time goes on. In all areas an outstanding advance is being made by linking MCH with other health activities, ideally under the same roof.

In the Western Pacific region one sees the gradual advance from the urgency of providing MCH services in hospitals to the setting-up of simple health centres to meet the needs of the more remote areas. This is part of the general movement from treatment towards prevention, although the liaison with hospitals with a view to securing skilled medical care must be maintained. Midwifery services have also been extended in the Latin American countries and efforts have been made to provide some training for the traditional birth attendants. There is also a trend in the direction of incorporating MCH work in the general health service at the village or rural level.

In the more populous districts, especially in urban and fringe areas, many of the difficulties that arise are due to housing shortage and lack of planning. Governments are so overwhelmed with a flood of parallel functions in health and housing that they find it hard to provide the necessary financial assistance. When families crowd into the towns in search of new employment, or as the sad residue of political upheavals, their living conditions are usually worse.
than anything found in rural life. In such circumstances the hazards of infant life are much increased, and in early childhood there is earlier exposure to infectious disease and a greater chance of complications. There is also a higher prevalence of under-nutrition, partly on account of the wretched environment and partly because of more widespread infestations. One of the unfortunate features of these areas is that the medical service fails as a rule to reach the normal standards of the urban community, so that mothers and children have the worst of both worlds. The special problems of the so-called fringe areas, whether arising from urban overcrowding or from fusion of rural populations, deserve urgent study. It could be argued with force that the establishment of health centres of the rural unit type in these districts is quite as urgent as the village community development.

As we move upwards in the scale of administration, there is a strong case for providing MCH advisers at the provincial or regional level. At that point clinical, educational, and administrative advisers are reasonably in touch with the areas served; and the clinical staff especially are in a position to visit the smaller units at regular intervals and to help to co-ordinate the service within the region. This function is important in relation to maintaining staff during holiday and sickness periods, and it also helps in the arrangement of training courses, many of which are undertaken at regional headquarters. Not infrequently there is a good general hospital at the centre of a province or region, and MCH activities form a valuable reinforcement of the preventive services as a function of medical care. A further point is that the regional hospital is devoting more and more attention to the early diagnosis and follow-up of physical defects in children, with the object of ultimate correction. At every level of medical care the conjunction of prevention and treatment has become a matter of forward policy. Similar considerations apply to mental disorders; it is not possible in any but a few areas to supply the services of mental health workers, either at the rural unit or as part of the activities of the community team. But the presence of a child guidance team at the regional headquarters raises new possibilities for co-operation and for the promotion of mental health.

In the national health administrations substantial progress has been made in the co-ordination of MCH and nursing authorities, but the further linkage with the general health services, by means of a co-ordination committee at the centre or through some other expedient, would be a step in advance. Responsibility for the school medical services varies from country to country. In most Latin American countries and in large parts of Europe, the Eastern Mediterranean, and the Western Pacific, the departments of education are in charge. The combination of the MCH service with the school health service has much to be said for it, because of the need to secure continuity in the care of the growing child. It is a pity to make a partition at or around the age of admission to school. The essential thing is that all aspects of child care be covered. It has been observed, for example, that orphanages and other institutions for children have fallen into a no-man's-land between the two government departments; and sometimes day nurseries may owe a frail allegiance to one or other of the two departments, without there being any cohesion.

The period of childhood which lies between the second and the fifth year tends to be overlooked in most countries. It is during this period that the attendance of mothers at infant welfare centres drops off, and the work of the centres is not replaced, because no service exists for the care of pre-school children. This is especially unfortunate in tropical countries, as the pre-school period is a time of high sickness and death rates. These dangers are preventable. One of the best means of securing attention and care is to increase the number of home visits when there are “toddlers” in the home as well as infants. It is important, too, that there should be a good service for the transport of the sick child to hospital, in order to ensure early care and, if necessary, admission to the wards. One of the well-known troubles with this age-group is that the sick child goes down rapidly unless he receives prompt, skilled attention. He responds badly to nutritional faults and is highly susceptible to the gastro-intestinal diseases. There is good reason to believe that the greatest single advance in the medical services for children is the appointment of nursing staff with a sound knowledge of nutrition and a capacity for dealing promptly with the common disorders of the pre-school age.

In the school-age group considerable progress is being made. This is a less difficult business than the care of the pre-school child, because the school child is, so to speak, much more accessible to the health worker. There are two main aims which have been increasingly recognized in the programme: the first is to do everything possible to raise the health level of the children, and the second is to deal effectively and quickly with the child who shows an abnormality. In many countries in which the home environment is poor the school ought to set an example in healthy
living. This would imply good sanitary conditions in and around the school premises and a progressive system of health education in which the children can carry home lessons to their parents. In this respect the child is the father of the man. The part taken by the teacher is of the greatest moment, because he is in contact with both parents and children and is in a position to play a useful part in health education. The main point is that the teacher should be really interested in health work, as well as in maintaining the school and its surroundings as a friendly and welcoming place. A school garden, made suitable for growing vegetables, has proved to be a useful method of improving nutrition as well as a lesson of great value in promoting a sense of responsibility. The existence of outdoor work and play helps the observant teacher to pick out the child who is hanging back, physically or mentally, and may enable him to note the beginnings of sickness.

Some of the questions which lie unanswered in the reports of the various countries are concerned with priorities in the MCH service. When sufficient finances are difficult to secure, where can the best start be made? If a country is concerned mainly with quality of service, then it may be argued that one part of the population is being favoured at the expense of the other. On the other hand, if quantity is favoured on the grounds of fairness to all, then the sacrifice may be too great—that is to say, an inferior service may be accepted without any urge for real improvement, because in a technical sense the area is covered. It is doubtful whether there is any good compromise between these extremes. It may be right in certain circumstances to accept the existing order of things in the hope that extension will be encouraged. On the whole, the balance of favour rests with quality, although it must be admitted that in a few countries the authorities have remained content indefinitely with a single MCH demonstration centre and have shown no tendency to extend its benefits to other areas. No doubt it is a good show-place for visitors.

In the long run it has paid the best dividends to set up one first-class centre with adequate staffing and well-trained personnel. Even when extension is slow, the original centre has been developed into a simple training institution and in this way has enhanced its own value to the larger community. In this way also the demonstration centre offers encouragement to persons of goodwill and so stimulates voluntary effort in other areas. The only risk involved is that the demonstration centre may be so elaborate and perfect that envy is aroused instead of a desire to extend and improve. The exhibit must be within the capacity of the country. One good road to take is to use the first centre for short periods of instruction for field workers and for the selection of suitable candidates for training. A second stage, which has been followed successfully in some countries, is to use the centre as a service station for mobile teams. This has a double value: the teams are provided with a focal point for report on progress and interchange of experience, and staff and equipment can be checked and changed according to need. In addition, an opportunity is offered for the evaluation, by senior staff, of the work of the mobile units. It should be pointed out, however, that in the overwhelming majority of cases the mobile unit is intended to be a temporary measure pending the setting-up of a permanent centre or sub-centre, with its own proper staff and equipment. In other words it is an advance post awaiting consolidation.

To sum up: great stress should be laid on the importance of securing the keen and understanding co-operation, on a voluntary basis, of the people on the spot. It is their goodwill and active help that will in the end determine the success or failure of a local programme and the progress of community development. As a project develops and expands, it is essential that it should incorporate plans for teaching at the local level—that is, for refresher courses to raise existing standards, and for the selection and training of auxiliary workers who show promise. These plans are determined at every stage by the operation of a team of highly trained workers in the health field, who take the responsibility of initiating and maintaining a programme and of evaluating its progress. In the early stages, especially, sound leadership is indispensable. It matters little how the programme begins, whether as part of a mass campaign against disease, as an ad hoc MCH project, or as a project taking over an existing scheme. The road to progress is through joint action.

3. MENTAL HEALTH

The care of persons suffering from mental disorder is one of the oldest of the medical functions assumed by the state. In the past, institutions for the mentally ill—like prisons—have always been associated with restraint; and in some countries today the location of the two institutions side by side is a grim reminder of coercion. The modern outlook on the care of the mentally sick may be said to have emerged in Italy and France towards the close of the 18th century, and the work of Chiarugi and Pinel in those two countries was taken up by Tuke in England and by
other pioneers in mental hospitals in Europe and North America during the first half of the 19th century. It was unfortunate that little improvement took place in building: many countries, as they developed mental hospital treatment, were content to follow the worst designs of the period of restraint, making their institutions large, gloomy and barrack-like. Elaborate precautions continued to be taken against escape, and ward construction laid emphasis on control by force.

The institutions used today by a considerable number of countries bear the scars of the old system, including a persistent tendency towards overcrowding. On the other hand, there are welcome signs of a new attitude, mainly because national governments are learning more and more about one another, and their medical, nursing, and architectural staffs are seeing for themselves what is being done in the most modern institutions. Moreover, many mental health authorities are finding out for themselves what an immense amount of successful care of the mentally sick can be undertaken outside the walls of the hospital, and have started schemes for the development of outpatient and home care through the agency of clinics which have trained psychiatric and auxiliary staff. In areas where this kind of forward movement is just beginning, the crying need is for trained personnel. In the first instance this may be supplied by visiting teams, but the essence of the problem is to achieve the training of local personnel and to secure and maintain the interest of medical and nursing students. Mental hospital work has long been regarded as inferior in status to general hospital medical and nursing service, with the result that salary scales in such institutions are not attractive; or perhaps these two factors interact. Mental health work will not make real progress in a country until there are trained counterparts in that country of all members of the visiting team, at every level of professional skill—psychiatry, psychology, psychiatric social work, nursing, and auxiliary work. Following upon initial visits to an area by a team of consultants, at the request of a government, it is sometimes necessary to take the first step in training by sending local staff on fellowship grants to institutions abroad where they can obtain suitable instruction and practical experience of a mental health scheme. The object of such fellowships should be to create a body of local teachers, not to provide an institutional staff. A system which consists of a short theoretical series of lectures on mental diseases, with no practical or clinical experience to add reality to the teaching. In post-graduate teaching also there has been a tendency to cling to methods which assume the continued separation of the mental hospital from the general hospital service, and mental from physical illness. In a number of countries the remuneration of psychiatrists has been so low that men who have taken special training abroad and acquired the highest qualifications in the subject have returned home only to go back into general medicine.

Reports from various authorities indicate that, even in the smaller countries, there is still a tendency to build far too large mental hospitals. The optimum capacity is probably between 300 and 400 beds, so as to permit of a relatively non-institutional atmosphere and the opportunity to create occupations, both indoor and outdoor, which can be supervised without developing a kind of factory system of control. In Malaya, for instance, the size of the central hospital is 3000 authorized beds, and the immediate need in the country is to provide a well-distributed series of smaller units. Similar difficulties are obvious in other countries, notably in those that have had the longest experience of State control of mental illness.

The mental hospital is only one element in a fully organized mental health service. Even as an institution its usefulness is limited in some degree by its
specialization. For this reason a great number of authorities have been establishing mental health units in general hospitals, associated as a rule with highly developed out-patient departments. One of the important functions in the earlier days of this advance was to deal with patients who feared the mental hospital because of its unhappy associations with compulsory detention. In the more fully developed countries this disadvantage has been largely negatived by the growing provision for out-patient care at the mental hospitals themselves, and even more by the system of voluntary admissions without any form of certification. It has now been widely recognized that certification, or compulsory admission, should be regarded as a last resort and not as a necessary preliminary to treatment. The units which are being established at general hospitals, however, serve a special purpose, although by no means exclusively; they are in the best position to deal with patients suffering from the psychoneuroses and also those afflicted with psychosomatic illness. In a considerable number of cases they are well suited for dealing with the more serious mental illnesses of children. An additional feature of mental care in the general hospital is that it offers unusually good scope for the operation of the "clinic team", which has now become such a feature of mental health care in Great Britain and in the United States of America. And, finally, the general hospital clinic becomes a valuable diagnostic centre for early cases and for consultation between the psychiatrist and the general physician.

In addition to the construction of mental and general hospitals there is, in the larger countries at any rate, a case for the building of a national institute of mental health. The special usefulness of such an institute is that it is in a position to concentrate attention on and to secure the balance of all the various mental health services. The National Institute of Mental Health in Japan is a good case in point, because it exercises leadership in this branch of health work, partly by its central position and partly by setting up model clinics and other services. It is also able to maintain a library and to publish a journal, through which research advances are made widely known. In the European countries, especially in the north, mental hospital provision has long been a State function, and most of the hospitals are either State institutions or are heavily subsidized and controlled, usually by the central department. The preventive mental health services, on the other hand, are as a rule operated and in some cases wholly supported by voluntary organizations on a community or regional basis.

At the present time one does not think of mental hospitals without at once contemplating methods by which people can be kept out of them. This is not just due to the fact that most mental hospitals are shockingly overcrowded in most countries of the world. It is one facet of the more important finding that many patients do better when they are treated wholly at out-patient clinics, sometimes following a short period of in-patient observation or intensive treatment. Studies of the actual patients in mental hospitals often reveal that only a small proportion of them really need hospital care, if the alternative of suitable home care can be provided. In a study of a mental hospital in the Eastern Mediterranean it was found that the development of a colony scheme would greatly reduce the need for in-patient care and, of course, the cost of treatment. In other cases it has been shown that, given suitable out-patient care, less than half the number of inmates required either medical or nursing attention.

The mental health of children is a subject to which increasing attention has been given in the more recently developed countries. In time past Italy and France have shown how much preventive and promote work can be achieved through the intelligent care of young children by kindergarten and nursery schools. Valuable studies and projects of a similar kind, but with striking individual variations, have been a special feature of health promotion for children in Germany, Austria and the Scandinavian countries. A great deal has been accomplished by voluntary services in Belgium and the Netherlands, for preventive work lends itself especially to voluntary effort in the care and education of children. In the more specific field of mental health care the schemes of child guidance, in which the United States of America has taken a leading part, were begun in the first decade of the century and carried forward with great vigour after the First World War by such organizations as the Commonwealth Fund. It was through the agency of that Fund that child guidance became established as a service in the United Kingdom. Child guidance has proved to be an excellent example of the value of team-work in mental health, and it is significant that in many areas child guidance centres have become part of the educational system, bringing the teacher into the team as well as the psychiatrist and the educational psychologist. On the other hand, it is to be remembered that child guidance includes therapy, and for younger children, as well as for school children showing early signs of certain types of behaviour abnormality, attendance at a special child guidance clinic is the first condition for successful treatment.
A number of services relating to mental health are essentially part of an educational service to the same extent as school health inspection and the specific health education of children in school. The same is of course true of the training of educationally sub-normal children. A special school has now been set up in Iraq, and any measure of this kind is an important pioneer venture. There is a strong case for government support for voluntary efforts in the promotion of mental health, especially in the child population, and this is most effectively carried out by the generous support of associations for mental health. The Egyptian Association, for example, was created in 1940; its membership includes psychiatrists, psychologists, and a great variety of educational workers, and it is linked with the World Federation for Mental Health.

One of the most valuable methods of dealing with mental patients is the system of family care. In some countries, such as the United Kingdom, it has not been prominent except in dealing with mental defectives under guardianship. This system, especially when the defectives are settled with foster-parents, works very well. There are also in a considerable number of countries provisions for boarding out mental patients, but this measure has not been applied to a very great extent except in a few European countries. The system was first introduced many years ago at Gheel, in Belgium, where a small mental hospital service has a centre for more than 2500 patients who live in the surrounding districts. In Norway only half of the certified mentally ill patients are cared for in mental hospitals; 39 per cent. are in family care under supervision from a mental hospital (3 per cent.) or under state supervision (36 per cent.). The remainder are looked after in nursing homes, often under private management. Private family care gives rise to a good many administrative difficulties, and in some cases patients miss the skilled attention which they would receive under hospital guidance. On the other hand, there are great advantages in surrounding a patient by home conditions, and many of them do well in the absence of an institutional atmosphere. In some ways it is surprising to find how few complaints are made about a patient; and the crime rate among the patients in family care is much lower than among the general population.

In the Netherlands the development of family care in the city of Amsterdam is well known. The early example of Gheel has been followed there, notably at Beilen. One of the special features of the Beilen colony is that great attention is given to occupational therapy. Most of the patients work each day, both morning and afternoon. The centre has a market garden, pigs, chickens, facilities for haymaking and, in addition, a great many indoor occupations, including such jobs as book-binding, mat-making, dress-making and laundry work. The patients are paid only pocket money for their work, which is mostly used by the community itself. They are not usually permitted to work for their own foster families for fear of exploitation. Family care seems to be most suited to chronic psychotic patients and to certain types of neurosis.

A most interesting experiment along similar lines to that of Gheel is a recently established neuropsychiatric day hospital in Western Nigeria. This new hospital has a genuine community development situated in beautiful grounds of extensive area (1 mile square). All the members of the staff are resident and there is a programme for accommodating essential artisan employees and labourers in a village community centre within the hospital grounds. Patients attending the day hospital are boarded out in the neighbouring villages and come in daily for treatment, spending the rest of the available time in a department of occupational therapy. They return to the villages in the late afternoon having thus combined active treatment and rehabilitation.

The patients who are boarded out are, of course, specially selected. They are accompanied as a rule by the relatives, usually the mother, or a sister, brother, etc., and most of them come from distant areas. A nurse is always on duty in the villages at night to cope with minor nursing difficulties, and she can send for help to the hospital in any emergency. A guide is also provided by the hospital to look after the relatives of patients from distant areas.

The present clinical facilities consist of modern electrical treatment, insulin therapy and the whole range of psychotherapy measures and drug medication. Special emphasis is placed on occupational therapy and other group activities as an essential part of rehabilitation. It is planned in such a way as to give patients from diverse social backgrounds every opportunity to follow the kind of work which they understand: rough types of labour are encouraged and little huts have been built to preserve a village atmosphere. At the same time there are facilities for painting, weaving, knitting, etc., in a well-designed building.

One of the drawbacks in family care, unless the system is well centralized, is the lack of provision for organized occupational therapy. This is a development which has gained much ground in mental

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hospitals during the past two decades and has proved its value again and again in the improved outlook of patients and in their whole attitude towards hospital care. Among the mentally sick, arrangements for rehabilitation through occupational therapy and the provision of interests are of the utmost value and supply the needs of a very considerable proportion of the patients. Much recent work has been done on the subject and the scope of occupational therapy has been greatly widened. Indeed one of the outstanding faults of some of the mental hospitals that are being built today is that they do not provide adequately, either in staff or in space, for occupational therapy.

In the long run the success which countries achieve in their mental health plans will depend to a very great extent on the skill and persistence with which the authorities apply themselves to the prevention of sickness and the promotion of health. On the strictly preventive side a great deal is being done by skilled psychiatric approach to children who are showing signs of early trouble. This approach is best organized by team-work through which both the children and their parents are dealt with and the social and environmental circumstances are carefully watched. A great deal can be done—perhaps more than in any other sphere of medicine—to achieve positive training in mental health as a public service. Mental health education is a skilled job and it is most successful when it is continuous and unobtrusive. So much depends, as Bowlby and others have shown, on the fundamental relations between the young child and his parents and the affection which he receives as a member of the family. A great many disasters have been caused by broken homes and the general ill effects upon a young child who is deprived of normal family life.

4. OCCUPATIONAL HEALTH

It is more satisfactory to describe the aims of occupational health than to attempt a definition of the term. Occupational health aims at the promotion and maintenance of a high level of physical, mental and social well-being of workers in all occupations. Its object is also to protect workers from the hazards of sickness or accident due to their employment. It is the duty of an occupational service to do everything possible to place and maintain workers in an occupational environment suitable to their mental and physical capacities.

Research into the relationship between work and sickness and knowledge of the causes of industrial disease goes back as far as Ramazzini, but wider and more specialized studies date from the industrial revolution in the late 18th century. At that time, and for nearly a century later, workers in the field of industrial health and their advocates in public life had to fight against a laissez-faire attitude on the part of many employers and an economic theory which paid more attention to successful competition than to the needs of those who produced the goods. In the course of the 19th century it became clear in industrialized countries that some form of protection of the workers' health was essential to human welfare and dignity. At first, legislation was introduced to prevent the grossest abuses, especially the exploitation of women and children, but in the early days there were no means of enforcement by inspection. Gradually, in response to political and social pressure, there grew up a code of laws and regulations and an effective system of supervision. In the course of time a great body of highly specialized industrial law has been created little by little in response to hazards as they have become recognized.

Industrial and occupational health services

The promotion and maintenance of industrial health and hygiene require a highly specialized organization in both the engineering and the medical field. The two work together in an integrated service. The technical problems that arise are innumerable. They concern the structure of the factory or work place, the provision made for general hygiene, good lighting and ventilation, as well as consideration of the maximum comfort of the staffs concerned. In a more specialized way the inspector of factories has to see that appropriate provision for the health and safety of workers is carried out in each particular process. Long experience has shown that certain industries, such as mining, lead-working and trades involving contact with silica, expose workers to specific hazards, and special precautions are undertaken to prevent their ill-effects. These are merely minor illustrations of an enormous, highly complex group of industrial processes which require close supervision and constant vigilance to see that regulations are observed by both manufacturers and workers.

These technical provisions are not by themselves effective in achieving occupational health in the broad sense. The personal health of the worker and his suitability for the job he undertakes involve an assessment for which special medical training is indispensable. The industrial society of our day, over and above the specific hazards mentioned, imposes its own patterns of stress and thereby introduces new
medical problems directly or indirectly associated with the industrial environment. The industrial health service has therefore widened its scope to take into consideration not only the health and safety of the person and the maintenance of a good environment but also the integration of a complete service in which a team consisting of physician, safety engineer and other experts work in harmony. This has been fully developed, for example, by the Tennessee Valley Authority in the United States of America.

In an industrialized society it is essential that all general practitioners should have some knowledge of occupational health so that in their practice they will not fail to observe and report any diseases which seem to be prima facie associated with employment. Over and above this, however, some physicians have a more direct responsibility for the protection of the health of employed groups either by providing, along with their general practice, a part-time service in industrial undertakings or by performing these duties on behalf of government or industry on a full-time basis. A part-time industrial physician requires a more extensive knowledge of industrial health problems than does the general practitioner, as he is dealing with them in his daily work; and in addition he requires a more intensive knowledge of the particular industrial activity with which he is directly connected. It is therefore not uncommon for a full-time industrial physician to be associated with a particular industry or group, and he thus acquires a special knowledge of all the medical problems that arise in the course of his work. He is in close touch with the management, the safety engineering and all preventive services. At the same time he is responsible for clinical services, especially for accidents and first-aid provision of every kind with special reference to the particular hazards of the industry with which he is concerned. A great deal of his work is devoted to promoting and maintaining the health of the workers, and the physician is especially concerned with assessing fitness for work, both in general and in relation to particular tasks or departments. The industrial medical officer acquires a good knowledge of the whole working organization of the industry; he should be able to assess the influence of the working environment on common diseases, absenteeism, labour turnover and the functions of the personnel department. In more general terms he studies the occupational factors leading to fatigue, accidents, failure of adaptation, psychoneuroses and occupational diseases. In co-operation with the personnel manager he accepts the fact that the worker is at one and the same time a wage-earner and a member of a social group. Inside and outside the factory the industrial physician co-operates with all persons who take part in the protection of the health of workers. He maintains close contact with the neighbouring hospitals and health centres and at the same time keeps in touch with occupational health institutes and research activities.

The employment of a full-time physician with the duties outlined above has been very successfully organized, especially in certain industries which have developed on a large scale in recent years both in the United States of America and in European countries. This applies particularly to the motor industry, and there are some conspicuous examples of such medical services in the United States, Great Britain, France and Germany. The radio industry has also achieved a high degree of efficiency in its medical service—perhaps the most notable example being that at Eindhoven in the Netherlands. But in addition to these instances, a number of the older industries, some of a very heavy character like steel production, have introduced admirable full-time services with a wide range of preventive and curative work—a striking example of this being in the new steel town of Corby in Northamptonshire, England. In certain other areas full-time medical services have been organized from a special industrial centre or institute, as in the case of Helsinki, Finland. There are many patterns of this work which would serve as demonstrations to countries which are advancing industrially at the present time.

The first condition of a good industrial health service is provision for research. In a number of industrialized countries today special institutes have been set up, notably the Institute of Occupational Health in Helsinki, the Institute of Occupational Hygiene in Oslo, and laboratories and special departments in many other countries. The research work performed by institutes and laboratories falls naturally into two groups: (a) basic research; (b) practical research to meet national or local problems. Fundamental research is being carried out in practically every industrial country, but in some the definition of industry is perhaps too narrow. The word "occupation", on the other hand, has a clear and well-defined meaning. Even in highly industrialized countries the establishment of institutes has been comparatively recent—for example, the Clinica del Lavoro was founded in Milan in 1904. An occupational health institute could be defined as "any organization in which specialists in the various branches of occupational health act together as a team to conduct research and teaching and to provide service in this field". It is undesirable that there should be any fixed pattern of institute, but it is clearly wrong that the institute should concentrate
solely on pure science at the expense of practical service. By this means it quickly gets out of touch with everyday problems and loses its position as an instrument for promoting occupational health in the social sphere. Practical activities include an enormous variety of local problems and this is the core of an institute's research work. The nature of the research has usually been determined, first, by the interests of the members of the staff; secondly, by the problems actually presented under local or national industrial conditions; and, thirdly, by the appearance or indication of special hazards, such as pneumoconiosis, asbestosis or byssinosis. In a purely research institute the problem sometimes arises about the amount and extent of work that should be undertaken on behalf of the industrial firms requesting assistance. This problem has presented itself in both Canada and the United States of America, as well as in the United Kingdom. There is always a risk that the needs of research might be obscured by more or less routine inquiries or by frequent demands from industrial firms to undertake investigation, not so much in the interests of research as in the promotion of commercial advancement. There is no general rule in this matter but institutes and laboratories have now and then been overwhelmed with routine services to the detriment of their research.

As has been indicated, occupational health is a wider term than industrial health. It covers many employments, including domestic work, which would not be classified as industrial. The home exposes its inhabitants to many hazards, especially accidents to children and the aged. The problem of accidents in the home has given rise to anxiety in many countries and special measures have been taken to deal with these risks. In this work voluntary societies for the prevention of accidents in the home have carried out pioneer work, especially in the United States, Great Britain and Belgium. Perhaps even more important than general education is the contribution made by government and industry jointly to building up new generations of workers who are conscious of the need for protection against hazards in the home as well as in industry. Safety in the home ought not to be ignored, and the mere fact that the approach is less precise does not prevent the organization of teaching such matters as personal hygiene, accident prevention, use of leisure, the need for proper rest and sleep, the dangers of over-indulgence in food, alcohol and tobacco, as well as the means of preventing communicable diseases.

Very few countries that today have reached a high status of industrial development are without a comprehensive organization for research into matters of health and safety. A large number enforce legislation for the prevention of occupational disease and accidents. Pre-employment and periodic medical examinations are frequently required for young workers and for those whose occupations involve certain special hazards, such as contact with silica and exposure to radioactivity. In the majority of countries provision has been made for factory inspection, generally under the ministry of labour, as in Japan, Norway and the United Kingdom. In a considerable number of countries, on the other hand, responsibility for occupational health is assumed by the ministries of public health, as in Argentina, Chile, Mexico, Peru, and other countries of Latin America. In Australia and New Zealand industrial health services are integrated with the state health departments, while in the Union of Soviet Socialist Republics and Yugoslavia occupational health supervision is the responsibility of regional public health officers. Some of these countries have separated the inspectorate from the health section, as in the case of Egypt. In the United States the factory inspection services have no medical functions and there are industrial hygiene units in the various state departments. In France, legislation has been enacted to extend the scope of factory inspection, and in 1946 the law required that every factory, regardless of size, should establish a systematic medical service. Employers are obliged to provide facilities for annual medical examinations of the workers (including chest x-rays), first-aid services, and a special system of job placement.

A growing number of countries provide general medical care for workers, and this system is perhaps more advanced than in many other health services. Many of the health insurance systems started by covering occupational groups, extending later to wider sections of the population. This gradual coverage has applied to the United Kingdom, Japan, Turkey, India, and other nations. Many large industries have provided their own insurance and compensation systems, and some special industries are required to do so by law—such as, for example, rubber- and tea-growing on the estates in Malaya and Ceylon. Finally, it is important to observe that in an increasing number of factories organized health services have extended beyond the walls of the factory to the families of industrial workers. In some areas which are now developing, these services are the nucleus of a national health service organization. They are at any rate an indication that many nations are beginning to realize that sooner or later there will be a fusion between the health services for the worker and those provided for each family.
Vocational training and functional restoration

The process of rehabilitation, as has been pointed out, should begin at the moment of injury; should continue through the whole of hospital and convalescent treatment, and, finally, should be linked with the process of returning to full functional activity. These are the aims, but in many circumstances the return to functional activity and to the original job is not feasible. In this case rehabilitation measures take the form of training either for a completely new job, where the disability is serious, or for a lighter and more appropriate job in the same industry. Where young workers are concerned, this type of training, which normally lasts for a considerable period (i.e., at least two years), is frequently called “vocational training”. For older workers and especially for those who can be returned to work in the same environment, the word “rehabilitation” is more commonly applied.

In the more industrialized countries rehabilitation is generally continued without a break from the outpatient department of a hospital to a special unit in the industry itself. In the great industries of the world there are notable examples of rehabilitation service. One may mention in passing the Ford factories in the United States of America and elsewhere, the Austin and Vauxhall automobile works in England and the Philips electrical industry in the Netherlands. A more general system of rehabilitation is being increasingly applied by government departments on a national or regional basis. This is necessary because a great many industrial firms are not large enough to undertake any considerable scheme of rehabilitation. It is also of value in many countries, because schemes of this kind enable retraining to be carried out in an environment which may well be more suitable for the workers than ordinary employment. This is especially applicable when a worker has to be moved to some totally different type of employment—for example, from a heavy to a light industry. Mexico and Norway, among many other countries, have introduced schemes of this kind. The task of a considerable number of these rehabilitation schemes is greatly advanced and lightened by the assistance of voluntary organizations.

In summary, the work of rehabilitation in a unit, however formed, is: (a) to assist the authorities, hospitals, voluntary organizations, social insurance authorities, etc., by the careful examination of disabled persons with a view to their rehabilitation or vocational training; (b) to establish a plan of rehabilitation for each disabled person in which the necessary treatment, appliances, and physiotherapy measures are recommended together with suggestions for training. It should be a function of the institute to promote research in rehabilitation and vocational training.

5. HEALTH EDUCATION

Health education is one of the most stimulating of subjects, because in many countries it is a relatively new field, offering abundant scope for initiative and experiment. There is no short-cut to health education by any programme of universal application. Each government finds that it has to devise plans best suited to its own background and the attitude of its people. Nevertheless, those who have been working during the past few decades on the content of health education have established certain principles of general application. They have also been able to experiment practically with different methods of reaching the public and have made steady progress along these lines.

Among the principles of health education are one or two which stand out prominently. In the first place, it is not an isolated subject: it is part of the educational process and is applicable to every age and stage in human life at which learning is possible. It must be integrated with general education for child and adult alike. Secondly, health education—no less than any other, perhaps more complex, subject—cannot be successfully inculcated unless its teachers are properly trained in its content, method and presentation. Thirdly, the teaching of health is not an isolated process: it requires team-work of a high order—that is, full collaboration in both training and practice with allied disciplines such as clinical medicine, public health, nursing education and the social sciences. The fourth principle—and it is one which governments are appreciating more and more—is that health education cannot effectively be carried out in fits and starts: it must be essentially a continuous process undertaken in close working contact with the people. This is not to deny the potential value of special propaganda efforts such as “health weeks” and special exhibitions, which serve to illuminate brightly a limited subject for a limited period; but these special efforts cannot take the place of continuous patient teaching among the people themselves.

In the early days of health education programmes, as is shown in the reports of certain countries for the years 1954-56, there has been a certain amount of public resistance to this kind of approach. The line of argument has been: “We are surrounded by sickness and we ought to use all our money and effort on building hospitals to cure the sick. Then, and then
only, can we begin to talk about health.” In its crude form this argument contains obvious fallacies, but it also carries lessons which should not be ignored. In some countries in which the sickness rate is high, and especially in malarious regions, it is natural enough that the stricken people should look with a sense of envy on the great hospital centres of the wealthier nations and feel that they have been deprived of something or put off with an inferior article in the world market of medical care. This very attitude, ill-informed as it is, offers a clue to health promotion in some of the areas which are oppressed by sickness. To such countries it is necessary to bring, in the first instance, some of the benefits of modern medical treatment. A series of dramatic cures helps to gain the people’s confidence and to prepare the way for their co-operation. For it can be said categorically that no programme will win more than a temporary success unless it achieves active co-operation from the people themselves. Ignorance breeds prejudice.

At this level the value of team-work between workers of different backgrounds is apparent. It offers all the advantages of a strategic, rather than a forceful, advance. In some cases it may be the clinical member of the team who makes the first score, and in others the nurse or the engineer. A number of government authorities, for example, have offered some resistance to the medical approach, but have worked eagerly in an environmental sanitation project, such as the reduction of flies by means of an effective system of latrines. As often as not, an education project is made acceptable by a simple sanitary demonstration. The strategy lies in adopting the road that presents the fewest obstacles.

At a different stage of national development it may not be necessary to employ the therapeutic or environmental approach. The country may have good hospitals and clinics; it may have adopted successful methods of combating malaria and yaws, or launched a campaign against tuberculosis. The battle against sickness is being won, yet the campaign for health may be lacking. The replies received from governments show that many countries are anxious to go forward, and yet their step falters because of a confusion of thought between the conquest of sickness on the one hand and the promotion of health on the other. It is true, as we have seen, that a plan for the elimination of a disease such as malaria, yaws or trachoma may be the means by which a health education programme is introduced—and it is certainly an admirable basis for a health education study to ascertain what practical measures are needed and how best they can be applied. But the limitation of disease is by no means synonymous with the promotion of health.

A number of countries have indicated in their replies that health demonstrations are given from time to time, and that posters, cinema, radio and television are used regularly to educate the public. In one instance it was frankly stated that the people did not appreciate filmed talks, because they did not understand the language in which these were given. Another government authority gave the disarmingly simple answer that health education was provided by midwives in the homes of the people. A third, with a shrewd sense of the realities, replied that its only effective educational system was in the schools, and that health education had been developed by the teachers, who had received a course of training for that purpose.

It is quite clear that in many countries, as they progress towards a fuller concept of health education, the emphasis is shifting from more or less spasmodic propaganda to comprehensive and continuous activities. When health education programmes started, few countries had any department or division responsible for work of this kind. The result was that in many instances the programme was handed over to an existing section, which had perhaps only a limited function in the health services and may be none at all in education.

As time went on, more and more governments began to establish at least a technical division of health education in their national departments of public health. These divisions gradually became represented by sections devoted to the subject at the provincial or municipal level. This development had both theoretical and practical advantages. On the theoretical side it provided a service, while from the practical point of view it was economical by its assistance in the provision of locally planned illustrative material which could be duplicated and widely distributed. Another great advantage of central development, as many authorities have found, is that it helps to bring together the main departments concerned with the subject—especially health and education. In addition, it enables these authorities in combination to create a sound scheme for training professional and auxiliary health workers of various categories.

It has generally been found very helpful to begin a service of this kind with the temporary appointment of a consultant who has had long experience in different areas and is in the position both to study the needs at first hand and to draw up an appropriate programme.

Where schools are comparatively undeveloped, for example, it may be necessary to attach health education activities to other groups such as the maternal
and child health service, or to place health education, at least for the time being, under the aegis of a specific campaign, e.g., against malaria or some other widespread disease. In one territory, for instance, a health education study is being conducted in conjunction with a bilharziasis control project. In others, the presence of such conditions as trachoma, malaria or hookworm may provide the initial stimulus. However this may be, the attachment of these projects must be regarded as a temporary measure of introduction rather than as a permanent activity. Health education work is an integral part of the regional programme and of the public health service of any territory, and the most satisfactory schemes are unquestionably those which meet the needs of a large number of groups. It is in this way that the health workers have a first-hand knowledge of the people, their culture and traditions, their way of life and, above all, the ways in which they are most open to approach and to ultimate co-operation. In some of the less developed areas it has been found desirable to undertake a preliminary survey through the agency of a social anthropologist, because of his knowledge of these very features. Where school organization and literacy are more advanced the training of teachers in health education methods is probably the most satisfactory approach; and in the highly developed countries health education can play its own part in the team-work of the public health and educational services.

Whatever methods of teaching may be adopted in any country, one of the earliest steps forward consists in organizing a system of training within the country itself. This applies to professional workers of various kinds, including medical, educational and social. Yet unfortunately it is at this point that apparently the least progress has been made up to the present time. Governments have gladly accepted advice and help in the preparation of an initial project, but some of them have faced difficulties in moving towards the next phase: the deliberate training of their own professional groups to undertake the health education programme. There are certain methods of dealing with this difficulty, which some authorities have accepted. The first is the introduction into various professional courses, such as pedagogics, medicine, nursing, and social sciences, of instruction and practical field work in health education principles and methods. This has been done successfully in a number of areas especially for the post-graduate range, including, in the case of one country, public health administration, hospital administration, public health nursing, and environmental sanitation.

At first it may be necessary to introduce experienced teachers from universities elsewhere but momentum is soon gained in the local teaching schools. The teaching of graduates is, however, a relatively slow and long-term process, and as a result of this a number of institutions held short-term courses in 1956 to meet the needs of workers in the field. Not infrequently these courses have been attended by professional workers from a wide area, especially in the Pacific region. The short courses are usually conducted by a teaching staff representing a number of selected subjects, such as social anthropology, social psychology, public administration, health education, teacher training, and environmental sanitation.

6. DENTAL CARE

The progress of dental health in the more recently developed countries has been profoundly restricted by the shortage of trained personnel. This applies both to training schools and to the number of practitioners available. In the smaller and more scattered territories the first step in promoting a dental scheme has usually been the appointment at headquarters of an experienced dental officer to survey the country’s position and to report on the more urgent needs. In the less populous areas there is a desperate lack of dental officers of any kind, public or private, trained or untrained. In such areas, patients urgently needing attention are seen at the various hospital out-patient clinics and occasionally at health units in remoter districts. Attached to the central department’s staff it is now not uncommon to find a senior officer with a few full-time dentists under his immediate charge. It is out of the question for these officers to cover more than a token portion of the territory, but they may at least have an opportunity of supervising the work in schools; and it is frequently there that fairly complete dental work is undertaken. For adults some reliance can be placed on private dentists, and in the more scattered territories a number of these have been trained in an accessible centre and can be classified as “assistant dentists”.

Among the larger problems of many lands the question of fluoridation has become the subject of public controversy. As far as the dental profession is concerned there is a general agreement on the value of fluorides as a preventive measure; discussion and research are now concerned with optimal quantities and methods of administration.

The earliest studies of fluorides, made over 20 years ago, related to the ill effects of excessive quantities in water supplies. It was shown that the continuous use of water containing more than one part per million might lead (in about 10 per cent. of cases) to mild
degrees of fluorosis, and that the disturbance in enamel formation increased progressively with the concentration of fluorides. During this period, dental scientists observed that dental caries could be checked by the topical application of fluoride solution. This was proved in practice by an extensive experiment on schoolchildren. Following these studies an important step forward in preventive dentistry was made by the discovery that a moderate quantity of fluoride in drinking-water was an efficient protective against caries. Surveys in natural fluoride areas have shown that dental caries prevalence is reduced by as much as 65 per cent. by the continued use of one part per million fluoride. The good effect extends to all children in whom the permanent teeth are already affected with caries, although not, of course, to any great degree.

A third method of supplying fluorides has been suggested and tried. This consists of the addition of a known quantity to the daily diet—especially that of children. The results of the trials were good, but the drawback to this method is the need for expert supervision owing to the uncertainty as to the amount that might be ingested.

In many parts of the world periodontal disease has been reported as the most outstanding problem at the present time and a number of special studies on this complex subject are being undertaken. The distribution of the disorder is curiously irregular. It affects large population groups of nearly all ages and, in general, the incidence and severity increase with age. Periodontal disease is consistently higher in boys than in girls—in fact in males of all ages.

One of the obvious difficulties in providing steady progress in dental care is that, in contrast to the attack on some of the major communicable diseases at the present time, dental treatment is so personal and so time-consuming. There is no campaign on a broad front. There is no panacea. For most of the disorders of the teeth treatment demands the personal attention of a qualified dentist assisted by a technically trained staff and making use of elaborate and costly apparatus. Even in the most advanced countries dental care falls short of the admitted needs; a relatively good ratio is one dentist to about 2000 people. Preventive work is, of course, the ideal, but decay still wins in the race.

From the world point of view the preventive approach is the way of choice, and certain aspects have very properly received special consideration. During wartime, with the restricted intake of food—especially of food containing sugar and other enemies of the teeth—there was a great reduction in the frequency of caries. It was reported that in some northern coun-

tries the percentage of decay affecting the teeth of children dropped in certain groups to about 75. Since the war, however, sweets and sugar-containing food have become more plentiful, and the curve of caries has risen once again. It is clear that diet has contributed to this change to a considerable extent and the main element in it has been the consumption of sugar and other highly refined carbohydrates. At the same time the diet under the food-rationing system in operation in certain countries was so organized as to give preference to expectant and nursing mothers and to young children, all of whom received relatively more protective foods. Thus two factors combined to produce the wartime decline in caries. In addition to the harmful influence of diet there is no doubt that food can provide positive nutritional value in the prevention of disease. This applies mainly during the formative period, and a properly balanced diet is therefore especially important for expectant and nursing mothers and young children.

Dental treatment should be concentrated, as a public health function, on the expectant and nursing mother, the pre-school child, the schoolchild and the young adolescent. During childhood the healthy development of dentition will determine the strength of the adult teeth. Supervision by qualified dentists during the growth period is therefore of the utmost importance, not merely in the prevention of caries but also in the correction of abnormal positions during the development of the teeth and jaws. In all countries where the dental service is limited children should have the priority.

There is now general agreement that the training and employment of auxiliary dental staff in the health service promote economy and a wider range of preventive work, always provided that the auxiliary personnel are supervised by trained dentists. During the past generation or so dental hygienists have been trained and the system of school dental nurses has been introduced. A number of years ago the South Pacific area met some of its most urgent needs by the training and appointment of assistant dental practitioners. This system now shows a healthy tendency to spread to other countries in which dental care falls far short of the needs of the people. There has been a certain amount of resistance to the appointment of auxiliary workers, but the advantages are now shown to be overwhelming. This is especially true where the number of qualified dental surgeons is inadequate to meet the needs of the country even for emergency treatment. There are countries in which the ratio of qualified dentists to population is as low as one to 350 000 (compared with one to 1700 in some of the more advanced areas). Auxiliary staff in team-work
is also desirable where there are enough dental surgeons to meet normal needs but not enough to supply an organized system of preventive treatment for children. The introduction of these auxiliaries, especially in the Pacific regions, has now progressed so far that special training has been introduced, and the auxiliaries work successfully under proper supervision.

The work of the three groups of auxiliaries—dental hygienists, school dental nurses and assistant dental practitioners—differs somewhat in responsibility. Dental hygienists, for example, were trained mainly to undertake preventive work for children and to give instruction in the care of the teeth. A two-year period of training was introduced. The main functions of dental hygienists are:

1. examination and charting;
2. prophylaxis—that is, the maintenance of mouth cleanliness and the attention to conditions which might lead to decay; and
3. dental health education.

The scope of these hygienists was rather limited, and their responsibilities were extended by the introduction of school dental nurses. This system of auxiliaries, which was introduced in New Zealand, has since been organized in other countries. The nurses are part of the health service; they do not practise independently nor are they employed by private dental practitioners. A very comprehensive course of two years has been introduced and special attention is devoted to instruction in health education and to such matters as first aid and general care. Dental nurses have to pass examinations at various stages of the course. After training, they are appointed to dental clinics attached to primary schools, and are normally stationed with a trained dental nurse in the first instance. They work singly or in pairs according to the size of the school or group of schools in their care and they are appointed on the ratio of approximately one to 500 children. Their duties are to maintain a group of children in sound dental health, to teach them oral hygiene and how to prevent dental disease. Treatment is standardized as far as possible, consisting in preventive work, the application of sodium fluoride, fillings in permanent and deciduous teeth, and, where necessary, extractions under local anaesthesia. The nurses do not deal with the more technical procedures but are taught to recognize the needs and to recommend the parents to seek the care of fully qualified dental surgeons. The results obtained by using dental nurses are highly satisfactory. There has been a steady improvement in the dental health of schoolchildren, as shown by the annual filling-extraction ratio. From a figure of 114 extractions to every 100 fillings in the first year of the service there was a steady reduction until a level was reached, in 1946, of 6.3 extractions to 100 fillings—a ratio that has remained constant ever since.

Assistant dental practitioners, under a system established in the Western Pacific Region in 1937, undergo a course of training occupying three years. They are trained, like assistant medical practitioners in the same area, at the expense of their government and can practise only under the direction of trained dentists and as officers of a government service. In 1950 the system had grown to such an extent that it became important to establish uniform standards. Facilities were therefore set up at the central school of the area and a new dental school has been established. There suitably educated young men from various islands in the South Pacific undergo training and return to their own island to work under direction as assistant dental practitioners. They are able to carry out all the ordinary work of a dentist and receive instruction in the elementary details of orthodontics.

In summary it may be said that three types of auxiliary personnel can be recognized: (1) Dental hygienists, who are trained and employed in the United States of America, the United Kingdom, and some other countries. They are not registrable as dental surgeons and work only under qualified supervision. Their work is chiefly preventive and educational. (2) School dental nurses (New Zealand pattern). These nurses are trained and employed in the public dental health service to supplement the work of the dental surgeon. They are not licensed as dentists and their work is limited to children. They do, however, carry out fillings and extractions and undertake educational work. They are only permitted to work in the State health service and only under the supervision of dental surgeons. (3) Assistant dental practitioners (South Pacific pattern). These practitioners are employed by the government and carry out dental treatment for patients of all ages. The system is applicable to countries in which there is a gross lack of trained dentists and particularly where scattered populations, as in island areas, make it difficult to establish an organized service of fully qualified dental surgeons.

7. NUTRITION

In the field of nutrition the distribution of functions in health services must be seen in the light of organization at both national and local levels. Most countries have some kind of structure for a nutrition service at
the national level in their ministry of health, but very few have incorporated nutrition activities in the local health services.

At the national level, three stages of development are customary. A small nutrition unit, attached to the maternal and child health service or other public department, is organized at the commencement of nutrition activities. These activities frequently expand, and the second stage is the formation of a larger unit, which is, however, still closely associated with other departments in the health ministry. The third stage at present often involves the setting-up of a national nutrition institute which, although maintaining some association with other public health departments, has a certain autonomy from the administrative and technical points of view.

The pattern of institutes of nutrition varies in different parts of the world. Sometimes the emphasis is on food analysis. In many countries the amount of time, work, and consequently money expended on this procedure is disproportionate to the results achieved. Differences in the nutritive values of foods in various parts of the world are not so great that a detailed study of all local foods must be undertaken before any work is carried out in a particular country. In many cases, tables of food composition in neighbouring or agriculturally similar countries can, for all practical purposes, be used in the initiation of nutrition programmes to improve public health. The work of food analysis laboratories will, of course, be of value to complement other activities designed to improve the food situation of a population but should not form the sole or main activity.

Some national nutrition institutes also tend to concentrate on dietotherapy, which involves the organization of special services for the dietetic treatment of diseases. Over-emphasis on this very limited subject may create difficulties in expanding other nutritional programmes. Other institutes frequently emphasize supplementary feeding programmes for schoolchildren. Although this kind of programme is necessary in most countries, an appropriate balance with other types of activity—education, for example—is desirable.

In an evaluation of the nutritional services provided throughout the world, an important feature is the lack of proportion between the time, money and effort devoted to research and that devoted to practical programmes. There has been a great improvement in the development of research on nutrition problems, and several centres for investigation have now been established in each continent. Unfortunately, there has not been a corresponding increase in practical measures designed to improve the general nutritional conditions of the population. However, in recent years a significant advance has been observed in some institutes, where a better balance between research and practical programmes has now been achieved, although there is still need for an increase in practical measures.

The functions of a national nutrition institute or department have been clearly established and accepted along general lines. Such functions include: epidemiological research on the prevalence and nature of deficiency diseases and their association with other public health problems; the study, through dietary surveys, of food consumption and habits in different areas; the training of local workers; and the preparation and supervision of practical nutrition programmes carried out at both national and local levels.

In some small countries it is difficult to organize a national institute. Equipment is expensive and it is not easy to find personnel with the requisite scientific qualifications. This problem has been solved in Central America by the creation of an Institute for the five countries of the area: Guatemala, El Salvador, Nicaragua, Honduras, and Costa Rica. Panama is also included by reason of its close association with the Central American countries. This is known as the Institute of Nutrition of Central America and Panama (INCAP), the Director of which is also the regional adviser in nutrition of the Pan American Sanitary Bureau (WHO Regional Office for the Americas).

The history of the Institute dates from 1946, when representatives of the above-mentioned countries met with the Pan American Sanitary Bureau and the Kellogg Foundation to found a unique, co-operative venture to study the nutrition problems of the area, to work out ways in which the difficulties in question might be solved and to assist in the application of such solutions.

The basic activities of the Institute are financed by equal contributions from the six countries and by special grants from certain institutions and foundations. The INCAP Council, which meets annually, has been most successful in promoting harmonious relationships among several countries engaged in nutrition and health programmes. By carrying out fundamental investigations in the field of nutrition, by stimulating and guiding work on applied nutrition, and by training large numbers of students from many parts of the world, INCAP demonstrates the practicability and the tremendous advantages of the regional approach to common problems.

Another aspect of the problem is that in many countries there are official and non-official agencies and establishments specifically devoted to the protection of certain population groups—children especially. These are engaged in useful work and are often sup-
ported by substantial resources, but they act independently of each other and of the national and local public health services. More nutrition programmes could be undertaken and many others improved if co-ordination of these agencies could only be achieved.

To improve health through better nutrition it is essential to have the participation of other departments, such as those of agriculture, economics and education. This point needs to be emphasized because the lack of such participation not only delays the solution of problems but may also create new ones. The importance of relating agriculture to nutritional requirements and food policies was first recognized at an international level by the League of Nations, and at its Assembly in 1935 the phrase "the marriage of Health and Agriculture" was coined. The initiative of the League led to the establishment of national nutrition committees in a number of countries. These should be composed of authorities in health, nutrition, economics, and agriculture.

The progress of nutrition activities in the world has been severely affected by the shortage of qualified personnel, and training has been accepted by the nutrition institutes or departments as one of their most urgent tasks. Several schools of nutritionists and dietitians are now functioning all over the world, and in addition to the very well-known schools in the United States of America, Canada and Europe, similar schools have been created in other countries in the last twenty years. In Latin America, Argentina was the first country to have a School of Dietitians, and now such schools are to be found in the majority of Latin American countries. The most outstanding example is probably that of Japan, where there are 102 schools which have trained over 16 000 nutritionists. Brazil has also developed training activities on a large scale during recent years.

As has previously been mentioned, national nutrition services have been organized in most countries, although much still needs to be done. Activities at the local level, however, have not kept pace with and are less effective than national programmes. Practically all services in local health centres have some part to play in improving the nutrition of the population in their area, but in fact these activities do not generally form part of a previously defined policy. Two services in the public health centres at the local level—maternal and child health centres and health education—have undertaken most of the nutrition activities.

The poor nutritional state of the pre-school child is one of the most serious problems confronting maternal and child health centres at the present time. In the first year of life the child generally receives adequate attention from these centres—at least in some countries—and when he goes to school he again comes under some medical supervision. In the intervening years, however, he lacks medical care, though it is in this period that children are most exposed to the hazards of malnutrition and infection. In some countries there is a tendency which favours extending supervision to cover pre-school children. The inclusion of public health nutritionists assigned to maternal and child health centres on a regional basis has been recognized as a valuable contribution to the work of these centres.

Finally, it is important to obtain a better definition of the nutritional activities at the local level, and of their priorities, because the best results will be achieved when the traditional services of the health centres can incorporate nutrition programmes as a routine activity along well-defined lines of responsibility.

8. VETERINARY PUBLIC HEALTH

Veterinary public health is concerned with the control and eradication of diseases naturally transmissible between animals and man. It undertakes laboratory and research work in its own sphere and in combination with health and agricultural services. Veterinary public health is also concerned with the important function of educating and training professional and auxiliary workers. The object of establishing veterinary public health units is to improve team-work in the various joint activities in government administrations; for example, responsibility for food control varies widely in different countries and at different governmental levels within the same country. The departments of health, food, agriculture, social affairs, etc., may all be concerned with food hygiene. The essential purpose of food hygiene is to prevent the transmission of disease to man through food products, especially the perishable foods of animal origin (meat, milk and milk products, fish, poultry and eggs) and to ensure that the consumer receives a wholesome and nutritious product. It is clear that the supervision of food hygiene is a public health function. It has many other aspects, especially in connexion with agricultural economy. As part of the health service, however, it must secure close co-operation between the medical side and the veterinary.

In the hitherto less developed countries there have been rapid advances in the co-ordination of public health services. In this development attention has been given by many governments to the contribution
of the veterinary service. Most national health departments employ veterinarians to carry out functions relating to food protection, the study and eradication of diseases transmissible between animals and man, and the organization of research in matters of common concern to human and animal health. In most areas the veterinary service has been closely related to agriculture but there is a trend towards closer collaboration with health departments. This integration can best be carried out, in the first instance, by the establishment of veterinary public health sections in national health administrations staffed by trained veterinarians with appropriate personnel. At the intermediate and local level of public health organization it is not possible to set a universal mould. A great deal depends on the co-ordination from the centre. The national director has to work out a scheme which will give a service at the various levels of activity. Most of the research work will be carried out at governmental or regional levels, the local areas acting as transmitting centres—especially in the control of the zoonoses.

At the intermediate level, the problems of integration are very similar to those of the national service because they include research work, food protection and the control of specified transmissible diseases. It may well be that in the more populous areas the main executive functions fall on the province or region, the national activity being directed towards co-ordination and general guidance. It is in the region also that co-operation is best secured between teaching and research schools, agricultural studies at the university level, and the major hospitals and medical care services.

In the local public health unit the extent of service depends on the size of the public health department and the population of the area to be served. In the larger cities a veterinarian would be a member of the public health team, which includes medical officers, sanitary engineers, public health nurses, and sanitarians. In the smaller areas it is seldom feasible to have a fully trained veterinary officer on the spot, but part-time veterinarians can be assigned responsibilities for visiting areas at regular intervals and for dealing with the problems which are of combined agricultural and public health importance.

In many countries of the world today there is a lack of qualified veterinarians, and it is often necessary to train assistants in techniques and procedures that will assist both the health and the agricultural service. As in the case of assistant medical and dental officers in relatively remote areas, short-term training can be given to veterinary workers to enable them to work under supervision from a major centre. It is becoming clear, at any rate, that veterinary work is beginning to play an increasing part in community development at the rural and village levels. Veterinarians can contribute usefully to village health and economic status, bringing together in simple terms animal husbandry and hygiene. An approach to rural health problems with the assistance of a veterinarian is more likely to be understood and appreciated in the less advanced communities than the pioneer work of the health officers alone. This co-ordination between the veterinary service and the agricultural economy deserves urgent consideration. The combined resources play a part not only in community development but also in simple but penetrating health education. A veterinarian can do much to explain to rural and small town communities the hazards of animal diseases and pest infestation, the danger of transmission to man and the means of handling situations in advance. This can be done by simple talks to voluntary bodies, including parent-teacher associations, rural institutes and dairy associations, on food handling and particularly the protection of animal foods in the course of production. The importance of this approach in community development cannot be overstressed.

9. HEALTH AND THE ENVIRONMENT

From the very beginning of public health organization the subject of environmental sanitation has given rise to the great majority of government health regulations. This statement applies to countries in all stages of development. In European countries, such as France, Germany, Italy and the United Kingdom, most of the early laws and regulations referred to some abuse of the citizens’ environment—for example, the accumulation of rubbish in public places, the effects of bad paving and its interference with traffic, and, in general, the want of cleanliness in city streets. In addition to these shortcomings, the absence of a drainage system raised acute problems in getting rid of liquid waste material from houses—as the old Edinburgh city cry of “Gardyloo” bears unpleasant witness—the housewives emptying their slops out of the window into the street. In many of the larger and more populous areas of the world, at different periods of time, crude environmental deficiencies have been held responsible for the propagation of disease, often with a good deal of justice, as epidemics of cholera and typhoid have demonstrated. Indeed, most of the major epidemic

1 From gare de l’eau, pseudo-French for gare l’eau
diseases which are only now being conquered have been caused directly or indirectly by bad sanitation or some other grave fault in the environment. Even in the insanitary Middle Ages, the municipal authorities of many prosperous towns were forced to take measures to rid the area of accumulations of dirt.

The gradual development of water supplies from some common source, such as a reservoir or a river, served at first only as a partial remedy, because few precautions were required or taken against contamination by human excreta and the like. As often as not, even public water supplies were ill-protected both at the source and in their course through badly made piping systems; and a large number of wells which remained in cities became more and more liable to direct pollution as housing congestion increased.

The same process of gradual installation of public water supplies and proper drainage in towns at least, has been in operation in many countries which are now in the process of industrialization. When the industrial revolution took place in England no system of control of housing or town planning was in existence. At the height of this period the environmental sanitation situation in the growing cities was therefore actually worse than it had previously been. It was not until the great Public Health Act of 1875 that any co-ordinated system of environmental sanitation was introduced and generally enforced. Many of the less industrialized countries have not yet reached the stage of enforcement, and in quite a number of them only the larger cities and towns have a comprehensive system of water supply and drainage. Nevertheless, progress is being made with increasing speed. During the past three years a number of significant trends can be observed in urban water supplies. One of these is the improvement on a wide scale and the modernization of water treatment works and distribution systems. More efficient filtration schemes are being put into use in many cities.

One of the adverse trends is the increasing number of installations for the storage and treatment of water which are being constructed without adequate supervision by the public health agencies. In their eager desire to improve the quality of public water supplies some municipalities, particularly in countries where skilled engineering services are not available for health purposes, have left the entire business of specifying, designing and constructing waterworks in the hands of commercial firms. In effect, these cities and towns are saying to private contractors, “Please build us a water purification plant”, without laying down any criteria whatever for the quality or safety of the water that is to be supplied. Frequently these plants are designed without even proper safeguards against pollution, and, to an alarming degree, water of unsatisfactory quality is being delivered to homes and industries.

A third trend which has been observed in the health services of many countries is a growing interest in the water-borne transmission of virus diseases. During the past few years there have been numerous references in scientific literature to this route of infection in poliomyelitis and infectious hepatitis, and the unfortunate massive epidemic of the latter disease which occurred in New Delhi in November 1955 has awakened health authorities in all parts of the world to the serious nature of the problem. This epidemic involved some 29,000 cases with about 90 deaths. It was unique in that the water supply concerned had been given all the conventional treatment—that is, coagulation, sedimentation, filtration and chlorination—, and throughout the course of the epidemic it was observed by biological analysis that the steps taken by the engineering authorities were normally sufficient to maintain bacteriological purity. This observation was corroborated by the fact that there was no significant increase in enteric diseases such as typhoid fever, diarrhoea or dysentery during the period in which the raw water had been contaminated. The question may therefore arise whether treatment which is sufficient to remove bacteriological contamination is adequate to inactivate the virus of infectious hepatitis. Serious research is now under way to devise practical methods to protect the people from this type of infection.

With regard to rural water supplies, it has long been recognized that in most of the countries of the world there is an urgent need to improve the sanitary quality of the water used by village populations. Schemes for this purpose are difficult to carry out, and even a moderate improvement of the health of people in country areas by this means seems to be still far in the future. It is very difficult to assess the minimum needs of village people. Wells can be made safe in a technical respect, but only a thoroughly planned community health programme can educate people to use them prudently. However, enough experience has accumulated in a few countries to show that improvement of rural water supplies is practicable, given the understanding help of the local community. In Brazil, for example, the programme for getting better water supplies in small rural communities has been successful through the discovery of technical and administrative methods which can be applied on a wide scale. It is interesting to note the increasing emphasis which is being laid on the availability of water in quantity as a public health factor, rather than insistence on its quality. Research in the United...
The reports from many countries indicate a strong demand for measures to improve the general environmental situation. One striking example of this has been the inclusion of sanitation in programmes of community development, building up from the local level in rural communities. Most national governments recognize the need to carry forward well-integrated programmes of social and economic development, with general sanitation occupying a prominent place. New techniques are being tried out: for example, the composting of municipal refuse together with night-soil is being carried out vigorously in several Asian countries. Japan has taken the lead in research and development, closely followed by China and the Philippines. This method of treating night-soil seems to offer a solution to the age-old conflict between the benefits of conserving the fertilizing value of night-soil and the hazards to health and amenity arising from the use of the raw material. Rapid mechanical composting brings about the generation of temperatures high enough to kill pathogenic bacteria and the various forms of intestinal parasites.

Perhaps the greatest advance that can be observed in environmental sanitation is the better training of personnel. Governments are realizing that effective programmes cannot be instituted or put into effect without specially trained inspectors and operators. To an increasing extent they are carrying out comprehensive programmes on a national scale for training these auxiliary health workers. Schools for sanitary engineers and sanitary inspectors or overseers are being organized and regional courses are offered in many parts of the world for training sanitary engineers at both undergraduate and post-graduate levels. In these schools and courses the students can receive instruction in their own language and under conditions really comparable with those in their home country. By means of the establishment of these training methods the national health administrations are becoming more competent to deal with sanitation, even in difficult areas, and are relying more and more on their own resources.

The road to better environmental conditions is not always easy. With the rise of industry, countries are being faced with new factors which are now exercising a detrimental effect on sanitary conditions, even in areas which have already achieved high standards of sanitation. One important new problem, as industrial development proceeds with increasing speed and urgency, is the pollution of rivers and streams by waste products from factories—wastes from metal processing, from cyanide and chromium, organic wastes from such industries as pulp and paper processing or food-processing. Many of these wastes, although not actually toxic, make water unpalatable, in addition to their effect in damaging the amenities of the countryside.

Over and above direct industrial damage an increasing amount of harm is being done by air pollution, attributable to industrial gases, fumes and smoke and the exhausts from automobiles in crowded areas; in the colder zones the use of crude domestic fuel has a similar effect. The notorious “smogs” of London, Los Angeles and the Ruhr are striking examples of this danger and on occasions have taken a heavy toll of life. Smoke is slow to clear, but a number of highly industrialized towns have taken the lead in introducing legislation—with beneficent effects. In this connexion St Louis and Pittsburgh, in the United States of America, and Manchester, in England, deserve special mention. There are many manufacturing areas which do not use smoke-producing fuel and so have no problem. It is to be observed that smoke produces many indirect hazards in addition to its direct attack on the lungs. Its destructive effect on buildings, the production of dirt in people’s homes, and its effects on clothing are all examples of indirect but serious damage to health. The problem is likely to become one of great urgency in urban areas which are progressing rapidly, unless preventive measures are taken in advance.

In addition to the more specific conditions mentioned above, over-rapid industrialization without careful planning will inevitably lead to a series of other public health risks. Among these are the over-taxing of water and sewerage systems, the danger of a breakdown in public services, especially in relation to cleansing, food protection, and general environmental supervision.

The rapidly growing industrial towns of the more recently developed regions are frequently lacking in well-thought-out schemes of town planning. Among the main problems may be listed:

1. The retention of an “old city” of narrow winding streets and densely packed buildings. There is no objection to retaining an “old city” if it has historic associations and buildings of antiquarian interest or intrinsic beauty. Nevertheless, the city should be part of the improvement scheme and planned with as much care as any other development, especially as regards limiting the number of residential buildings and preventing a crowding-in of new business and
industrial premises. A great many of the ancient centres ought to be preserved with great care, but this is all the more reason for imposing strict conditions in the interests of both health and history.

(2) The planned organization of a modern commercial and administrative centre, apart from the old city and yet in an accessible position, is of great importance. In some cases—particularly in Asia and North Africa—the modern city is completely separate from the old. Frequently the old town has retained its traditional artisan industries, its commercial activities, such as bazaars, and not infrequently it is still divided into sharply defined quarters along racial or religious lines. A few of the old cities in the Eastern Mediterranean area have grown to a considerable size without admitting any substantial modern elements. In other cases—notably in Latin America—the modern city and the old are intermingled, and unfortunately modern expansion is tending to overwhelm and nearly obliterate the ancient landmarks. There are, of course, increasing numbers of towns, many of them scattered throughout Africa south of the Sahara, where new industrial mining and oil-producing centres have sprung up like mushrooms, without any older foundations.

(3) When towns grow at great speed, as in England during the 19th century, there are two major threats to health and amenity. The first, which was so prominent during the European industrial revolution, was the building of cheap and shoddy dwellings—often a long row of cottages or tenements without any real planning scheme at all. The main object of the builder was to cram the largest number of buildings into the smallest possible space, without regard to the welfare of the tenants. In other countries in many parts of the world slum building of this kind has not taken place, although there is frequently a gross overcrowding. What happens is that a zone of huts or shacks springs up on the periphery of the new town. Sometimes, as a result of careful planning, the suburban areas are made up of little villages which maintain traditional values and the quality of rural society; but far more frequently this zone looks like a gold-rush town of the western states of North America, consisting of formless shanties and without any kind of physical or social organization. Sometimes these shanty towns consist of caravans and other movable dwellings and are often outside the administrative boundary of a city, which has reasonable powers of enforcement of health regulations. Many of them are so placed that only a weak rural authority is responsible for providing sanitation or planning, and often enough the movable dwellings become semi-permanent shacks inhabited by "squatters" without rights of possession. The environmental functions of the city health authorities are thus being continually thwarted and powers which they wish to exercise are often enough too little and applied too late.

The planning of urban growth involves not only the control of housing but also the location of factories. In many of the older industrial towns, and unfortunately in the new ones also, factories have been planted without thought of convenience of transport from the workers' dwellings. Now and then employers have built townships to house their own workers and under these conditions the actual plan is usually satisfactory. But it frequently bears little relation to planning as a whole in the industrial area. The result of this is that groups of dwellings may be totally cut off from other residential neighbourhoods by lines of unplanned factories and perhaps railways and docks. When cities expand rapidly, the newcomers may settle in older tenement slums or drift into hastily built suburban cottages and temporary dwellings. Much depends on the existing buildings, on whether there is any space at all in the town centres. If the land on the outskirts has to be used these cheap townships spring up very commonly on pieces of ground that have been left alone precisely because they were unsuitable for building. These may consist of half-filled-in swamps, as in certain districts of Bangkok, steep hillsides, as in the favelas of Rio de Janeiro, or on low ground subject to flooding, as in Baghdad and many flat riverside areas, or on any kind of waste ground, such as an old refuse dump. Sometimes the land has been left because of its difficulty of access for drainage and water supply or even perhaps because it has been held back by owners in an anticipation of future commercial or residential development. Wherever these dwellings are built, the one feature in common in unplanned development is the formlessness often associated with an almost complete absence of made-up roads. Some of these areas improve as time goes on and the industrial occupations become more permanent. In the more economically advanced countries, housing controls are extended by enlargement of the city boundaries or by better regulation of the rural environmental by-laws. Even at best, however, there is a lack of community in these dwelling areas which makes them always appear as temporary and makeshift, and as time goes on they become increasingly difficult to improve at any reasonable cost.

These rapidly industrialized towns spread more freely where the surrounding area is sparsely populated, as in many parts of Africa and Latin America, or where desert or uninhabited land is found at the gates...
of the city. In densely populated parts of Asia, however, and, since the war, in a number of countries which have suffered from mass immigration, the prodigious movement of the people inwards—and particularly waves of refugees—has forced the creation of shanty towns. More commonly, the growth of these disordered dwellings is limited by the fact that land is intensively cultivated right up to the edge of the city and is thus too valuable for immigrant occupation. This difficulty does not prevent rapid city growth: it simply means extreme overcrowding, both in the older parts of the city—the market places and the streets—and in the improvised slums that have sprung up on the few odd pieces of vacant land, such as river-banks and swamps. It seems that the housing situation in many cities, especially in Asia, has actually deteriorated in recent years because new building has not kept up with the natural increase of the urban population, let alone the flood of immigrants. The increasing demand for housing is prominent also in the lower middle class, and among better paid workers and clerical employees. These groups have generally been housed in the older parts of cities to which time has brought deterioration—along with increasing rents. Not infrequently the actual accommodation available to them is shrinking because of demolitions and the inroads of shops and upper-income apartment houses. At the same time these groups have themselves felt a great need for better standards of housing and especially for relief from overcrowding. The city administrations everywhere are making great efforts to provide more houses. The emphasis must lie on low-cost dwellings and encouragement by subsidy of private construction, either on an individual basis or through housing societies. Attempts have been made in some territories to prevent the inflow of migrants unless they have steady employment. These measures have seldom been effective. The whole problem today points to the need for further research in housing and town planning. One of the most promising advances in recent years, which will be further explored, is the construction of self-sufficient new towns with a complete decentralization of industry. The overwhelming advantage of the new town is that the worker both lives and has his employment in the same place, thereby saving the money and time spent on travel.

Unfortunately the housing question goes far beyond construction alone. It is not merely a question of building dwellings. As industrial development takes place, the workers and their families feel the need for more space, better sanitation, and more amenities in and around their dwellings. If a housing programme is to be effective, it requires intensive efforts by social workers and housing managers to help those who live in slums to appreciate and take advantage of the new living standards, and at the same time there must be a move towards higher wages, so that the economical rents can be paid.

How are these environmental functions to be distributed in the health services? One or two useful answers to this difficult question are gradually emerging as a result of studies made on the spot. The first, and in many respects the most important, is that environmental services grow best when they are firmly rooted in community life. In the rural areas and villages they ought to be an essential part of the community programme, and the enthusiasm of the local residents is the only real guarantee of continuing success. The larger towns and cities seem at first sight to present an entirely different problem; but on closer examination it is found that they have a good deal in common with rural areas from many aspects. Cities, and particularly new towns and extensions of the old, are made up of neighbourhoods. It is true that the worst of the peripheral shack towns are notoriously lacking in any communal spirit, but surely this very fact points to one solution: that the health services should make every effort to create neighbourhoods in these unorganized areas, and so link families together with the bonds of common interest. Regarded as a whole, the achievement of housing, planning and other environmental tasks seem to be beyond the wit and the purse of a health service. Yet if the areas are systematically divided for these purposes, gradual local progress seems to be within the grasp of people who have a common interest in making good. When new estates and new towns are constructed today, one of the first functions of the authorities for health and social services is to use existing material in order to support the formation of real communities. This cannot be done without financial expenditure, but a governmental or regional subsidy to a good local enterprise seldom drifts away in heavy administrative costs, because the people themselves have a stake in success.

The second answer is that the public health service as such cannot be set moving in isolation; it must be associated with other environmental activities such as road-making, land drainage (especially in the neighbourhood of towns), as well as co-operation between neighbours in the planning of open spaces, schools, libraries, and other public services. Water supplies and the disposal of waste materials cannot be dealt with satisfactorily except in harmony with other developments. From these simple illustrations it is not difficult to see the need, at all levels of government, to create authorities for the promotion of com-
community enterprises, with sufficient funds at their disposal for smooth, steady progress.

The third answer, which is implicit in the first two, is that no permanent advance can be expected in the absence of an educated and understanding community —educated, that is, in the benefits of a sound, practical health programme which is, so to speak, well within the range of their everyday vision.

10. THE CONTROL OF COMMUNICABLE DISEASE

In general terms the control by mass measures of an infestation or a widespread communicable disease has a salutary effect on a country. Many of its people, especially where a campaign touches rural areas, are brought into contact with the health services for the first time. By this means they begin to appreciate what is being done for them, and in the course of time to press for extension of the benefits. This is the moment when the local inhabitants should be made partners in health work on a voluntary basis, however little their contribution may be in the early stages. It is a fact that progress is hard to come by unless the people are with the experts—unless each scheme is brought into their understanding and wins their goodwill. It has been shown, for example, that in the wake of campaigns against yaws and leprosy, community effort has established rural health centres. The combined attack on several infections has the effect of strengthening the service at the local level. At the same time it makes for economy in staff and transport, and, under proper supervision, it creates an efficient administrative unit that becomes a model for a whole district. In a number of countries pilot projects have been set up; the intention of such projects is to define local epidemiology and the methods of application that are locally indicated. Once the most economical methods are established, application on a wider scale is advocated. The most successful projects are those which pass out of the demonstration stage and become permanent, decentralized units of a national health service.

Many governments have now accepted the policy of malaria eradication which depends on the systematic application of residual insecticides. It has been demonstrated that if transmission is interrupted for a sufficient length of time, by breaking the cycle at the level of the vector over a wide enough area, the infection dies out. In this way costly measures of control can be replaced by much cheaper routine supervision. The development of resistance to insecticides by the vector, demonstrated in recent research work, has made this technique indispensable. The replies from many of the countries involved show an encouraging desire to proceed with all speed on the road to complete eradication of malaria. Some failures have occurred, it is true, but these have generally been associated with administrative deficiencies or faults in the preparatory work, and not with flaws in technique. It is essential that the machine should run smoothly. A mere glance at the situation in the world as a whole quickly dispenses any mists of easy optimism. The problem is of colossal dimensions, especially in Africa, where the particular epidemiological problems make much research essential before effective eradication can be aimed at. Yet this knowledge ought not to deter governments from a forward strategy. Perhaps some of them feel that an all out antimalaria campaign would so reduce the funds and staff available for other health purposes that the want of balance would be disastrous. This fear is understandable, and it is no doubt very difficult to determine where the true priorities lie; but one must remember that the toll of malaria in sickness and a dreary sub-health is exceptionally high, and that much of the cost of a progressive eradication programme might be recouped in other ways. A marked improvement in health and well-being has a stimulating effect on the economy and working capacity of a people.

The system of control by case-finding and treatment has been applied successfully to yaws and endemic syphilis. One practical result of field studies was the observation that case-finding alone was not sufficient and that contacts must be treated, because they provide a reservoir of infection which, if allowed to remain, would vitiate the results of a mass campaign of eradication. Cases have to be searched out methodically, for missed cases and missed contacts renew the spread of infection. Long-acting penicillin preparations have proved their value, although limitations may be imposed by sensitivity reactions. Constant watch has been kept for the development of resistance, but until now none has been noted. Governments begin to realize that the price of safety is eternal vigilance—and continuing experiment.

In many parts of the world smallpox is still a menace, although its control by vaccination has been recognized for several generations. (See fig. 3.) One of the practical reasons for the failure to control the disease is that ordinary vaccine lymph rapidly loses its potency when exposed to the high temperatures of the tropics. Dried lymph with increased stability has proved satisfactory in certain countries and disappointing in others, but a new method of preparation which gives much greater resistance to heat has now been
devised. However, effective control depends on the existence of adequate health services to apply systematic vaccination, and these are lacking in some countries.

Most of the other communicable diseases have not yet been brought within sight of extermination, but good progress has been made towards the control of some of them—notably poliomyelitis. In this disease the preparation of an inactivated virus vaccine has made it possible to prevent to a large extent the paralytic complications of infection. Progressive research over the years will, however, be needed in epidemiological studies and in selecting the best type of vaccine and determining the optimum method of use. It is one of the few serious communicable diseases with a rising incidence, and it is tending to attack the higher age-groups, in which paralysis is often more severe. Unfortunately there are too many countries which lack staff and organization equal to the task of producing this vaccine and applying it successfully. It is often difficult to persuade a people to accept preventive measures in advance of a seasonal outbreak, and this is precisely what is necessary in a campaign against poliomyelitis.

In tuberculosis the fall in the death rate continues, at least in those areas where reliable statistics are available. But it is still a serious world problem. BCG is becoming more and more widely applied, and there is little doubt that it will drain the reservoir of infection in a population; but it is not sufficient to deal with persons already infected and so bring the total disease under control. The strategy against tuberculosis must combine BCG campaigns with a full programme of case-finding and treatment, aimed at reducing the sources of infection in a community. In recent years the use of drugs in the ambulant care of the tuberculous has come into prominence, and indeed this may prove to be the only feasible means of control if relatively cheap non-toxic substances can be produced. At present, various trials are being made, especially with Isoniazid either alone or in combination with PAS.

The control of trachoma has been referred to by many governments. Local treatment by antibiotics, employing repeated applications over a long period, although having inherent difficulties as a mass measure, has proved to be possible and effective. Recent studies in the field have shown that in certain epidemiological circumstances both the frequency and the length of treatment can be reduced to reasonable proportions. Large campaigns became feasible by training school-teachers and others to carry out the work under supervision. Trachoma control should only be started after local epidemiological studies...
have been carried out to define the role of the associated conjunctivitis and bacterial infections. Further laboratory and field research on simpler techniques remains essential.

One of the diseases in which the closest collaboration between public health and veterinary medicine is indispensable is rabies. With that team-work in action the prospects of ultimate control are considerably improved. The first approach is to reduce the chances of human infection by immunizing and controlling domestic animals in contact with man—especially dogs. The second approach is towards better methods of treatment, both local and systemic, for wounds caused by the bites of animals suspected of being rabid. It has been shown that the use of hyper-immune serum has a striking effect in reducing mortality after severe exposure, when vaccine alone may prove deficient.

The traditional communicable diseases of childhood—scarlet fever, diphtheria, measles, and whooping-cough—have declined considerably as causes of death in most European and North American countries. However, they are still—particularly the three latter diseases—a health problem in many other parts of the world. In the temperate zones, diphtheria prevalence and mortality have declined as vaccination has become more widely applied.

Thanks to improved sanitation and to improved international quarantine control, “pestilential” diseases have in recent years lost much of their wonted importance, although they still constitute a potential danger.

Plague, albeit widespread among wild rodents in many areas in the interior of Africa, America, and Asia, has less and less access to domestic rodents and man. Only 514 cases of plague were recorded in 1957.

Cholera is now practically confined to India and Pakistan, 66,000 cases being reported in 1956. (See fig. 4.)

Yellow fever, owing to Aedes aegypti control in Central and South America and the extensive vaccination campaigns carried out in both tropical America and Africa, has practically ceased to be a human disease, only 25 cases being reported in the Americas and only half-a-dozen in Africa in 1956. Epizootics in the former region, sweeping the tropical forest as far north as Guatemala and British Honduras, prove that control measures cannot be safely relaxed.

Typhus fever remains prevalent in all continents, but the number of recorded cases does not exceed a few thousand and is rapidly dwindling. (See fig. 5.)

Relapsing fever is practically confined to Africa, Western Asia, and the Iberian Peninsula. There were less than 5000 cases reported in 1956, half of them in Ethiopia.

One of the most interesting field studies of recent years has been the investigation of the natural endemic foci of the zoonoses—the study of how the agent that causes the disease persists in nature and the route by which it is likely to be transmitted to man. The existence of these foci attracted the attention of scientists in the Union of Soviet Socialist Republics when encephalitis was diagnosed among people who went out in spring and early summer to semi-desert areas in the far-eastern regions of the Union. The small, scattered population made man-to-man transmission very unlikely, and a cause of infection was eventually traced to animals inhabiting the locality. Similar investigations have been carried out successfully in Poland and Czechoslovakia. These findings might be briefly summarized by saying that natural endemic foci of the zoonoses may remain undetected or dormant for indefinite periods; indeed, they may remain in this state so long as human beings do not have access to them. Nevertheless, they are a potential danger, and their existence and position should be worked out in advance. Fortunately, there are some useful clues: these foci have definite ecological peculiarities according to place, climate, presence or absence of vegetation, and other environmental factors. Such clues indicate whether certain diseases are likely to exist in the area under study. This type of field investigation, which has become known as “landscape epidemiology”, is valuable in suggesting potential risks, especially in unknown territories where man is about to settle for the first time. As an example, the presence of leishmaniasis, or Oriental sore, might be suspected in desert areas inhabited by burrowing rodents. In tropical Africa, a region of bush country with big game, or with river banks surrounded by thick vegetation, would lead one to be wary of the presence of trypanosomiasis. The essential point is to anticipate the epidemic possibilities of such areas, so that they can be avoided—or, failing this, so that human beings can be protected against infection. In some instances the affected territory may be freed from danger by exterminating the reservoir hosts and vectors. In others, this method may be too time-consuming and difficult, owing to the nature of the foci. It might then be feasible to introduce mass vaccination of the people at risk.

There are a number of good examples of the influence of these concepts on the present-day public health practice in the USSR.1 One of the most striking was the study of the spread of tularemia by

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1 See: MEYER, K. F. (1957), Some observations on infective diseases in Russia. Amer. J. publ. Hlth, 47, 1083
FIG. 4. REDUCTION OF CHOLERA PREVALENCE, 1948-57

FIG. 5. REGRESSION OF TYPHUS: CASES OF LOUSE-BORNE TYPHUS REPORTED FROM 1945 TO 1957

(logarithmic scale)
means of infected water-voles and other rodents. The essential mode of infection was the inhalation of dust stirred up during the use of straw that had been contaminated by rodents. The drinking of water fouled by the carcasses of water-voles also caused many attacks. Prophylactic measures are concentrated on the mass destruction of rodents, the protection of food supplies and water sources, and the substitution of pine and fir needles for straw bedding. Unfortunately, the arthropod vectors form a chain of infection from one type of rodent to another, and this chain cannot be broken by eliminating a limited group of rodents. This difficulty has led to the development of active immunization with living attenuated strains of Pasteurella tularensis, which affords a strong resistance to subsequent infection. The system of vaccination is similar to the smallpox technique, and the reaction follows on the fourth and fifth day with vesicle formation changing to scar.

In many countries the discovery of new wild rodent species has shown these animals to be the responsible sources of the plague bacillus in inter-epidemic periods.

Extensive advances have been made in our knowledge of virus diseases. After it became easier to isolate and identify viruses through the tissue culture techniques, intensive research led to the discovery of many new viruses and better knowledge about the cause of many unknown fevers. Well-planned international observation services, through the network of WHO Influenza Centres, have led to rapid reporting of new variations of the influenza virus and contributed to timely production of vaccines containing the new strain.

For certain diseases, such as bilharziasis, incidence is rapidly on the increase throughout the world, owing to newly created irrigation schemes established for the economic and social development of countries. Although under special local circumstances it might be possible greatly to reduce the incidence of bilharziasis through control of the snail intermediate hosts by means of molluscicide application, effective control of this disease needs further field research on the intermediate host-parasite relationship, the application of engineering methods to prevent its spread, laboratory work to find a cheap molluscicide with a more residual effect, and an improved drug suitable for use in mass treatment campaigns.

All these campaigns against communicable disease, and the field studies under way, reveal many gaps in our knowledge. The research necessary to fill these gaps has to be outlined. Intensive international coordination of research makes it possible to combine laboratory and field investigation and thus provide the answers needed to promote simpler and more effective control methods.

11. CHRONIC AND DEGENERATIVE DISORDERS AND AGING

The reports submitted by a large number of countries make it clear that in the past the most urgent problem confronting the health services has been the long-drawn-out battle against the graver communicable diseases. In most of these countries the war will have to continue for many years to come, especially the campaign against the major endemic and epidemic infections. Up to the present less attention has been devoted to a group of disorders which are more insidious in their attack and more prolonged in their course. The dividing line is not very sharp, because some of the acute communicable diseases tend to slip down into chronic conditions and to give rise to increasing disabilities. Many of these conditions are not in the ordinary sense fatal, but they shorten useful life and often cause a great deal of suffering and disablement. Unlike the diseases which originally cause them, they are not, of course, transmissible from patient to patient.

The chronic diseases in general are so called because they tend to affect their victims for long periods, either continuously or intermittently. They may make their first appearance at any age, especially if they are due to infection, but they join forces with the degenerative lesions as the years pass on towards middle and old age. We therefore include among the chronic diseases the following groups, by way of illustration rather than catalogue:

(1) The disabling sequelae of certain acute infections such as poliomyelitis, cerebrospinal meningitis, and some of the common infections of childhood.

(2) Non-communicable disorders arising, for example, from injury at birth, congenital deformity, accidental injuries and the like, but excluding mental deficiency and disorder unless accompanied by a disabling physical condition—as in many cases of cerebral palsy.

(3) The conditions described—for want of a better name—as "the chronic degenerative diseases". These include mainly, although not exclusively, the rheumatic disorders of a chronic type, cardiovascular diseases—especially those associated with atheroma—, malignant new growth, and a variety of long-term neurological affections. The chronic respiratory diseases such as chronic bronchitis, asthma, emphysema, and bron-
chiectasis might be classified in the same group, as a matter of convenience.

It has been suggested that communicable diseases such as poliomyelitis ought to be divided into an acute, infective phase and a long-term non-infective period, if paralysis supervenes. There is much to be said for making this distinction, as the form of medical and social care is entirely different for the two phases. The same principle might well apply to a slowly progressive lesion of the nervous system following upon a disease such as meningitis or encephalitis of viral origin; it would also apply to the early and late stages of trachoma. From the point of view of distribution of functions within the medical services of a country this division according to the type of care and treatment required would be the logical method.

Even the most imperfect returns from countries indicate that all these long-term disorders are present to a greater or less extent throughout the world; but their importance in kind and number varies from country to country and from region to region. Their incidence is obviously affected by climate and geographical conditions in some cases, and by social and economic status in others. The speed and efficiency of treatment during the acute stage of attack may have a profound influence on the extent and severity of the ultimate disability. In countries which have gone far towards the control of the major acute communicable diseases, the chronic disorders—especially those affecting the older age-groups—become relatively important in the record of both sickness and death. This is of course largely due to the fact that, as countries advance towards skilled prevention and the effective control of the great epidemic scourges of man, their citizens live longer and are thus brought within the range of the degenerative disorders.

Unfortunately, the underlying causes of many of the chronic degenerative diseases are not yet fully known, so that primary prevention—that is, averting the onset of the condition—is beyond the compass of medical science. In a limited number of instances, however, where the causative agents have been ascertained, it is possible to take preventive measures. This applies to some forms of rheumatism and certain types of occupational cancer; and recent progress in basic studies of the blood and circulation has gone some way towards clearing obscurities in the pathology of the cardiovascular system. In a similar way nutritional research has shown promising lines of investigation. At the present time a great deal can be learnt through careful studies, in one country and another, of the epidemiology of the chronic diseases. Their age-incidence and distribution offer valuable clues, and increasing knowledge of these factors is leading us towards a better understanding of the underlying causes. In this respect international collaboration is urgently needed.

Our ignorance of the causes of many of the degenerative conditions should not be taken to indicate that the picture is entirely dark. In point of fact, the sufferers from most of these diseases have found relief, through modern medicine, from a great deal of pain and discomfort; and, if our existing knowledge is applied widely in practice, much can now be done to arrest the progress of the disease itself and to prevent the onset of distressing complications. By this means life can be prolonged and disability reduced by early diagnosis and prompt, adequate treatment. The possibilities of active care through the use of physiotherapy have not yet been fully appreciated, except, perhaps, after accidental injuries. The value of rehabilitation in the chronic diseases is often remarkable, and even bedridden cripples have been brought back into active life by careful attention to method and management. In all probability the cost of comprehensive rehabilitation is one of the main obstacles to its more extensive use among the lower income groups, but the results in the restoration to useful life are striking.

The reports from many countries indicate that a great deal of attention is now being paid to the early detection of chronic disease, particularly before symptoms arise. Periodic health examinations and mass screening procedures are now being used for this purpose in a number of countries. That such case-finding procedures have not been more widely adopted up to the present time is largely due to the hight cost involved and to the insufficiency of staff and equipment to deal with diagnosis and therapy. As yet a great many people have not been educated to an appreciation of the need for routine examination or to any understanding of its purpose in saving life and health. In some cases also, the medical profession itself has been slow to develop preventive measures of this kind.

Until comparatively recently it has not been easy to attract the interest of medical students and practitioners in the more chronic conditions, partly because in the past the status of the patients in the so-called "chronic" wards of hospitals or special institutions has been regarded as inferior and lacking in dramatic excitement. In consequence, active medical care tended to be concentrated on acutely ill patients, particularly those who could be treated by surgical methods. It is only in the last two decades that physician and student have begun to appreciate that much can be
done to restore the well-being and good functional activity of the majority of those who suffer from the chronic degenerative diseases, even of those who have been struck down by cerebral haemorrhage or thrombosis. In addition, a considerable number of persons suffering from neurological diseases that had hitherto been regarded as hopelessly incurable have now acquired new hope of activity and self-help.

One must recognize that medical education has not yet been adapted to the changing pattern into which the care of long-term illness has been fitted. Some modification of the undergraduate curriculum will no doubt be necessary, and steps are already being taken in some medical schools with this end in view. The value of teaching is enhanced when the student is brought into clinical contact with a person suffering from an illness of long duration in the care of a physician who takes a personal interest in the social and environmental situation of his patient.

In the field of research into the etiology and pathogenesis of the chronic group of diseases a great deal has been done in recent years. Fundamental research has made great progress, notably in the study of the cardiovascular system. Valuable contributions have recently been made to our knowledge of the blood circulation and of the root causes of coronary infarction. Nutritional investigations have brought us nearer to an understanding of the relation of diet to atheroma. Basic studies in genetics have already opened pathways into the hidden etiology of cancer, and a considerable amount of knowledge has been accumulated on the effects of certain irritant chemical substances.

Lessons of immense practical value have been learnt in the study of functional restoration. The skills of orthopaedics have been brought into the range of long-term illness, and modern physiotherapy is an indispensable adjunct to the restoration of function. Nevertheless, it is of the utmost moment to bring into focus the benefits conferred by the promotion of mental hygiene. A large part of the success of the restorative process depends primarily on the attitude of the patient, and one of the functions of psychiatric care is to adjust the patient's outlook towards confidence in the treatment adopted and the firm conviction that the precious boon of health is within reach. Psychotherapy holds an important place in functional restoration.

On the preventive side, useful epidemiological data have now been obtained on the distribution of the chronic respiratory diseases and their relation to climate, humidity, and occupational factors. The whole range of long-term disorders is being systematically explored, in both basic and field investigations.

Aging

The tale of chronic disease would not be complete without some reference to the more or less normal physiological degenerative changes that accompany old age. The aging of populations presents a new challenge to the advancing countries, in both social and medical spheres. There are also obvious economic problems which have to be faced as the expectation of life at birth increases, but the more urgent questions are connected with mental and physical well-being as age advances. Many of the aged, even in advanced communities, suffer from poverty, loneliness and the unhappiness that goes with it, and a slowly progressive infirmity which lies just outside the boundary of positive illness requiring medical care. Admissions to hospital have increased, and mental institutions are generally overcrowded; yet it has been found in practice that many of the elderly sick derive benefit both physically and mentally if they are cared for at home or in homely surroundings.

The first step forward in the effective care of the aged is to find out the size of the problem. The planning of medical and social care, in hospital or at home, depends on securing accurate data on the number of aged people in any community, in terms of sex and age-group, and the situation in relation to domestic, nursing, and other assistance. With the extension of urban conditions in countries on the threshold of industrial development the old family ties tend to loosen: the young move towards the cities in search of employment, while the old remain at home in rural areas—or, if they enter town life, the pace of industry is too great for them and they fall out of the race. In either case the aging are not prepared for old age. There is an urgent need for the investigation, in different kinds of population and environment, of the basic problems of aging. Little justification has been shown for the view that this growing problem is due to a decline in family affection and a disintegration of family life. There is, however, a marked increase of isolation among the single and the widowed who have no children. In the United Kingdom, two-thirds of all hospital beds occupied by persons over 65 years of age are taken up by the single, widowed, and divorced—and the isolation is most frequently due to bereavement. It is usually aggravated by the inexorable progress of physical and mental infirmity and actual illness, or by defects like failing sight and hearing.

The application of public health services to the problems of the aged demands serious and immediate consideration. Two main lines of action suggest themselves. The first is to bear in mind that we
cannot afford to waste the talents and the working capacity of the elderly, and every effort should be made to find work suitable for their strength—work which is based upon positive capacities rather than on the negative estimates of disability. By this means loneliness would be minimized and the years would pass with renewed vigour and interest until the end. The second line of action should be to apply to the aged all practical ways and means of prevention and health promotion, with full arrangements for home care, including, where necessary, domestic and nursing help and the skilled services of the general practitioner. In the recent past there has undoubtedly been some measure of devaluation of the status and usefulness of the aged. Much can be done by community services to redress the balance and to restore this group to its rightful place in the human family. “Old age hath yet his honour and his toil.”
CHAPTER 5

INSTITUTIONS AND FIELD ESTABLISHMENTS

1. NATIONAL HEALTH INSTITUTES, INCLUDING PUBLIC HEALTH LABORATORIES

One of the greatest services that a country can render to the advancement of science is through the establishment of institutes and research laboratories. At one time the scope of such organizations was restricted, perhaps to the study of a single disease like malaria or tuberculosis or to the pursuit of a limited range of studies in one of the basic sciences. In recent years the needs of specific research have not been forgotten, but there has been a healthy tendency in many countries to broaden the research field to take in a much wider group of subjects related to man in his environment, such as housing, social conditions, mental health, and a greatly enlarged concept of epidemiology. Institutes may be established by the State, or by private beneficence, or by a combination of the two; and in this connexion one should not forget the great services given by industrial concerns, especially the manufacturers of pharmaceutical products.

Institutions in which both laboratory and research work in the field of health are being carried out can generally be grouped into three main categories. The first group of institutions established to meet the needs in public health work may be identified as public health laboratories. This is the most common type of institution to be found in many countries, varying from a single-purpose or simple diagnostic laboratory to a most comprehensive public health laboratory covering chemical, microbiological and entomological studies. Such laboratories in general carry out routine examinations for both diagnostic and public health purposes and are operating under national, regional or local health authorities. In practically all countries or territories where there is a modern public health service, some form of public health laboratory service exists. In many countries, public health laboratories are also engaged in the manufacture of biological products and carry out biological standardization. In many well-organized and well-equipped national public health laboratories, considerable research and field investigation of public health importance have been accomplished.

The institutes of hygiene belong to the second category of institution, which performs both research and teaching functions. The development of this type of institution was stimulated by the Rockefeller Foundation at the beginning of this century with the founding of the Rockefeller Institute in New York. When health services were being organized on an international scale it was soon realized that the most serious hindrance to progress was the lack of trained men and women. The idea of setting up an institute which combined teaching and research was realized by the building of the School of Hygiene and Public Health at Johns Hopkins University, Baltimore. As a consequence of the success of this venture, the former International Health Division of the Rockefeller Foundation conceived the bold idea of setting up institutes in many parts of the world. The object was to create centres from which both teaching and research would radiate, and by this means to help governments to build their local health services on a more co-ordinated plan. Some schools and institutes were founded and others were supported or extended by subsidies. Among the organizations so created are those at Ankara, Athens, Belgrade, Bucharest, Budapest, Calcutta, Cluj, Copenhagen, London, Madrid, Manila, Oslo, Prague, Rome, São Paulo, Sofia and Zagreb. The effectiveness of the scheme was enhanced by the organization of a world-wide system of fellowships so that these new schools could stimulate and reinforce one another and bring about an interchange of experience and thought between the best brains in the subject of hygiene and public health. The fellowship system has proved to be one of the most beneficent influences in the establishment of good relations between student and teacher and between one student and another, irrespective of nationality and race.
At this point there arose a historically interesting difference of outlook, which had a considerable influence on the policy of schools and institutes of public health. Hitherto, the idea had been that medical knowledge and discovery had far outstripped its application to the world of man — and indeed few would deny the truth of this at the present time. But a generation ago the idea had the effect of concentrating financial assistance on the application of discovery in the field — the practical task of finding means of overcoming diseases, once the cause and method of transmission had been shown. At this time, however, a number of scientists who had been trained in the more strict laboratory disciplines felt that application was not enough. The search for new knowledge was implicit in the application of existing discoveries, for every advance in field work exposed fresh gaps in the knowledge essential to successful control. From that time onwards increasing emphasis was laid upon pure laboratory research, both in the Rockefeller Institute in New York and in the new institutes as they came into operation throughout the world.

The national institutes of public health or hygiene in Poland and Yugoslavia made valuable contributions in the development of rural health units in their respective countries. In Yugoslavia, the pioneer work of associating health service with the economic and social development in rural areas was first initiated in the early 1930’s at the Institute of Hygiene in Zagreb.

Many of these institutes or schools are still functioning well. They are fully equipped with laboratory facilities and field investigation units to carry out epidemiological study and research, in addition to the educational function. For countries where public health work has not been fully developed as a branch of medical sciences, an institution of this nature will definitely promote the scientific aspects of public health services and help to establish the public health profession on more solid ground.

The system of national institutes of health and national institutes for medical research in the United States of America and in Great Britain are a relatively more recent development, carrying out research functions in both clinical and public health fields. The series of national institutes operating under the Department of Health, Education and Welfare in the United States of America have specific research programmes in cancer, heart diseases, mental health, arthritis and metabolic diseases, neurological diseases, allergy and infectious diseases, dental health and blindness. The 1956 budget for all these research institutes amounted to US$ 97 823 000.

In France and countries or territories under French influence or administration, Pasteur Institutes have been extensively established. They serve in most instances as public health laboratories, but in many countries they function as research institutions carrying out programmes of public health importance.

The third group of health institutions deals with public health problems, such as nutrition, industrial or occupational health, mental health, and the organization of public health services. For example, the Institute of Nutrition for Central America and Panama, in Guatemala, was recently organized by the governments of the Central American countries to carry out a joint nutritional research programme. The Institute of Occupational Health in Helsinki and the Institute of Industrial Medicine in Lima are other examples of this type, where the institutes not only carry out research but also render services and provide training in their respective fields. The Netherlands Institute of Preventive Medicine in Leiden has undertaken research in occupational health, maternal and child health, mental hygiene and experimental pathology and has made valuable contributions to these subjects. This type of health institution is also represented by the State Institute of Rural Occupational Medicine and Rural Hygiene in Lublin, Poland, and the National Institute of Mental Health in Tokyo.

The Institute of Public Health Administration and History of Medicine in Moscow is another example of the type of health institution recently developed to meet the needs of public health services. The main purpose of such an institution is to transform the available knowledge in medical sciences into practical measures for the health protection and promotion of the population, and to tie theory and practice together in public health work. As an example of the type of work that the Institute has done, it may be of interest to mention the experiment made on the organization of local health services in the Union of Soviet Socialist Republics. The local health services in a community were composed of three units — i.e., a community hospital, a sanitary and epidemiological station, and a local health bureau. The experiment, initiated in 1956, was to demonstrate in several local communities a system of integrating all the three units into one administration under the direction of a medical officer assigned to that area. The experiment took about one and a half years in working out the details of integration and in organizing the administrative unit to embody the three aspects. This work has been carried out in an atmosphere of close co-operation between local medical officers and research officers. It was finally demonstrated that the integration could be accomplished, and one adminis-
trative unit was successfully organized. Based upon this field demonstration, conferences of the local health officers were held to discuss the integration process, and recommendations were then made to the Ministry of Health to extend the plan throughout the entire country.

2. HOSPITALS, OUT-PATIENT DEPARTMENTS, HEALTH CENTRES, RURAL HEALTH UNITS, ETC.

Historically speaking, it is probable that outpatient medical care is much older than hospitals. The treatment of the sick has been undertaken in temples from remote antiquity, and the bringing of the sick to a healer in the market-place has in some territories survived to this day. The Aesculapiae represented a form of out-patient care, and this system prevailed until it was superseded, under an edict of Constantine in 335 A.D., by the gradual development of Christian hospitals. The healing of the sick in the open air was a feature of Christianity from its birth; and among the hospitals set up in the 4th century A.D. was the celebrated foundation of St Basil at Caesarea in Cappadocia, about 500 miles east of Antioch. This hospital, which stood as a model for many others, consisted of a large number of buildings, including houses for doctors and nurses, rehabilitation workshops, and industrial schools.

Among the earliest of the residential institutions were hostels for lepers, but simple nursing homes for sick travellers and the afflicted poor had been known in Asia for many centuries before Christ. In Europe also there are a number of mediaeval foundations. Among the oldest are St Bartholomew's Hospital (1123) and St Thomas's Hospital (1200) in London. During the 14th and 15th centuries hospitals spread all over Europe, and a limited amount of specialization of function took place; but it was not until the first half of the 18th century that hospitals with the present-day outlook of cure rather than custody began to emerge. It took more than a century after that, when the great discoveries of bacteriology were applied, before hospitals could be regarded as reasonably safe for the patient. From this time onwards a large construction programme was carried out, mostly by voluntary agencies. The chief exception to this rule was the mental hospital (or asylum) for which the State generally undertook financial responsibility. In many countries provision for the poor was made on a similar basis, the principle being that governments should be expected to take over only what might be described as "residual responsibility", making public provision for those whose care lay outside the ordinary range of voluntary effort. For practical purposes this included the treatment of the major communicable diseases, the care of the aged sick and of persons suffering from mental defect or disorder to an extent requiring public care, and general provision for the destitute. These last comprised a miscellaneous group, such as neglected children, deserted mothers and families, the unmarried mother in need of special care, and the aged sick for whom home care was barred on social grounds.

Voluntary effort was principally concerned with providing for the care and treatment of those suffering from acute illness, medical or surgical. Sickness in its active stages is dramatic and has a much greater appeal to the charitable than chronic illness or even old age. Urgent illness and accidents have always won sympathy and practical help. The kind of hospitals to which people of means offer assistance is of less account: philanthropic gifts are made to the tiny rural hospital as well as to the great teaching institution. Indeed, it sometimes causes a little embarrassment to the authorities when a village unit is provided with an elaborate operating room far beyond its needs, or an x-ray set that no one in the area knows how to use. In a very large number of countries, however, the voluntary hospital is still the centre of medical care, in cities, towns and villages. Until fairly recently not a few of these hospitals have been maintained almost wholly by voluntary funds, subject only to small payments by patients or in return for special services rendered to public bodies. Since the end of the war, in most countries, the constantly rising costs of medical care have rendered purely voluntary support no longer possible, and considerable subsidies are now being given from public funds, central or local.

The steadily rising costs of hospital care have served as a stimulus for new financial expedients. By far the most important of these is the system of pre-payment, under which a small sum paid at regular intervals ensures for the worker and his family coverage for a defined part, or the whole, of the cost of treatment in hospital. Pre-payment schemes appear in many forms. The best of them are the simplest and most inclusive, covering the entire family and all its hospital needs. Short of this, a number of schemes are limited in one way or another—for example, to a restricted number of days' treatment, or to the exclusion of certain diseases, or even to a predetermined maximum in a given year. In a few countries the appearance of commercial pre-payment plans, offering a wide range of benefits and at times varied conditions of acceptance, has complicated the issue of health insurance in general and hospital payment in particular.
In an increasing number of countries, especially those in which there is little background of voluntary provision, the hospitals have now become a government service. The system may be part of a general insurance scheme or a separate responsibility directly financed and controlled by the State. In some cases all treatment is free of charge at the time of need, but in others a relatively small number of pay-beds has been retained. Where a hospital system has long been established, local bodies may be the real owners, but they receive a government subsidy to cover their inevitable deficit.

The number of hospital beds which a country requires depends upon many factors, apart from the basic items of disease prevalence and the age-composition of the population. In the more remote areas the educational level of a people and their attitude towards sickness are important. The hospital may be regarded with suspicion, or for various reasons home care may be preferred; and even in the economically advanced areas the existence today of a comprehensive medical care organization, and a tendency to treat all but the most serious illnesses outside the hospital may considerably reduce the public demand for institutional care. Effective community services in preventive medicine and the promotion of health will have the same effect in the long run. Not only that, but the modern provision, in clinics and out-patient departments, of experienced staff and the equipment for prompt diagnosis and early treatment of disease will have a further effect in lowering the demand for in-patient care and in shortening the period of treatment.

In the environmental sphere the housing of the people, and particularly the size and accommodation of the individual dwellings, may be the determining factor in the choice, on social grounds, between hospital and home care. From the point of view of the nation as a whole, however, the economic level of the people is critical. There are many countries in Asia and Africa, for example, in which the number of beds of all types amounts to fewer than one per 1000 population. In 1954 Iran had about 0.5 beds per 1000 population, and Nigeria as few as 0.35. On the other hand, France had at the same time about 15 beds per 1000 population, and the United Kingdom had 10. It is a notable fact that some of the smaller countries which have only recently accepted hospital provision as a State responsibility have already made remarkable progress in hospital construction.

How many beds are required? A federal study in the United States of America, published in 1953, drew a sharp distinction between general beds for acute illness and those provided for long-term illness, such as mental disorder, tuberculosis, and general chronic sickness. It was suggested that, under the conditions obtaining in the United States, a figure to be aimed at was between 4.4 and 4.7 beds per 1000 for acute disease, and an additional 2.3-2.6 per 1000 for chronic disease and convalescence. The Bitore Commission in India, which found an existing supply of 0.24 beds per 1000 in 1946, recommended an expansion to 5.65 beds, including provision for special diseases. The corresponding figures for the United Kingdom were 4 per 1000 in rural areas, rising to 6 in urban, and an additional 2-2.5 to cover chronic and special diseases. Since that time certain important changes have taken place, both in practice and in outlook. In the first instance, the recent victories against the common infectious diseases of childhood, the promise of success in fighting malaria, tuberculosis and a number of other causes of serious disability have tended to lower our estimate of the number of beds to be provided in these categories. Secondly, the growing co-operation at the local level between the general practitioner and the hospital, and the combination of preventive measures and health promotion with treatment, have placed new emphasis on the value and extended possibility of home care undertaken by a health team. In other words, the increasing stress being laid upon community development may well have a decisive influence on our estimates of the need for domiciliary care as opposed to hospital treatment.

It would be premature to emphasize too strongly the possibility of any substantial reduction in hospital requirements for many years to come. The serious gap between needs and their fulfilment is only too obvious in many lands. And, further, as has been mentioned already, as a country develops economically and industrially, its first cry is for treatment rather than for prevention and health promotion. In African territories, for example, the urge to proceed with the construction of elaborate and costly hospitals has been very great, if only on the grounds that a hospital carries prestige and is evidence of material advance in the social field. It is at least doubtful whether the number of hospital beds is a good index of social progress. The steady development of rural health units and of corresponding establishments in the more populous areas should in time go far to meet the needs of all but those who require urgent treatment or complex diagnosis. The most pressing requirement, however, is not an increase in the number of beds, but the integration of the service at national, regional and local levels.
Hospital organization

The general tendency in hospital organization is in the direction of increasing control and supervision by local, provincial, or national governments. There are notable exceptions, such as the Netherlands, where the voluntary tradition in health services is exceptionally vigorous, and the United States of America, where the pattern of voluntary hospitals built by local civic groups or religious organizations is highly developed, and the tradition of private medical care is strong. In both cases the rising costs of hospital care have led to special planning with the object of preserving the voluntary principle. The most important of the measures adopted is, of course, insurance in one form or another. The "Blue Cross" scheme in the United States might well have been adopted in the United Kingdom and in a number of other countries had it not been for the disruption caused by the war. Even in the United States, however, the federal and state governments have found it necessary to contribute financially to the construction of new hospitals since 1946. A great deal is accomplished by voluntary action, notably the work of the American Hospital Association, in promoting improvement in the standards of hospital service. Hospitals in Canada also are largely independent institutions run on a voluntary basis, but they are gradually coming under the indirect influence of government through systems of inspection and licensing. In some cases the provincial authority contributes up to 90 per cent. of the hospital costs, and it is inevitable that it should exercise a considerable degree of supervision.

In the Scandinavian countries the pattern differs to the extent that practically the whole of the hospital system is under government control, primarily under the various units of local government. Except in the smallest units, the Swedish hospitals have a full-time salaried medical staff. About 90 per cent. of the expenses are paid by tax funds, and 10 per cent. are paid by the patient, or, more usually, by his voluntary insurance. In the Scandinavian countries there is little central control over the daily operation of institutions, especially the large general and teaching hospitals, but planning and design, as well as general policy, are under the supervision of the central authority.

Among the nations of the British Commonwealth there are plenty of variations, but mostly within a common pattern. In England, for example, hospital care is financed almost wholly from the general revenues of the central government. The junior medical staff is on a full-time salaried basis, but senior specialists and consultants are part-time to some extent and undertake private practice in addition to their salaried hospital appointments. The general practitioner was at first virtually excluded from hospital work, but the present trend is towards offering him clinical appointments, at least in the smaller units. There is a growing co-operation between the hospital service and the family doctor. The central control of hospitals is delegated to a large extent to Regional Hospital Boards, and the day-to-day executive responsibilities are carried by smaller units called Management Committees. All the members of Hospital Boards and Management Committees serve on a voluntary basis and receive no remuneration whatever. In addition, there is a steadily increasing army of voluntary workers who give their time and energies to the National Health Service—for example, in maintaining libraries, providing occupations and other interests for patients, and supplying transport for patients and their relatives.

In other parts of the British Commonwealth a similar design can be seen. In New Zealand, for instance, the hospitals are under the direct control of the Department of Health. As a result of consolidation of the law, the new system will achieve greater integration at the level of the Hospital Boards, and at the same time provide for financing the entire service from central sources. In Australia the various states follow their own pattern of executive control, but there is a tendency to increase the amounts of central subsidy and indirect control of this kind. In the Union of South Africa all types of hospital are predominantly governmental, and hospital care is virtually complete as a public service. In a number of the provinces, however, the provincial authority contributes up to about half the cost of the service.

Countries which have more recently reorganized their services tend on the whole towards centralization. In Egypt, for example, nearly all the hospitals are now under the Ministry of Health, although the two great teaching hospitals have a good deal of autonomy. Direct control of minor administrative matters is apt to lead to delay, and it is important to strike the right balance between independence and integration. A similar plan of central control is to be found in other Arab countries such as Syria and Lebanon. Nations which have recently become autonomous have shown a strong trend towards the governmental control of hospitals. This is true of Ceylon, and the same general arrangements operate in Burma and Pakistan and in the three neighbouring countries of Viet Nam, Laos and Cambodia. In a very large nation like India considerable delegation of hospital control to the states is necessary and desirable, but funds for
construction and development are being found from central sources to a considerable extent.

The non-self-governing territories are, as a rule, centrally controlled and financed in relation to the hospital services. Often there are a few private institutions in city areas, but the mass of the people receive medical care from government dispensaries, clinics, and hospitals. Private medical practice is relatively uncommon. In the smaller units, as in many of the Pacific islands, the situation gives strength and purpose to the combination of preventive and curative work at the local level, including, where necessary, the provision of a small number of beds in rural health units.

The rich development of social security schemes in some of the countries of Latin America has provided opportunities for new hospital construction. For the rural populations in these countries public hospital care is the rule, and these units are under the direction of the central authority. Under these authorities there has been a considerable expansion of institutional provision, and a welcome movement towards integration.

In conclusion it may be said that, while local and regional patterns of hospital care differ considerably in detail, the governmental tendency in most countries is unmistakably in the direction of increasing central participation. No doubt the primary reason for this is the high and rising cost of hospital care, but in principle the most important factor is the recognized need for greater integration to achieve a rational distribution of the available services. A further principle, and one which underlies much of the thinking in this sphere today, is the desirability of securing closer integration of the health services—the treatment and restoration of the patient, and, in the same context, the prevention of sickness and the promotion of health.

Out-patient departments

For many years the out-patient department of a hospital has been its main link with the outer world. It has been the admission channel for accidents and emergencies, and in most cases the checking point for routine admissions to the wards. The out-patient department has also been one of the chief teaching centres for medical students, and in the larger units it has often been provided with small demonstration rooms in which groups of undergraduates have received their first clinical practice under qualified supervision. On the whole, however, the out-patient department has been regarded as an ante-room to true medical care, and it has been the custom from time immemorial for the clinical chief to see his patients for the first time in the wards of his unit, after the resident medical officers have made a provisional diagnosis. It was the great heart specialist, Sir James Mackenzie, who first put forward the idea that the senior consultant should be in the out-patient department rather than in the wards of a hospital. This concept of functions was stated at the beginning of the present century but is only now claiming acceptance. In accordance with this approach the out-patient department has become the most important element of the system, and eventually the major emphasis will be placed on ambulatory patients rather than on the bedridden. The hospital is no longer a fortress for the bedfast sick, but rather a community centre in which the higher medical skill is concentrated.

The enlargement and improvement of the hospital out-patient department is the most obvious way in which a hospital can extend its influence beyond its walls to the homes of the people. By such means it can be brought into an intimate relationship with general practice and also with the preventive work carried out by the health officer and his nursing and sanitary staff.

A study of the replies received from many countries reveals that the use of hospital out-patient departments to provide home care services is still in the stage of cautious experiment. In the promotion of this idea one can learn a good deal from the practice in a large number of the smaller territories, as well as from that in the remoter areas of the more industrialized countries. In northern latitudes, for example, it is usual to combine in a single "rural health unit" the home care services of the general practitioner, a few beds for patients in need of short-term care, and the public health work of nurse and midwife. The various clinics are held at different times on the same simple premises, and the whole range of health and medical care is combined. Plans of this nature, suitable for the differing circumstances, are in operation in the scattered village groups of Indonesia, the islands off the coasts of Scandinavia and Scotland, and the great archipelagos of Oceania. The situation in populous areas is always held to be fundamentally different. It is frequently assumed that the pattern of the city or large town should be designed to provide one or more great general hospitals, and in most cases, a group of specialized institutions such as mental hospitals, orthopaedic institutions, and hospitals for communicable diseases. In some of the more recently developed plans these units are being grouped together to create "hospital cities"; but more commonly the general hospital is situated in or near the most populous area of the city, while the specialized units have the benefit of less congested surroundings. In a number
of countries there has been a movement lately to transfer the general hospital also to the more healthy outskirts of the city, leaving in its place a highly organized polyclinic or out-patient department. It has been found that only a small proportion of hospital beds—mainly for the care of casualties and urgent cases—needs to be situated in city surroundings. The great majority appreciate, and benefit by, a hospital unit of simple design, in “country” surroundings, although not far from the city. This provision however, does not solve the main problem of providing out-patient services for urban dwellers at a reasonable distance from their homes. The most acceptable solution, it seems, is for the authority to build health units within the new estates and on the urban fringe generally, on the same general principles as in the rural health units referred to above. In the huge urban conglomerations of today people cannot be expected to leave their homes for lengthy periods in order to visit a central out-patient department for diagnosis or care as ambulant patients. On the other hand, it is not difficult or unduly expensive for the hospital authorities to go out to meet the patients, by setting up simple “urban health units” primarily under the charge of a group of local general practitioners, but linked closely with the main hospital on the one hand and the public health department on the other. The aim of the service would be to make and maintain contact with the family and home life of the people. In a number of countries which have introduced hospital insurance plans it has been found that there is increasing pressure on bed accommodation as a result. The conclusion reached is that only the extension of insurance to cover the general practitioner’s services in the home and dispensary will reverse this process and reduce the excessive cost of hospital care. In recent years several hospitals have deliberately introduced “home care programmes” on their own account, to reduce the pressure on hospital beds. One of the features in some of these programmes is the skillful use of transport, by means of mobile clinics, special ambulance transport, and, in widely scattered districts, the “flying doctor service”. It is worth bearing in mind that the mobile clinic, except in certain river and island services, is rarely a good substitute for a permanent rural unit. The latter gives to its area a feeling of security that mobile services cannot supply. One of the principal uses of the mobile clinic, to which reference will be made later, is its application to medical care in a group of factories. The clinic truck is able to move quickly from one workplace to another, and this saves a great deal of waiting and loss of working time. It can be used for daily dressing and other forms of minor surgery, and also for routine medical supervision—for example, during a period of sickness prevalence.

Health centres, rural health units, etc.

There is some confusion in the various reports from governments as to the precise meanings of such terms as “health centres”, “polyclinics”, and “health stations”. The expression “health centre” is, perhaps, subject to the greatest variety of interpretations. It was applied in 1920 in the United Kingdom to an institution which provided under one roof both general medical care of patients by a group of medical practitioners and preventive services under the public health authority, such as maternal and child care, school clinics, and communicable disease control. In certain countries the provision of “health centres” (or polyclinics) is a matter of State policy, and these institutions are generally maintained by the government through its local departments. In the United Kingdom, the creation of health centres was made a statutory undertaking under the National Health Service Act of 1946, but in point of fact very few of these centres have been erected, mainly for financial reasons. One of the principal difficulties in practice was that the provision of public health services in a health centre involved a much greater expenditure in money and space than the establishment of half-a-dozen or so consulting rooms for general practitioners. The result of this was that the general practice organization represented only a very small part of the whole centre and employed only a few of the practitioners in a given area. Yet to have admitted more than six to ten practitioners to one centre would have caused too great a congestion of patients. Perhaps the principal hindrance to success was that so many doctors of the area were left out of the scheme, either by their own choice or because of lack of room.

It should be observed that the term “health centre” is used in reports to denote a whole range of services from the most elementary rural health unit to the most complex polyclinic; perhaps the simplest way of approaching this question is to go back to the basic unit and build up definitions from that. A rural health unit has been defined as “an organization providing or making accessible, under the direct supervision of at least one physician, the basic health services of a community”. With this definition in mind we should refer to any smaller unit, served by a nurse or other health officer, as a “rural health station”. This would apply, so long as a physician paid an appropriate number of regular visits and supervised the station. In the same manner one would define an “urban health unit” and its corresponding station.
It is evident that units of this kind should be closely associated with a larger administrative and technical organization, so that specialized assistance could be obtained without question and with as little delay as possible.

It has been suggested that the rural health unit should supply the following services, which are regarded as basic:

1. Maternal and child health;
2. Communicable diseases control;
3. Environmental sanitation;
4. Health education of the public;
5. Public health nursing;
6. Medical care (varying to some extent with the needs of the area and the accessibility of the larger hospital centres).

The word "clinic" ought by its derivation to mean an institution providing beds for the sick, and indeed it would be best to limit its use to this essential feature. In practice, however, "clinic" is often used to describe the office of a clinician in the physical sense, or even the consultative session which he holds in that office. It was no doubt for this reason that a group of clinics, rendering to patients a wide range of services in the same building, was described as a polyclinic, and the derivation once more makes the meaning quite clear. The term "health centre" should in these circumstances be confined to buildings in which preventive and curative services are combined. The essential feature of a polyclinic is the combination of highly specialized diagnostic and curative services—with perhaps bed accommodation for cases under observation—in a single building. The word "health" in this context implies the integration of preventive and curative services in one building or group of buildings, and it should not be used to denote an institution where only therapeutic services are provided.

In a large number of countries the provision of rural health units, by whatever name they are called, is widespread. So far as hospital accommodation is concerned, the remoter units would be expected to make arrangements to include a few beds for maternity cases and for medical and surgical emergencies only. A high proportion of these units, especially in Asian countries, have made provision for maternal and child welfare, but in fact few of them appear to have sufficient nurses or even auxiliaries. It had been suggested that, in order to secure the greatest efficiency, there should be, in addition to the physician, some five to ten nurses, several sanitariums, and a substantial number of auxiliary workers. Units of this type are especially suitable for such countries as India, Nigeria, and Indonesia, and indeed in all areas in which communications are poor and wide stretches of country separate one village or settlement from another.

The situation in the bigger cities has been causing anxiety. In many of these a rush of immigration has given rise to difficulties in providing medical care for families living on the crowded fringe areas. It has been found possible in some areas of this kind to set up local health units, as in Singapore and Hong Kong; in other cities use has been made of group practice to meet the deficiency, but it is financially difficult for a group of general practitioners to make special arrangements to deal with such a situation. The trouble lies deep enough to demand special investigation and, in appropriate cases, the provision of some form of subsidy.

The meaning of the word "dispensary" also is subject to varying interpretations. In many of the old-established towns the public dispensary is simply the ancestor of the modern out-patient department. This term has been widely used, in addition, to denote a doctor's "surgery", especially when the latter was detached from the physician's home. In time past the designation was apt enough, because it referred to a place in which the doctor dispensed his own drugs—and dispensars of this kind are still extant. At the present time it is common for that part of an out-patient department which is concerned with issuing medicines to be called "the dispensary". It would be desirable to retain this name for use in its proper derivatory sense—namely, as a place where treatment in the form of medicine is given. The term "out-patient department" is much more satisfactory as a designation of this vital hospital service—the essential link between hospital and home. The term "dispensary", however, is widely used in Africa to denote simple establishments employing auxiliary staff for the treatment of minor ailments and for the supply of first-aid dressings.

3. STATISTICAL SERVICES

In recent years there has been a growing recognition on the part of health administrations of the value of vital and health statistics as a means of finding out the population groups and diseases requiring particular health action, as well as for the subsequent evaluation of such action.

Much progress has been made since the end of the 19th century in improving the quality and the international comparability of mortality statistics by providing uniform definitions of vital events, nomencl...
tures of diseases, rules of certification, classification, and tabulations of causes of death.

WHO has taken an active part in this work since 1947, its endeavours culminating in the issue, in 1957, of the English, French, and Spanish editions of the revised International Classification of Diseases and WHO Nomenclature Regulations. The fact remains, however, that the standard methods of compiling proper mortality statistics require both an abundance of physicians and a well-developed administrative machinery for the registration and compilation of data —two conditions which are present in only a minority of countries.

It is estimated that only 80 per cent. of the world's population was enumerated in the last decade, and only 33 per cent. of the total number of deaths was registered in 1951-55. The proportion of deaths of which the cause is known is far smaller still, and the WHO Annual Epidemiological and Vital Statistics, 1955, issued in 1957, do not include more than forty countries for which these data are both available on a nationwide scale and deemed reliable for international comparison.

Both United Nations experts in vital statistics and WHO experts in health statistics have recommended that countries unable to produce statistics covering the whole of their territory initiate pioneer registration areas in their main cities or in selected areas where administrative arrangements can be made.

There are, in fact, many towns throughout the world where vital registration is practised and where crude vital rates could be computed, distinguishing between residents and non-residents. There are also many cities in which physicians would be sufficiently numerous to certify the cause of most deaths, and where arrangements could be made to ascertain the cause of death in those patients not attended by doctors. It is hoped that statistics based on such material will be compiled in increasing quantity, and the mistake thus avoided of publishing as national totals data of varying degrees of completeness and reliability obtained from separate cities and other local government units.

Meanwhile, acting on the recommendation of its Expert Committee on Health Statistics, WHO, through regional seminars and field experimentation, is seeking methods which may provide health administrations with information on the health situation of territories in which physicians and trained officials are too few to produce vital and health statistics according to standard methods.

Returns of hospitals may be exploited more systematically where they constitute the only source of information on the local pathology. Where physicians are not available, it seems that much information might be obtained from returns of medical outposts manned by medical auxiliaries, if the lists of pathological conditions placed at their disposal were adapted to their true diagnostic ability under conditions of practice and therefore included clinical symptoms as well as precise pathological entities. Similarly, much might be inferred from death records, made by lay officials or village chiefs, containing rough indications of age and a crude statement of illness, symptoms, or accident preceding death.

A review of morbidity statistics in the various countries shows the paucity and lack of comparability of the data available. Reports of notifiable diseases constitute the most common source, but their completeness varies enormously from one country to the other, according to the number of physicians available and the local practices.

Hospital statistics are often compiled in territories where medical care is confined to government institutions. They are seldom available, on the other hand, in countries where care is given chiefly by medical practitioners; their interpretation would be delicate in these countries, as they would represent a heavily biased sample of the sick.

Where they exist, sickness records of social insurance organizations do not cover a fair sample of the population and as a rule leave much to be desired as regards accuracy of diagnoses. Sickness surveys have been too few and too restricted in both time and extent to provide a wide basis for estimating global morbidity and its causes. Although much has been done by national committees on vital and health statistics to define concepts and terms used in this and other forms of morbidity statistics, standardization of nomenclature has not yet been achieved, and, in spite of their great intrinsic worth, sickness surveys have not yet reached the stage where they can be used internationally.

This brief review of the state of health statistics would not be complete without a reference to the critical study made at the request of the United Nations by the WHO Expert Committee on Health Statistics, and by a special study group, of the various rates and indicators used for the measurement of "health" as one of the components of social development. Their relative merits and shortcomings have been compared, and their relative sensitiveness has

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been measured by the objective test of the discriminant function. The application of this test showed the proportional mortality above the age of fifty to be the index of choice (see Chapter 2, page 14).

4. DOMICILIARY HEALTH SERVICES

The reports submitted by many countries indicate that there is an extensive movement in the direction of bringing medical care to the homes of the people. The method of reaching the home has been undergoing a process of evolution during the past few years. Until comparatively recently general practitioners were accustomed to work in isolation and in competition. In a large number of countries today competition is being steadily replaced by collaboration, and isolation is giving way to the formation of the group and the team. These two words do not mean the same thing: the “group” is best represented by a number of doctors who voluntarily work together in the same general practice, whereas the “team” comprises a number of health workers who, under the guidance of the physician, operate a local health unit. Units of this kind are now well developed in some countries, notably in Asia and Latin America. They are also well suited to the conditions of many island territories, and to the rocky fringes of north-western Europe. Group practice, on the other hand, is being organized more extensively in industrialized countries, both by private practitioners (as in the United States of America) and by doctors in public services—in cities, towns, and even in groups of villages. The advantages claimed for the group system are: that it enables prospective patients to feel sure that they can obtain medical attendance at any time of day or night and during public holidays; that several practitioners working together are given the opportunity for consultation among themselves and for getting the immediate help of a colleague in a difficult case; and that the group can maintain better premises, with more nursing and auxiliary assistance, than any one practitioner can provide on his own behalf. In addition to this, a group of practitioners can often achieve some degree of minor specialization—for example, in midwifery or paediatrics—and obtain a larger range of modern equipment than a solitary general practitioner. From the point of view of the doctors concerned there is the additional advantage that they can have regular periods of recreation and adequate holidays.

Practitioners attending health centres may be on a whole-time basis, but more commonly they enter into part-time contracts. The essence of the health centre principle is that a number of general practitioners work together and combine with their general service the preventive work which is associated with the public health department. Preventive and curative care are carried on side by side in the same building.

Another method of approach, which is gaining ground in some countries, is for the local hospital through its out-patient department to organize a system of home care in relation to its own services; this includes follow-up care of the chronic sick in their own homes, supervision of the aged and arrangements for them to be admitted to hospital when occasion requires. The family doctor retains his personal responsibility for the welfare of his own patients and for continuity of care in the family setting. The special feature of the system is that the out-patient department becomes recognized as the proper channel through which the family doctors of the area can obtain help for their patients, either in social care or in laboratory diagnosis. In a few areas the out-patient department also brings the local general practitioners into contact with the health officer and with the services which his department is ready to render.

A general practitioner has been defined as “a doctor in direct touch with patients, who accepts continuing responsibility for providing or arranging their general medical care, which includes the prevention and treatment of any illness or injury affecting the mind or any part of the body.”¹ One advantage of this definition is that it brings out an essential feature of general practice—namely that the doctor provides continuity of care. In some respects this continuity is more important than the practitioner’s coverage of the entire family. In certain countries, such as the United States of America and Poland, the extensive practice of paediatrics as a specialty has already created a division in total family care; and, in any case, the principle of free choice of doctor would allow younger members of the family to choose their attendant, applying their own, rather than their parents’, criteria. The “family doctor” tradition is strong in France, the Netherlands, and some other European countries.

Irrespective of the importance attached to the maintenance of health and the prevention of disease, the real starting-point for any discussion of the physician’s task is the care of the sick. Most medical practitioners are called in by a family when one member of the family is sick, and the doctor’s first obligation is to establish a diagnosis and to institute the remedies which he believes to be appropriate. Good clinical practice, although based on scientific

medicine, has always included much besides. Clinical examina
tion in the narrow sense tells less than half the story of sickness. Diagnosis is rarely complete and treatment is generally wanting in a vital respect unless the doctor’s conception of medicine relates the patient to his environment. That environment contains his home and family, his work and play, and the social conditions in which he lives and moves. It is clear, then, that the doctor’s diagnosis is both clinical and social, and one of the qualities of a good doctor is his ability to assess the social situation.

In everyday practice the doctor is not alone in his medical work. Among the most striking advances in domiciliary health services today is the movement towards providing the general practitioner with what might be described as “help in the home”. One of the first assistants of the doctor in time past was the district nurse. It is she who has carried out all the functions that the doctor is able to delegate. She undertakes the care of midwifery patients, either as a midwife or as a maternity nurse or, more commonly, in both capacities; she attends to the needs of the aged, and often pays regular nursing visits, perhaps to dress a chronic wound or to provide some service, such as massage, which could not be otherwise obtained. The district nurse also helps the doctor indirectly by calling him in when she feels that a patient requires medical attention. Doctors in practice have relied a great deal on the work of the district nurses.

In the more rural areas, and particularly where communications are difficult, the district nurse usually combines her nursing duties with health visiting. She then becomes a general health worker often to an even greater extent than the doctor. The reason for this is that she visits mothers, infants and young children at regular intervals, whether they are sick or healthy; whereas, by the very nature of things, the doctor himself is able to visit only when called in on account of illness. This does not mean that the doctor does no health work: on the contrary, the good country doctor uses the opportunities given by his visits to “see the family”, answering many questions about health and giving a great deal of practical advice on these occasions.

The combination of doctor and district nurse has created certain difficulties. These are mainly due to the fact that there might be two or more doctors in competition in a given area, all perhaps seeking the services of the same nurse. And again, the district nurse is able to call at the homes of the people only at limited intervals, at most perhaps once a day, but in scattered villages the intervals might be considerably longer. In order to meet this difficulty, quite a number of countries, especially in South America and in parts of Asia—and, in fact, in all the less populated areas of the world—are setting up, under various names, what might be conveniently called “rural health units” (see page 71). The essential feature of this plan is that it provides an accessible nucleus for a real integration of health and medical care. The physician is in charge of the health unit, and must be responsible for its organization. Nevertheless, he is the head of a team which may consist of several nurses, one or more sanitarians and some auxiliary staff. The doctor may be in charge of a group of rural health units of this kind, and it would be his duty to arrange with the nurse for regular visiting periods, and with the sanitary officer for special visits. In addition to this he will always be on call for any real emergency. A common arrangement is for one nurse to be resident in or near each rural health unit, with appropriate arrangements for holidays, time off, etc., with her neighbouring nurses attached to the same group. The doctor, for his part, is in charge of a group of units and has the same kind of liaison with his fellow physicians who are responsible for other groups. In this way a network of health units is formed with a true integration of responsibility. It should be understood that this is not a substitute for home care but rather a means of making home care more efficient and reliable as a service. People able to reach the unit would normally be expected to attend as they would at any dispensary, health centre, or polyclinic; but the rural health unit is a flexible organization, linking general practitioners with an accessible hospital on the one hand and with the area health services on the other. Reference has been made to the district nurse. It is always desirable that in rural areas she should be specially trained as the public health nurse and combine the duties.

In urban areas the position is different. Communications are better, and there is, in all probability, a hospital with its out-patient department near at hand. In considering domiciliary health services, the question at once arises: “Is this an adequate provision?” In the effort to extend their services to the community, a number of hospitals have gone beyond the expansion of their out-patient departments and have organized home care programmes by which the staff and facilities of the hospital are brought directly to the patient in his home. This idea has been implemented, for example, in the well-known scheme of the Montefiore Hospital, New York. This institution, it is true, initially served a special function: it was devoted mainly to the care of chronic diseases. In the course of this pioneer work, it was found that many patients who either were suffering from long-term illness or had passed the summit of an acute illness could be cared
for with more understanding and less expense in their own homes. This was always subject to the proviso that the home met certain minimum physical and social standards in such matters as cleanliness and the absence of overcrowding. The system implied that physicians, nurses and medical social workers from the hospital staff would pay regular visits to their patients at home. This system was applied to municipal hospitals in New York City, and in 1952 it was calculated that there was a saving in hospital beds of about 16 per cent. It was also observed that these home care programmes not merely saved beds; they rendered a better quality of medical care in circumstances more agreeable to the patient and his family.

What was begun as an experiment in the care of the chronically ill has also been applied to patients convalescing from acute illness or a surgical operation. The essence of success is collaboration between the hospital, the general practitioner and the medical social workers. The special function of the last-named is to visit the home in advance and report on its suitability, and later to make periodic visits in order to ensure that there is a proper adjustment of medical care. It is perhaps an over-elaboration for the hospital to organize a system of home care of this kind; such a procedure is suitable in special cases where the general practitioners of the area have entered into a voluntary agreement for this purpose, but any intervention of the hospital in the homes of the people would not be a happy arrangement without the full collaboration of the general practitioner. A good modern example of the home care system has been developed in parts of France and Belgium, where the assistantes sociales are well qualified to follow up patients, since they are trained both in nursing and in medical social work. On the whole it seems that a home care programme of this kind might be especially appropriate to populous districts on the urban fringe of a city. Transport is always a difficulty and accessibility to a hospital is an essential feature of this scheme. In the more widely scattered rural areas the network of health units appears to be the system of choice.

The provision of nursing and medical care is not the only method by which the shortage of hospital beds can be relieved. In recent years the idea of getting patients up within a few days of a surgical operation is gaining strength, as it has been found that there are less risks of circulatory disturbances when a patient is moved as soon as possible. It is a good thing to get a patient on his feet. The same idea has been applied to maternity, and it is now common for a woman to be up and about within two or three days of her confinement. This is probably satisfactory enough as long as the home conditions are carefully watched so that the mother does not return immediately to the full round of domestic life.

In the United Kingdom the shortage of hospital beds has also been met to some extent by the development under the National Health Service Act of a domestic help service. This enables many patients to get home earlier than they would otherwise have done, and it provides safeguards against overwork. The system also enables many patients to remain at home when they would otherwise have had to go to hospital. A similar service has recently been launched in Denmark on a national scale, and the practice has spread to a number of other northern countries. The “home-maker” service in North American cities is being provided mainly by voluntary social agencies.

One of the advantages of these methods of extending the services rendered by the out-patient departments of hospitals is that the ultimate need to integrate curative with preventive medicine is served thereby. The resources for early diagnosis, treatment and after care are strengthened within the community itself. There are always dangers in extensions of this kind. Excessive pressure for economy in any branch of health administration might lead, if it were not carefully watched, to an over-development of home care service at the expense of the sick. One of the functions of the out-patient department should be to ensure that its outward services of this kind are designed for the better care and comfort of the sick and not merely in the interests of administrative saving. A further duty of the out-patient department, in its liaison with general practitioners, is to improve the quality of medical care in its area. Hospital and specialist services in most countries have developed separately from general practice, and the family doctor has been late in sharing with them the advances of medical science. Where the hospital is run on a “closed staff” system the risk of leaving the general practitioner out in the cold is substantial. Many hospital authorities are, in fact, aware of this and, often under governmental arrangements, conduct systematic post-graduate training for general practitioners who are not on any hospital staff.

5. INSTITUTIONS FOR THE PRODUCTION AND CONTROL OF DRUGS, BIOLOGICAL PREPARATIONS, AND FOODSTUFFS

Drugs

In the reports from governments the references to the control of drugs deal with administrative organization and ways and means of collecting information
and of keeping it up to date. The authorities concerned do not enter into technical details of assay and laboratory research. This limitation was implicit in the questionnaire sent to them. A number of returns expressed some anxiety on the part of governments about changes in commercial production and distribution which added to the difficulties of national control. These changes may be briefly described as follows. There was a time, not so long ago, when pharmaceutical preparations were produced in a steady flow, and the interval between production and marketing was sufficient to allow for laboratory examination and report. The pharmacopoeia was regarded as a stable compendium—a dictionary of specifications—which held its own until an addendum or another leisurely compiled edition was published. The situation has now changed radically in rate and volume of flow. Hundreds of new medicinal substances are introduced into the materia medica every year. The very number alone presents hazards to health, as has recently been demonstrated, if only because of the short time that elapses between the production of a new substance and its use in therapeutics. The new drug, as it were, rushes into print. Less than a generation ago the interval ranged from five to ten years. Today it may be as short as six months; side reactions and toxicity cannot possibly be determined in that time. The general practitioner is the ultimate field investigator, and even when he is working as a member of a group, he needs time and the judgement of long experience to enable him to give his verdict. Yet in many cases it would be unreasonable to expect producers to slow down their sequence: many new preparations are widely advertised and used soon after their issue, and there ought to be some means of securing immediate supervision. The race for production is keen, and few countries have laboratories and trained staff capable of protecting the user without delay.

The examination of pharmaceutical preparations is a highly complex skill, involving a wide range of knowledge. This increasing number of preparations and the complexity of their content have made the production of a pharmacopoeia a difficult task. The time taken is long, and the resulting book becomes out of date so soon.

In view of this, the Expert Committee on the International Pharmacopoeia, at a recently held session, examined the possibility of providing such specifications within a reasonable time after the appearance of the new preparation. In this connexion the Expert Committee expressed its full agreement with the views set out in the report of a Study Group on the Use of Specifications for Pharmaceutical Preparations, held in Geneva in December 1956,1 and in particular with the suggestion that information sheets on new pharmaceutical preparations should be obtained by WHO, collated and distributed to national health authorities, pharmacopoeia commissions, etc., at an early stage of the introduction of the preparation. In the opinion of the Expert Committee this would afford the best possible means for dealing with the great influx of new preparations on the market. The Committee agreed that the active collaboration of the pharmaceutical industry was indispensable to the success of this project and noted with appreciation that the reports from members of the Expert Committee who had consulted national administrations and some sections of the pharmaceutical industry suggested that considerable support would be forthcoming.

Information sheets would include the systematic chemical name, international or other non-proprietary names, and trade names known or contemplated in various countries, names of manufacturers, molecular formula, molecular weight, structural formula, references to literature on syntheses of the final product, various physical data (melting-, congealing-, freezing- or boiling-range; refractive index; optical rotation; density; visible, U.V. and I.R. absorption; crystallographic data; viscosity; pH of solutions; solubility), identification reactions, assay, assay of pharmaceutical forms, sterilization methods, purity tests and tolerances for trace impurities, pharmacology, toxicity, side-effects, clinical applications, usual dose, range and route of administration, specific antidotes (if known) and references to general literature. Comments would be invited from those receiving the information sheets, and revised sheets would be used in the preparation of monographs where required for the International Pharmacopoeia. After a technical examination by WHO the information would be circulated to Member States as well as directly to national pharmacopoeia commissions and official control laboratories, and to other organizations or individuals interested in the use of these specifications for the examination of pharmaceutical preparations.

It was reported that a centre for authentic chemical substances was being created in Stockholm. The object of the centre is to keep, control, and distribute a restricted number of pure chemicals which could be used for reference purposes by the control laboratories of governments and other authorities. The range of the collection would be limited to substances used in the laboratory, in the control of medicaments, and in pure research.

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Biological standardization

Biological preparations such as sera, toxoids, vaccines, antigens, vitamins, hormones, antibiotics, etc., are playing an increasingly important role in therapeutic and prophylactic medicine and also in diagnosis. It has been recognized in all countries that this type of preparation is different from other pharmaceutical products. The main difference commonly employed to distinguish biological substances is that the potency of such substances can only be evaluated in assays involving the use of laboratory animals or living cells or tissues. The performance of such assays requires the knowledge of specialists, and in practically all countries the control of biological substances is therefore separated from the control of pharmaceutical preparations in that special institutions have been put in charge of it. One of the difficulties in the evaluation of the potency and the innocuity of biological preparations is the fact that the animal responses observed and measured fluctuate with the variation in the susceptibility of the animals. The use of the animal response as a measuring unit is therefore unsatisfactory and it was early recognized (by Paul Ehrlich) that the way out of this difficulty would be the creation of stable standard preparations which could be used in comparative assays with unknown preparations that were to be evaluated. By comparing the responses evoked by the standard preparations with those evoked by the unknown preparations in the same assay, the potency of the unknown preparation can be expressed as a relative potency in terms of a standard preparation. By defining a unit as the activity of a certain weight of the standard preparation, the potency of unknown preparations can thus be expressed in units.

In order to avoid the creation of a variety of different standards and units in different countries action was taken in the early 1920's by the Health Organisation of the League of Nations, which created a permanent commission on biological standardization to deal with these problems. Under the auspices of this body, international standard preparations were established for about 30 different biological substances before the outbreak of the Second World War. These standard preparations were held in custody by two central laboratories—one in Copenhagen (the Statens Seruminstitut) for sera, vaccines and other immunological preparations, and the other in London (the National Institute or Medical Research) for hormones, vitamins, antibiotics and other pharmacological preparations. After the war, this activity was taken over by WHO, which has convened yearly meetings of expert committees on biological standardization, and under whose auspices the number of international standard preparations has now risen to about 70. These preparations continue to be held by the two international centres mentioned above, and samples are distributed to national laboratories for biological standards throughout the world. This system functions well, and it should enable control laboratories in all countries to carry out valid measurements of the potency of biological preparations produced by or imported into their respective countries. The difficulties are still numerous. For many important preparations international standards have not so far been established. For example, the only vaccine for which an international standard preparation is at present available is pertussis vaccine. The standardization of this vaccine became possible because two necessary conditions had been fulfilled: (1) a dry stable preparation of this vaccine was available, so that one could be confident that the standard preparation stored in Copenhagen would retain its original potency unchanged; (2) it was shown in extensive field trials of the vaccine in children compared with parallel trials in mice that relative potencies, obtained in a laboratory by using mice as test objects, were indicative of the relative efficacy in preventing whooping-cough in children. It is clear that comparative assays of two preparations in a laboratory are only useful if the property that is measured in these assays is the same as or closely correlated with the property we are interested in—namely, the effect of a preparation when applied to human beings.

For many other important vaccines international standard preparations could not so far be created, either because stable preparations were not available (BCG vaccine, poliomyelitis vaccine), or because we have no evidence that the laboratory tests actually reflect efficacy in man (typhoid vaccines, cholera vaccines, etc.).

Control laboratories in different countries are faced with many problems. Assays can be carried out on substances for which international standards exist, but laboratories must decide what assay methods they should employ, how extensive the tests should be (for example, number of animals to be used), and what should be the acceptance levels. (If the level of performance of an unknown preparation in the laboratory is under a certain fixed "acceptance" level the preparation should be rejected for use in man. The definition of acceptance levels involves statistical complications.) Another problem facing control laboratories is how to deal with preparations for which no international standards exist and for which there is no international guidance.
In the face of all these difficulties the development of the control of biological substances has differed from country to country. In most countries there exist definite regulations for some substances and none for others. The regulations, in so far as they exist, may be very detailed, giving precise technical instructions concerning the performance of assays, or, on the other hand, they may be rather vague. Some regulations are legally enforced, others are not. In many countries the law merely prescribes that control of biological substances should be carried out by the official control laboratory, which has the authority to choose its own methods and requirements. In Germany, for instance, there are regulations covering a large number of biological substances, prescribing methods of control which must be carried out in the Paul Ehrlich Institute in Frankfurt; this Institute decides on the basis of its control results whether a preparation should be released for sale. Actually, this applies only to the State of Hesse, but the other states of the Federal Republic have agreed to follow the Hesse rules. In the United States of America, the National Institutes of Health of the Federal Government have issued a very complete set of minimum requirements for the production and control of biological substances. These minimum requirements do not have the force of the law in the various states, but are nevertheless strictly followed; and there is a system of inspection and sampling by which all manufacturers abide. In the Union of Soviet Socialist Republics the Ministry of Health issues complete instructions on the manufacturing and control methods that are to be used in the preparation and issue of biological substances. These instructions are prepared by committees of scientists, producers and other experts, and there is no problem in enforcing them, since the manufacturing establishments are all owned by the State. All the same, there is an elaborate system of control in that the Central Control Institute in Moscow has established, in all manufacturing plants, a laboratory unit which undertakes an independent examinations of the products. The staff of these units belongs to the Central Control Institute, which itself can choose to carry out additional control of samples sent in from its own control units. In a small country like Denmark the whole problem is more easily solved, since one single institute has the monopoly of producing immunological substances for human medicine. This Institute is State-owned and performs its own control according to its own judgement. In most countries, however, the workers in the control institutes who are responsible for biological substances are faced with innumerable difficulties because their activity is not backed by complete regulations. Methods of assay need to be continuously revised in the light of increasing knowledge and the appearance of new preparations for which no legislation exists. In many of the less developed countries the control systems are very rudimentary and cannot possibly cope satisfactorily either with the production of their own countries or with the influx of foreign preparations.

Though international action in this field has thus led to the creation of many biological standards, there is need for further international guidance. The object of this is partly to give control laboratories in many countries technical information on the practices followed in other countries, and on the best ways of dealing with control of various preparations; and partly to create a greater uniformity in this work. The present diversity has many unfortunate consequences for the exchange of biological substances between one country and another. This often means double control because the requirements in one country differ from those established in another. WHO is now trying to give assistance in this field.

Food additives

Until comparatively recent times the production of food and its distribution were largely matters of local or national concern. Today a great many foodstuffs have to be transported over thousands of kilometres under rapidly changing climatic conditions, and some have to be stored for long periods. It would not be possible for many of the fresh fruits and vegetables, or processed food products, to be sent all over the world unless chemicals were used to prevent food spoilage. Even as late as 1954, 13 million pounds of cheese were reported to have been lost on account of mould alone. This clearly indicates that further research on the development of new chemical additives is necessary. On the other hand, the search for proper food protectives and for substances designed to improve the appearance and taste has brought the number of chemicals at present used in food up to nearly a thousand—and hundreds of these substances have been so employed without sufficient testing for their possible injurious effects. The Delawny Committee, set up in the United States of America in 1951 to inquire into the problem of chemical additives in food, reports that in the Food and Drugs Administration Register of 704 chemicals only 428 were considered harmless.

It is amazing how little attention some countries—even highly developed ones—have paid to this question. In those countries which took an early interest in the problem many discrepancies have
occurred in their investigation results and subsequent decisions. Some chemical substances permitted as food additives in one country are prohibited in another. Different colours appear on the lists of permitted food dyes in different countries, and some of them which are considered as safe in one country are thought to be dangerous in another. Substances at one time regarded as safe are removed from the permitted list and then registered as dangerous. Outlines of safety-evaluation procedures vary from country to country. Moreover, the use of chemicals in food processing is sometimes introduced unnecessarily, with probably harmful effects. Lately a new danger is causing concern—some of the substances used as chemical additives have been shown to have mutagenic effects.

So the ever-increasing use of chemical substances in food has created a new public health problem, and the Sixth World Health Assembly considered it would be useful to make further investigations; consequently, a joint activity was established between WHO and the Food and Agriculture Organization (FAO). Expert committee meetings have been held, first, to formulate general principles governing the use of food additives and, secondly, to establish uniform methods for evaluating their safety. The committee entrusted with the latter task concluded that the use of chemicals to improve texture or storage properties, flavour and appearance is justified when the substances concerned help to maintain the nutritive quality of a food, enhance its keeping quality, make foods more attractive to the consumer and provide an essential aid in food processing. Their use should not, however, be permitted when they disguise faulty processing and handling techniques, when they substantially reduce the nutritive value of the food, and when the desired effect can be obtained by good manufacturing practices which are economically feasible.

Furthermore, it was felt that for the guidance of workers in this field, there is a need for uniform experimental methods, for the biological testing of food additives. The Expert Committee meeting held on this subject outlined procedures for acute, short-term and long-term toxicity tests and provided information as to the validity of these data and their applicability to man and the use of margins of safety in the estimation of the safe level of intake.

The problem of chemical carcinogenesis and mutagenic action of food additives is to be given further consideration at a later stage by a group having among its members a greater number of qualified workers in the field of cancer research.

The need for specifications of identity and purity in chemical and physical terms through the collection and dissemination of data on chemical, physical and toxicological properties of individual food additives and information on pertinent legislation was also evident. A bulletin listing all current enactments on food additives is therefore issued by the Legislative Service of FAO. This bulletin appears at intervals as required.

Information on food colours has been collected by WHO and tabulated in the form of data sheets. Similar documents relating to antimicrobials, antioxidants and emulsifying agents are in preparation.

The establishment of a centre to provide information on laws and administrative provisions governing food additives in different countries, on results of research on and evaluation of the safety for use, on accepted procedures, and on specifications and methods of analysis, is of great importance. The aim of this centre would be to serve technically developed countries faced with the problem of production for the export market, as well as the less developed countries who cannot afford to do their own research.
CHAPTER 6

EDUCATION AND TRAINING

1. MEDICAL EDUCATION

"Medicine today covers so vast a field, its specialized branches are so varied that, in order to learn or teach it, it must be split up into numerous disciplines. The number of Chairs is, in fact, continually increasing. It is impossible to overemphasize the necessity for combating any tendency to isolation — any tendency for each branch to cut itself off from the rest in an attempt to become self-sufficient. In medical practice, observation and examination, diagnosis and treatment are always based on synthesis, and scientific research calls for team-work. Indivisibility in medicine implies indivisibility in training."

In these words Professor Jacques Parisot called for a holistic concept of teaching in medicine in spite of the increasing complexity of the subject. In some countries attempts have been made to make certain broad divisions in both teaching and practice even in the undergraduate years. This applies, for example, to the Union of Soviet Socialist Republics and Poland, where three partially independent sections have been created, with the idea that the medical student should be in a position near the beginning of his course to choose one or other of these divisions as the main subject-matter of his career. The divisions in question are general medicine, paediatrics, and public health. In a number of countries, especially where the educational system as a whole has started at a comparatively late period, the school curriculum is tending to be somewhat vocational in the later years. A more serious difficulty arises when vocational university teaching follows early specialization in the school. As between one medical school and another, uniformity of curriculum is neither possible nor desirable, but there are certain useful principles and aims that are common to most of the older groups of countries. Among these are two which have been stressed in every recent report on medical education: (1) undergraduate medical education should be a continuation of general education and not merely a vocational by-way, and (2) the undergraduate curriculum should be non-specialist. This curriculum is the foundation for graduates who intend to advance to specialist studies in many different branches of medicine; nevertheless, it must always be conditioned by the fact that most medical students will become general practitioners.

It has often been suggested that training in one of the great scientific discipline, such as mathematics or biology, is itself a liberal education. This is true, but the professional training of a physician requires him to have a broad outlook on man in his environment, and it is essential that the doctor should have a social, as well as a scientific, outlook. In this period of rapid social change, a purely vocational training or a concentration on the basic sciences would be quite inadequate to meet the needs of the practising physician.

A further principle, which has not been accepted in medical schools throughout the world as widely as one would have hoped, is that undergraduate and postgraduate training are to a very large extent interdependent. In a number of schools in Europe and elsewhere at the present time undergraduate teaching still includes a great deal of anatomy and surgery which will never in fact be made use of by the general practitioner. Many schools also introduce a course in public health which is based firmly on the sciences of chemistry and bacteriology and offers very little recognition of urgent everyday questions that arise in the world of men. This is a double defect, because it not only overcrowds the undergraduate curriculum with specialist subjects but also elbows out a great deal of teaching and practice which is of everyday value to the general practitioner. The level at which postgraduate instruction begins, and the quality and content of the subject-matter taught, are dependent to a large extent on the reach and scope of the undergraduate course. One of the most important features of postgraduate teaching is that it should begin more or less where the undergraduate course left off and so build on foundations that have already been laid. The postgraduate teacher should not have to recapitulate subjects which have been dealt with imperfectly at the undergraduate level, or to spend time in filling gaps that should not have been left at the earlier stage. This applies to many subjects in the curriculum, but

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perhaps most of all to the teaching of preventive and social medicine. The more inclusive and comprehensive the undergraduate course is on the subject of social medicine the greater will be the opportunities for scientific specialization in the post-graduate period.

It is not to be thought that these are merely academic considerations. They possess today a peculiar urgency. A century ago, medicine by the nature of things was practised mainly as an art. The birth of scientific medicine in the second half of the 19th century was due to the great discoveries in bacteriology and later in biochemistry; this gave a strong impetus to the practice of medicine, at least in hospitals, as an exact science, so that the art of medicine was on the way to becoming submerged. In the course of the Second World War and the years immediately following, there was a steady recognizable pressure towards the restoration of the medical art. This was partly due to the development of the concept of social medicine by which the physician began to take a much closer interest in the personal and environmental factors in disease. About the same time, the movement for health education grew in strength, and thus an important advance took place in the public and professional attitude towards the promotion of health. By these and other means there arose a new outlook in favour of the social element of health and sickness. It is at least arguable that in ordinary circumstances a fair balance would have been struck between the scientific (in the strict laboratory sense) and the social aspects of medical practice, but suddenly a new factor emerged—the rapid development of radioactivity and our understanding of its potential benefits and risks to mankind. This added a new and unexpected weight to the scientific side of the scales.

The sharp renewal of emphasis on the physical sciences must inevitably make a difference both to the content of medical teaching and to the type of student who seeks medicine as a career. A generation ago it was commonly asserted that the old type of doctor—a man of wide general culture—was being replaced by a harder, more scientifically minded physician who had little use for the art and engaged all his interest in what was being increasingly recognized as an exact science. History is repeating itself today in many parts of the world, especially in Africa and great areas of South-East Asia. How far this criticism is true of the physician of today is perhaps less important than the fact that the belief has gained some acceptance. It is sufficiently clear, however, that a change took place in the type of student offering himself for medical studies about the time when antibiotics gained the lead in treatment, and many more exact methods of "mechanical" diagnosis were introduced—for example, encephalography and other electrical techniques. It was widely felt in some advancing countries that there was no longer a place for the general physician. This movement was especially noticeable in the United States of America, where a rapid subdivision into new specialties followed in the wake of modern cardiology and neurology, and the recent advances in surgical procedures. At the same time it was noticed in some countries that the concept of social medicine as an art was being steadily superseded by social epidemiology as a science. Epidemiology, it has been said, provides the intelligence service of public health.\footnote{Morris, J. N. (1957) Uses of epidemiology, Edinburgh} It might have been claimed that this statement applied with equal force to medicine as a whole, because the picture which the clinician sees of illness is incomplete and may well be distorted, both in hospital and in outside specialist practice. The point is this: that science in the practice of medicine is not confined to the laboratory and the test-tube. It has been extended far and wide by a fresh approach to epidemiology and statistics.

There are two ways in which the advancing countries of today are devoting their attention to medical science. Many of them report that they are now setting up departments of health and vital statistics, for they are realizing more and more that they cannot even begin to introduce public health measures to their people unless they know the extent and depth of the problems. The second way, which nations are following in a more tentative manner, is through technical assistance in the provision of up-to-date appliances, including, for example, the complex apparatus for dealing with radioactive substances in both diagnosis and therapy.

It is curious to observe that, just at the moment when physical science has been clothed with new life and purpose in medical practice—quite apart from the question of the hazards connected with the manufacture and use of radioactive substances—, a considerable number of the reports from governments deal in some detail with the training of the medical student in the social component of his art. Those responsible for teaching in medical schools are realizing to an increasing extent that the product of their medical training should be a physician who, in addition to his strictly scientific knowledge, is able to assess a social situation, put himself in the patient's shoes and take his part as a member of a medico-social team in securing for the patient the social remedies which are so often the essence of a prescription for comprehensive treatment. In all countries medical care services are increasing in complexity, and this is true of both the
to his strictly professional training, the medical student must give him a practical understanding of the functions of other members of the health team, such as nurses, midwives, health officers, engineers and auxiliary personnel. Even this is not enough.

If we accept these circumstances of practice as desirable and necessary steps to health, it follows that a medical training must provide practical social instruction to afford knowledge and understanding of a wide range of services connected with health and welfare. Since it is clear that the doctor cannot by himself discharge these wider responsibilities to patients, it follows that his training as a medical student must give him a practical understanding of the functions of other members of the health team, such as nurses, midwives, health officers, engineers and auxiliary personnel. Even this is not enough. In addition to his strictly professional training, the medical student ought to have an opportunity of gaining first-hand experience of the ordinary ways of living among the people whom he will eventually serve. Comparatively few students have any clear idea of the living and working conditions of an industrial population. To many of the students brought up in cities, the life of village folk belongs to another world; and even in their own environment many of them rarely penetrate into the domestic life of the ordinary family. Much has already been done by governmental and teaching authorities to meet these defects: in some countries it is a tradition that the young doctor should practise for a year or more in a relatively remote area; and in countries where a State medical service is in operation on a full-time basis it is not uncommon that a recent graduate is sent to a rural practice under the supervision of an experienced practitioner or the staff of a health centre. Still more recently it has become a custom in certain medical courses for the clinical teachers to send out the students during their undergraduate years to receive practical instruction from a selected general practitioner. The out-patient department of the hospital is especially valuable as a focus for this activity; in some hospitals a special family service physician has been appointed to distribute students during their clinical years in such a way as to give them supervised charge of a number of families who are attending the department.

The undergraduate medical curriculum has been the subject of a great deal of discussion and report. It is difficult in the short space allotted to summarize the criticisms made but the most prominent are as follows:

(1) Undergraduate teaching has been concentrated almost entirely on the patients in hospital. It is thus artificially divorced from the circumstances in which the patient became ill and the environment to which he will have to return on discharge.

(2) Teaching at the bedside in many medical schools tends to be too clinical and pathological in its outlook. Consequently the general social conditions and the relation between the patient and his environment are relatively neglected.

(3) In many medical schools very little instruction is given on the subjects basic to health, such as housing and nutrition, economic status and social security, or on the organized health and medical care service under which the medical practitioner carries out his daily work.

(4) In spite of the gaps in teaching referred to above, the undergraduate course is often criticized on the grounds that it is overloaded and lacking in a coherent theme.

(5) In many schools undergraduate teaching is concerned too much with facts which have to be learned almost by heart and too little with method and with the development of sound judgement and a critical attitude of mind.

A considerable number of medical schools, in Europe and South America especially, have recently taken these criticisms into consideration since social insurance schemes have been introduced and closely linked with medical practice. Increasing prominence has therefore been given to social aspects of medicine. In one or two schools in North America a substantial reorientation of the whole undergraduate curriculum is being undertaken. The main changes are the introduction of one or two cultural subjects, such as philosophy and a modern language, and the reduction of the general course to less than five years. The course allows a limited amount of choice of specialty during the closing years of the curriculum. It remains to be seen how far the pendulum will swing in the other direction under the impetus of the growing urgencies of the new physical sciences, the intensive search for more exact methods of physical diagnosis, and the endlessly elaborated methods of treatment deriving...
partly from the daring advances of surgery and partly from the extended use of radioactive substances. It may well be that these changes will induce the more technically minded to enter on a medical career.

The main difficulty of medical education at the present time, however, is not so much the content of the subjects as the crowding of the curriculum. The corpus of medical knowledge has become too immense for any one man to comprehend. Medicine has become increasingly specialized and technical. It is therefore more difficult to present to the student a picture of the patient as a whole. It is everywhere recognized in theory, if not in practice, that there is a limit to the factual information which a student can be expected to swallow, let alone digest. In summary, it is very generally agreed that at present we teach the medical student both too much and too little: too much of factual detail and too little of the broad principles and the humanistic basis of medicine in modern society.

The reports from various countries suggest another difficulty that is apt to arise as medical education progresses. It is not always easy to decide which one of a number of universities ought to proceed with plans for setting up a medical school. It is generally agreed that universities are the proper setting for medical education rather than isolated hospitals or government institutions. The most desirable arrangement of all is when every service of a great hospital is at the disposal of medical teaching, both undergraduate and post-graduate. Difficulties have arisen, however, when a number of smaller universities of more or less equal size and status have laid claim to medical teaching. It is undesirable that highly specialized staff and the costly equipment required for teaching and research institutions should be spread too thinly in some quite small countries where there are already perhaps a dozen or more medical schools. Concentration of medical teaching and practical study would be more effective.

The essential difference between the aims of undergraduate and post-graduate teaching is that the former is intended to construct a broad foundation for any career in medicine and the sciences associated with it, while the latter should provide the framework for a specific vocation. The more specialized post-graduate courses should ideally presuppose a stable foundation in general medicine. Unfortunately, in not a few universities the undergraduate curriculum—say in surgery or public health—is a kind of post-graduate course in miniature. The post-graduate teacher is therefore obliged to introduce a number of subjects which would have been far more appropriate for the undergraduate period, and at the same time deal correctly, so to speak, with the results of premature labour in the undergraduate curriculum. In post-graduate instruction theoretical teaching takes a relatively small part. A great deal must be closely related to the actual practice of the special subject. It is therefore necessary for the post-graduate student to spend the great part of his study in direct contact with his teacher, assisting in his practical work and undertaking duties of increasing complexity and responsibility under his supervision. These considerations apply with suitable adjustments to all post-graduate subjects: surgery, midwifery, bacteriology or public health.

It is essential that the student at this senior level should do much of his own teaching. It is for him and not for the teacher to make critical notes of practical exercises and to record day by day what he is, in fact, doing. All post-graduate instruction should be directed towards making the students more self-sufficient and less dependent on instructors and their demonstrations. One of the most important functions of post-graduate teaching is therefore to help the student to trust in his own independent powers of observation and criticism. From the medical point of view hospitals and public health institutions vary considerably even within the same country or region. In these circumstances one of the best methods of post-graduate teaching is a kind of “intern” training in which the graduate goes out to learn—at first under the supervision of the teacher and later on his own initiative—in small hospitals in the area or in district, laboratories, for example. Similarly, post-graduate students in public health could spend substantial periods of their time under the direction of a practising health officer. A condition of success is that the students should be sent forth singly or in very small numbers, unless they are, in fact, members of a team in which there are also non-medical students with a different background of experience. A large group of medical graduates working together detracts from the value of intern training, because so much depends on a close personal relationship between the health officer and the trainee.

An extension of the system of practical training which has been effected successfully in a number of countries is to arrange for students to undertake individual surveys either of all the health services of a small area or of a single service in a more populous district. This means that the student learns how to carry out surveys by himself while he is still under tuition and the main function of teaching is to enable him to apply critical methods to his own work. A system of self instruction of this kind has been successfully carried out in the School of Hygiene in Athens,
and a similar method of instruction has been successfully employed in Yugoslavia.

In a number of the other post-graduate sciences a system of temporary training in another institution—perhaps under a short-term fellowship—is of great value. It avoids the risk of too narrow experience in a single school or institute. In spite of what has been said, it is important to point out that post-graduate teaching in any subject is and must continue to be a university discipline. The very fact that universities are responsible for post-graduate training makes it clear that these courses are regarded, not as a form of special instruction for the conduct of a profession, but as a means to expansion and enrichment of the mind to make it a more perfect instrument of inquiry, knowledge and understanding.

2. NURSING EDUCATION, INCLUDING TRAINING IN PUBLIC HEALTH NURSING

The clearest issue in the great majority of replies received from governments is that there are not enough nurses. More nurses are needed both for hospitals and for the public health services. The shortage is absolute and it means that sick people in many countries are not receiving the skilled care which only a trained nurse can give. Many countries are fully aware of this deficiency and are making every effort within their power to overcome it. A large number of them are faced with great difficulties and there are certain hazards in trying to move forward too quickly. The majority of these countries need more nurses, but they see that the need must not be met by lowering the standards of training. There are various ways in which the shortage can be relieved at least in part. A number of countries have unfortunately no nucleus of trained staff which could be employed even in teaching activities. It is therefore impossible for them, as the situation stands, to supply the needs of the sick or even to establish simple teaching for their care or for the prevention of disease. In such territories it is essential that trained nurses should be introduced from without to set up an effective scheme. The simplest and, in the long run, the most economical way of doing this is to secure a team of trained and experienced nurse teachers—a team which can handle the therapeutic and the preventive sides together and, at the same time, deal with training in midwifery and perhaps certain special aspects such as child care. It is desirable but not always possible that a team of this kind should previously have worked together in an area in which standards were not particularly high. A knowledge of the culture and social conditions is very important, because the team has to adapt its teaching to the true needs of the country. There is always a risk that the teachers might be too remote in background and experience from the pupils.

What are the main causes for this widespread shortage of nursing personnel? There is no single comprehensive answer. In some territories, generally backward economic conditions have made the supply of trained nursing staff beyond the government's capacity. In other areas, relatively primitive customs and prejudices have hampered the introduction of professional nursing and perhaps, more particularly, of midwifery in the home. In some countries otherwise well advanced, the status of women has interfered with the acceptance of the professional nurse, while in others the limitation has been due to the low status of nursing as a career. Problems of this kind are still prevalent enough, but opposition is being steadily worn down with the growth of a more liberal attitude to women and a wider understanding of the need.

The removal of the difficulties outlined above does not solve the fundamental problems. It is necessary to provide training for nurses, but it is essential for trainees to have enough education to profit by the technical training. There are still a considerable number of countries in which the educational standard for admission to a training course is too low to provide a satisfactory quality in the nursing profession, although the quantity of auxiliary nurses might be increased.

The returns from various countries indicate that there is considerable variation in the criteria for admission. The direction of advance should certainly be towards raising the admission standards progressively to the level of a complete secondary school education. It might be desirable, moreover, for the registration authority to apply a special test for admission, particularly in areas where no school certificate is granted. Some countries have accepted the idea that the training school should undertake responsibility for its own admissions. There is much to be said for this practice but the details of its application would involve difficulty on account of the large number of nursing schools in certain countries. On balance it would probably be best for some academic body representing the nursing schools as a whole to set up and maintain standards of admission.

In the actual training course for nurses, certain fundamental principles have been widely accepted in recent years. The first of these is that nursing, like medicine, is no longer regarded as being concerned mainly with the care of the sick. It is true that the nursing student, like her counterpart the medical student, has to spend, even at the present time, a large
part of her training under hospital conditions. In many countries it is accepted that great teaching hospitals provide the best training. This view can be defended on the grounds that the finest teachers are concentrated there, but the defence falls short on two counts. First, the great majority of nurses or doctors, as the case may be, will not in fact be employed in teaching hospitals or in dealing with the conditions and types of disease that predominate in these highly developed units. Many of them will be distributed among smaller hospitals, health centres and even little rural health units. In the second place, the content of teaching is being changed by a new outlook on the function of medical care. Countries which have few health workers or whose population is widely scattered ought to combine under medical care the curative and preventive aspects as well as education in health. Nurses must therefore be prepared to deal not only with patients suffering from serious diseases but also with those who need simple guidance on the maintenance of health and the promotion of good habits of living. It is being realized more and more that the general practitioner should be closely linked with the health team, consisting of the local medical officer of health and the nurse. The nearer we come to the homes of the people the more important it is to introduce public health into medical care and to regard the nurses, like the general practitioner, as members of the public health team. If these concepts of nursing are accepted, it becomes increasingly important to bring public health into the teaching curriculum for all nurses. It should not be thought, however, that this idea rests only on tasks which nurses in rural and more remote areas are expected to carry out. Under the conditions that obtain today, a nurse should be interested in health; she should be able to bring the idea of healthy living to her patients and in particular give positive teaching to expectant mothers, nursing mothers, and, though them, to the young children. In the less developed countries the needs go further than this. Maternity nursing should be regarded as an essential part of health care, and teaching and practice should be concerned with this aspect.

Another and in some ways a more subtle change has been taking place in recent years in the functions which nurses are expected to perform. So long as public health nursing was kept in a separate compartment from general work and the care of the sick, the effect was that the great majority of nurses were carrying out duties which demanded largely what might be described as a clinical training. A limited number of nurses, mostly of senior grades, undertook administrative duties or tutorial functions. A few became matrons, nursing administrators or sister tutors, according to their experience and interest. With the closer amalgamation of preventive and curative medicine, however, nurses of all grades are beginning to be faced with teaching and administrative duties for which few of them have been prepared. This applies notably to countries which are short of medical and other professional staff, and teaching schools should by no means neglect both therapeutic and practical instruction on the administrative side. This should not be regarded as a temporary phenomenon. In fact, the contrary is true. The administrative responsibilities of nursing are very properly tending to increase in highly developed countries and in association with well-organized medical and nursing services. The nurse of today and tomorrow is not only a clinical worker but also a teacher and administrator. Clearly this does not apply to every nurse any more than it applies to every doctor, engineer or public health worker, but it is sufficiently applicable to demand recognition in teaching courses and in the practical work connected with them. If this concept is not understood, nurses will tend to remain outside a service in which they should be increasingly valuable — valuable that is, in giving practical advice and assistance on nursing and public health in hospitals, in clinics, in health departments and in domiciliary care. More and more countries are becoming aware of the confidence which the people have in an experienced nurse in health centres and rural communities, where she may well be the one professional officer on routine duty. This can be seen as a progressive development in countries of many different standards — in the highly organized islands of Scandinavia, in the remote rural areas of an under-developed tropical territory, or in the small islands that are strewn over the Pacific.

At the same time it would be quite impossible, even if it were desirable, to attempt to meet the nursing shortage with fully trained nurses only. There are many duties which, under the supervision of a trained nurse, can be adequately carried out by auxiliary nurses. The limit to the numbers of auxiliary nurses who can be employed satisfactorily depends directly on the amount of supervision that can be given by trained nurses, and the safety margin must be watched with care according to the kind of responsibility placed on the auxiliary nurse and the accessibility of the trained supervisor. Situations in which there are as many as ten auxiliary nurses to one trained nurse have been reported, and in some areas this ratio is exceeded. It is essential that these auxiliaries should have received basic general education and should possess some recognized degree of intelligence and adaptability. It is no less important that they should have a training in nursing duties with a strong practical bias.
This instruction should be given by trained nurses in accordance with a defined curriculum.

In a number of countries which have supplied information on the subject of nursing, it is evident that some local nurses have been sent abroad to study in the great teaching centres. This is a satisfactory arrangement for those who have been selected for leadership or for teaching positions. Their programme should be adapted to their particular needs. Nurses in training who have not reached the standard of selection for fellowship ought rather to receive their instruction at some centre in the home country where conditions are more like those in the areas where they will ultimately practise. It is essential that training should not be divorced from the actual, and perhaps limited, practical work which the nurse will be expected to undertake.

In the less developed areas the need for well-trained midwives is just as great as the need for nurses. Where populations are widely scattered a very large number of confinements take place in the home without any attendants or, at most, with merely the service of a traditional birth attendant. When there is a group of trained midwives in a country of this kind, they naturally tend to be used in the hospital services, and home confinements do not benefit directly. The establishment of domiciliary service, however, has made headway since the war and the need for increased training has been widely accepted. The admission of the trained midwife to the home has often been slow and difficult. Some countries have had to meet their troubles half way by giving at least a limited training to capable people in the elements of midwifery, because by that means the completely untrained midwife of the old type will be gradually eliminated. One has to make the best of the existing order of things as a springboard to further progress.

3. AUXILIARY PERSONNEL IN THE HEALTH SERVICES

With the broadening of the concept of health, the measures designed for the protection and promotion of the health of a population have been greatly increased in magnitude. A great variety of activities, from simple first-aid dressings, spraying of insecticides, and vaccinations, to the diagnosis and treatment of diseases and research work in the health field, have been developed. In many countries, owing to the shortage of qualified doctors, governments have found it necessary, in an endeavour to fulfil their public health responsibilities, to train different types of auxiliary personnel to carry out various health activities under the supervision of qualified doctors. Experience has shown that properly trained and supervised auxiliary staff can perform useful functions in public health work, and their contribution to the health protection and promotion of a population can be very valuable if they are considered as members of a team in an organized system of health service. Even in countries where there is a sufficient number of qualified doctors, recognition has been given to the use of auxiliary medical and health staff to assist the doctors and to release them from simple routine work.

Auxiliary personnel are recognized by the major branches of the medical and public health sciences—for example, medincine, dental science, environmental sanitation, pharmacy, nursing and midwifery.

In the medical field the services of laboratory technicians, x-ray technicians, physiotherapists, anaesthetic assistants, etc., are considered indispensable, and these types of para-medical personnel are not present in sufficient numbers in most countries. In many countries of Asia and Africa "licentiate" doctors and "medical assistants" have been trained to meet the shortage of fully qualified doctors. The licentiate doctors usually receive two or three years less medical education than the fully qualified doctor, but in a number of countries they are allowed to practise privately. The "assistant medical practitioners" trained in the Fiji Medical School are another type of auxiliary, of similar standing, commonly found in non-self-governing or trust territories in the southwestern Pacific. The medical assistants, who are employed in considerable numbers in Africa, are of a lower standard than licentiate doctors, having generally had two to three years of technical training and eight to ten years of basic education. The "feldsher" in the Union of Soviet Socialist Republics is equivalent to the medical assistant in Africa. Both feldshers and medical assistants are assigned to take charge of rural health centres or dispensaries and are indispensable at present in the health services in the USSR, and in many parts of Africa.

During the last few years a rather unusual type of auxiliary health worker—known as "health assistant"—has been trained in several countries. The Health Assistants' School in Burma offers a two-year course to high-school students who have had ten years of general education. The course consists of 21 months of classroom and laboratory teaching in basic sciences and pre-clinical, clinical and public health subjects for a total of 850 hours. During the last three months the students are sent to a rural health unit for practical training. After graduation they are expected to be assigned, together with women health visitors, mid-
wives and smallpox vaccinators, as a team to work in "village circles", consisting of about 15 village tracts with a total population ranging from 15,000 to 40,000. Four courses have been given since 1951, with a total of about 440 graduates now working in the field. With the help of this type of personnel it is planned to cover gradually all the village circles in Burma with some basic rural health service.

A similar type of training school has recently been organized in Ethiopia. This is the Public Health College in Gondar, where a three-year course is given to graduates from secondary schools. At the end of their training in the college the students are required to spend one year of internship in both urban and rural health centres specially provided as a practical teaching area for the college. A certain amount of clinical practice in the Gondar hospital is included in the intern year. In addition, the college offers a two-year course for public health nursing auxiliaries (community nurses) and a one-year course for sanitary inspectors (sanitarians). Owing to the limited number of graduates from secondary schools, the admissions to the college are few. The first graduates were 20 health officers, 15 community nurses and 12 sanitarians.

The training of medical assistants in the Sudan is similar to the schemes described above, except that more emphasis is given to practical work. The selection of students is in the first place largely from among the male nurses or dressers who have worked for a number of years in one of the hospitals. The selection is based on personal qualities as observed by the senior staff of the hospital. More than eight years of general education and favourable recommendation from the hospital superintendent are among the requirements for admission to the training school. After 18 months of classroom and laboratory training the students are assigned to hospitals to work for a period under the supervision of doctors before they take up duties in the rural health centres or dispensaries.

In the dental service, auxiliary workers are well known in many countries. The school dental nurses in New Zealand, dental technicians in Europe and dental hygienists in the United States are some familiar examples. The service of dental nurses in preventive dentistry in New Zealand has been highly appreciated by public health administrators all over the world. Sanitary inspectors or sanitarians are common designations for environmental sanitation staff in many countries. Services rendered range from the supervision of waste and excreta disposal, food inspection, and insect control, to the construction of simple water supplies, such as wells and local piped water systems.

The services of sanitary inspectors are popular in many Asian and African countries, and these workers are considered the "front-line" health personnel, in close contact with the people. If they are properly trained and work under the close supervision of qualified health and sanitary staff, their service to the sanitation of the people's living and working environment is significant. In the Sudan, sanitary inspectors are assigned to work directly under the rural or village councils, and the general cleanliness of Sudanese villages is no doubt due to the activities of these workers.

In pharmacy the auxiliary personnel are commonly known as druggists or dispensers. In many countries, the dispensing of drugs is carried out by nurses or nursing aides in the health centres and dispensaries. The service of druggists or chemists in dispensing medicines for customers is not so well advanced in the less developed countries as it is in Europe and North America.

In nursing the use of auxiliary personnel has been an important phenomenon in many countries. For clinical nursing the use of nursing aides or dressers in hospitals or polyclinics is very common. Health visitors, who are fully trained nurses, and assistantes sociales are the most usual type of trained staff in the public health services of the United Kingdom and France, respectively. As the health services are further decentralized to the villages, the need for nursing auxiliaries becomes greater. It has been demonstrated in many countries that the only possible way of extending health services to families is through this type of nursing auxiliary.

The auxiliary workers in midwifery are common in all the less developed areas. The personnel concerned range from the traditional dais to the assistant midwife. The training of local traditional midwives in Asian countries has been very successful and the improved service of these midwives has led to a considerable reduction in infant mortality. In the same way the training of illiterate midwives in the Sudan has proved to be useful. The employment of assistant midwives for family health service rendered from sub-centres of rural health units in Egypt has also been successfully demonstrated.

The service of these types of secondary health personnel is essential for the extension of health services to rural areas. Because of the low educational requirement and short period of technical training, such staff are locally available, and economically many countries can afford to employ them. Furthermore, as they are locally recruited they are more likely to settle permanently in the rural areas.
CHAPTER 7

FUTURE DEVELOPMENTS

One of the most encouraging features of the world health situation today is that the nations are becoming increasingly conscious of the importance of public health as a factor in the social and economic development of a country and of the need for further progress in this direction. Just as the governments are recognizing their growing responsibility for providing the services, so the people are becoming aware of the need for their own participation in the endeavour to build up the health of the nation. The truth has been realized that health cannot be imposed; its promotion requires team-work within the community. Many of the more recent trends in public health administration stem from this concept, and future developments will be governed by it.

1. TRENDS IN HEALTH PROMOTION

The modern concept of health as a state of physical, mental, and social well-being, and not merely the absence of disease or infirmity, has opened new horizons for health workers. They are no longer content with lowering the death rates, but also aim at reducing sickness—not only adding years to life, but adding life to years. In other words, there is an effort to improve the quality of human life. This can be illustrated in many ways, but steady advances can be made only when the facts are known. For this reason a number of governments are planning nationwide surveys to secure sample morbidity figures, and the findings will exercise a great influence on future measures.

Efforts to reduce infant mortality in many parts of the world have been successful up to a point, as a result of the provision of maternal and infant care services; but it has been found that, in some countries, although infant lives were saved during the first twelve months, half of the children died before reaching the age of five years. The main cause was defective nutrition—particularly lack of protein. Infectious diseases and faulty environmental sanitation were contributing factors. These facts indicate the need to extend welfare services to children of pre-school and school age, and to lay special emphasis on nutrition, health education, and the prevention of infection. Sound teaching of this kind in the schools is carried home by the children and often has the effect of moving the parents to pay more attention to the living and working environment.

The prevention of chronic degenerative diseases has recently acquired a special prominence in the more industrialized countries, partly because of the appearance of new hazards from the increasing pace of living, and partly, no doubt, on account of the steady reduction in the killing diseases of early life. Although the specific causes of many chronic conditions have not yet been determined, significant progress has been made in field studies on dietary and other contributing factors. Research in this subject is turning from purely laboratory studies to field observations on the living patterns of different groups.

Another advance of great significance has been made in the prevention of dental caries through improved methods of conservation. Striking benefits have been secured by the introduction of water fluoridation. Dental health services have been expanding rapidly in many countries, notably in the maternal and child care work undertaken by local authorities, and the use of auxiliary dental staff. The epidemiology of dental disorders and the prevention of periodontal disease is receiving closer attention. In general, the progress of dental services depends on the supply of adequately trained staff, and, to be most economical, dental care should be planned as an integral part of the local health service.

An interesting trend, which has spread widely during the last few years, has been the offer of periods of rest or convalescence in a sanatorium or specially equipped rest-house. Workers, school-teachers, and other public servants are granted leave of absence ranging from one week to several months, at government expense, in a well-situated coastal or mountain resort. During this period of recuperation every opportunity is offered for both mental and physical recreation. A medical service, with doctor, nurses, and auxiliary staff, is provided, and special attention is given to diet, rest, and graduated exercise under
medical supervision. Arrangements for convalescent care are also being made to an increasing extent by national and local authorities, workers' unions, and industrial firms.

As a result of the striking change in the pattern of disease, especially since the introduction of antibiotics, many of the communicable diseases have been reduced to insignificance in the course of a generation. More attention has been given to educational services and to the provision of health care within the smaller community. Nowadays the family is regarded as the unit, and a domiciliary service of combined prevention and treatment is being widely introduced, with doctor, nurses, and auxiliary staff as members of each team. By this means it has become possible to arrange for the follow-up of families under care, with regular observations on each individual. When a member of a family falls ill his own doctor will have ready access to a hospital or clinic and will be in a position to follow up his patient at home, with the assistance of the health team. If the disease is infectious, a close liaison with the local health department will enable the necessary steps to be taken to prevent the spread of infection. Further, it is only through systematic home visiting that the state of health of a population can be properly and continuously recorded. Where the general practitioner service prevails, family records can be effectively maintained; these in turn can be summarized for statistical purposes by the local bureau of medical records and will provide the one reliable source of information on morbidity.

It is necessary to lay considerable stress on the value of medical statistics as a measure for the promotion of health, because for want of such data we do not yet know the extent or gravity of the problem of disease in the less advanced countries. Sickness and disability may have a far more profound effect than is at present realized, and it may well be that through the lack of accurate information on morbidity an intolerable burden of suffering, economic loss, and social misery is imposed on the community.

2. DEVELOPMENTS IN ADMINISTRATION

The term “public health administration” has been variously interpreted. Traditionally, it covered only matters of control and regulation of environmental services and the protection of the public againstcommunicable disease. At that stage of development, sanitary legislation was the most important function of administration both centrally and locally. In countries where there were extremely few doctors, a high percentage of illiteracy, and practically no sanitation, the demand for a curative service was pressed more vigorously than for any form of legal control. In these circumstances, governments were obliged to provide medical care to meet the immediate needs of the people, and so hospitals and dispensaries had the first priority. In communities where there were sufficient private general practitioners and arrangements for public medical care, the national authorities were able to establish preventive services directed both to the control of communicable diseases and to the promotion of personal health. By this means, in many countries and territories, the national health administration was responsible for two parallel and more or less disconnected systems of “medical” and “health” services, with much greater attention to the medical side. The integration of curative and preventive services in a single unit of administration had developed rather slowly hitherto except in a few countries.

The future of public health administration moves in the direction of co-ordinated planning and the organization of a decentralized system. The growth of local health centres has already demonstrated the value of bringing together the curative and preventive services under one roof. This development in a local area linking health centres, sub-centres or dispensaries to maternity clinics to form a single health unit is itself a considerable advance in co-ordination. The additional provision of ready access to a hospital and a laboratory at a convenient centre will help to strengthen the local community services by providing specialists in both clinical and laboratory diagnosis. This will make the general practitioner's work more attractive professionally, and so encourage young medical graduates to take up combined medical and preventive work as a career. Recent experience in the Union of Soviet Socialist Republics and elsewhere has shown that government action in promoting and protecting the health of the people and in co-ordinating research, education and practice in the medical sciences has an educative influence of great strength on the people and the profession.

Since the National Health Service came into being in the United Kingdom, it has been demonstrated that complete medical service can be provided by a system under which the financial resources of health insurance are combined with those of the regular budget. Both Chile and Sweden have recently succeeded in extending social insurance schemes to cover comprehensive medical services for the population.

In this way it can be seen that public health administration has gradually evolved during the past half-century from a service fulfilling purely regulative functions and environmental control to a science of
management through which modern medical knowledge is being transformed into practical measures for protecting and promoting personal and community health. One of the most important future responsibilities of administration will be to bridge the gap between the knowledge gained from the medical sciences and the practical application of that knowledge. It has been demonstrated clearly that one of the most effective means of doing this is by organizing community work with the people, thus winning their active participation. To fulfil these responsibilities, many obstacles will have to be overcome. The task is not easy, but recent advances in various parts of the world indicate that the essential steps are now being taken in administrative planning. Pilot studies and field demonstration programmes help to convince governments and their people that community services can be undertaken as part of a combined educational plan.

3. LONG-RANGE PLANNING

The planning of long-range health programmes is a new activity which will ultimately become part of the normal function of national governments. The Indian and Sudanese Governments, for example, have recently started their second five-year plans for social and economic development. The first five-year programmes have been fulfilled; the second contain important health proposals. In Egypt, the former Council of Public Welfare Services initiated a system of long-term planning of all its public services, and the first five-year plan of “combined centres” for rural areas has now been carried out. The Ministry of Health of Indonesia has set up a special planning commission and has worked out a detailed long-range programme for various types of preventive service. In other countries, such as Ethiopia and Afghanistan, organizations have been established by the central authorities to undertake long-range planning. South American interest in the subject was evidenced by the technical discussions which took place at a recent meeting of the Council of the Pan American Sanitary Bureau/Regional Committee of WHO.

Long-range planning was first begun mainly as a means of promoting economic development, as, for example, in the USSR following the revolution and in a number of other countries after the Second World War. Since then experience has been gained in planning for the orderly progress of countries, including their economic, social and cultural advancement. The development of health work in a number of countries has been planned as an essential part of the social and economic system, and its progress in these countries has been remarkable. Among the many reasons for this rapid advance is the co-ordinated planning of medical education, research, and practice.

One of the essential preparations for long-term programmes is the health survey. Many governments are now carrying out such surveys periodically in order to assess their needs. Experience has shown that the important thing is to determine priorities and to plan the services on a permanent basis within the economic resources of the country. It is true that the health needs of a country may not be fully met at first because of limited resources, but the plans should be prepared on the principle of progress to a complete scheme. Similarly, the standard of services rendered may be relatively low during the initial period on account of the poor educational and economic conditions of the country; nevertheless, plans should be made on the principle that these standards will progressively improve. It is best to draw up a plan which can be gradually unfolded as conditions permit.

4. SHORT-TERM INDEPENDENT PROGRAMMES

Programmes for individual health projects of short duration are becoming popular, especially where international or bilateral assistance is available. In general, these programmes are directed to the control or eradication of specific communicable diseases, such as yaws or malaria. Isolated independent programmes of a special kind—for field demonstration or limited investigations—also exist in a few countries. These short-term projects, unless they are connected with long-range national programmes and are associated with permanent health services, usually have only a temporary or limited effect on the health situation of a country, even if they are successfully carried out.

On the other hand, short-term independent programmes as part of a long-range plan are useful in many instances. Where financial resources are restricted or there is an unusual shortage of medical and para-medical personnel, only programmes of a limited scope, perhaps on a yearly basis, may be feasible. In many countries the first step has been to provide a simple medical care service for small communities through the employment of medical auxiliaries. This has been followed up by a scheme of in-service training of the existing staff with the object of introducing preventive work in addition to the usual medical and nursing care. For this purpose, qualified medical staff are trained and appointed to supervise the work of the auxiliaries, and, in this way, a higher standard of community care can be attained. For example, a
plan to control the most prevalent diseases in an area, together with the provision of essential laboratory services, may be launched. If the individual programmes are properly co-ordinated and followed up, substantial advances will be achieved. This process has been observed in a few countries, and it may well become a pattern for the future in many of the developing countries of the world.

5. COMMUNICABLE DISEASE CONTROL

Many of the communicable diseases are still prevalent in most tropical and subtropical countries. Diseases for which there are known reliable methods of prevention and control—such as smallpox and yaws—are still threatening many countries today. Where these diseases exist in either endemic or epidemic form, it has been clearly shown that, when the governments were firmly determined to initiate a programme of eradication and organized their resources to carry it out, smallpox and yaws virtually disappeared in a short period of time. It is evident, therefore, that the persistence of these two diseases is not due to lack of technical knowledge or experience but rather to a want of determination and organized effort in applying that knowledge.

During recent years, through international collaboration, organized campaigns have been worked out to control the spread of quarantinable diseases. Improvements in the preparation of smallpox vaccine and new preventive techniques for dealing with a number of the other diseases have now been achieved. During the next few years it is likely that steps will be taken to devise co-ordinated schemes and well-planned timetables for eradicating a number of these distressing, but preventable, conditions. It has also been demonstrated that any programme of eradication can be carried out more efficiently and economically if it is properly fitted into the general health service of the country.

6. RURAL HEALTH DEVELOPMENT

The concentration of the medical profession in urban areas and the predominance of health services in cities have deprived country dwellers of modern services in many districts. With the increase in industrial development without proper economic and social planning the rural population—which constitutes about three-quarters of the world total—is further deprived of subsistence and its standard of living in some countries is deplorable, in spite of the fact that it produces the world’s food. The League of Nations first called attention to the need for rural health services many years ago, by initiating rural conferences in Europe and the Far East. The Second World War paralysed this movement, and the rebirth of rural health services has only recently taken place.

This revival of interest was set going by the public health professions, and the movement has become widespread, as is demonstrated by both national and international conferences on the subject and by the initiation of actual centres. Health administrators are deeply concerned with the lack of provision for rural areas caused by great differences in economic and social development between rural and urban communities. Moreover, problems of urban growth have been created by the rapid influx of rural populations into the towns. If it is not quickly controlled, this situation will create new forms of social unrest.

In spite of great difficulties in securing financial appropriations for rural health work, a good beginning has been made in promoting the essential services for small communities. In addition, the national authorities have used various means of encouraging young medical graduates to take up at least temporary appointments in rural districts before they settle finally in their chosen practice. In this way it has been possible, where the rural population constitutes a high proportion of the total, to start a series of rural units in which both curative and preventive work is carried out. As a means of providing technical assistance and supervision, the value of a provincial or regional service with the necessary technical establishments, such as hospitals and laboratories, has been well demonstrated. Under this system hospitals with at least a limited number of specialist services are made available to the rural people, and the cost is kept within the economic possibilities of the country. Further extension depends on financial considerations. In many rural areas the health service has been the spearhead in the control of the commoner communicable diseases, and the provision of these personal medical services has cleared the way for economic and social development. In many parts of the world the health advances have in fact improved the economic state of the areas by eliminating the wasteful diseases and bringing greater vigour to the people.

7. SUPPLY OF MEDICAL MANPOWER

The insufficiency of medical and auxiliary personnel, both qualitative and quantitative, has been a serious obstacle to the extension of health services in a large number of countries. The situation has been temporarily eased by the training and use of auxiliary work-
ers, but this does not solve the main problem. In a few countries only, through the effective co-ordination of medical education with health programmes, considerable advances have been made in speeding up the production of the right type of medical manpower. Many governments are well aware of this problem, and more effective plans for preparing the right numbers and categories of medical men and women will have to be worked out. National health administrators will have to take part in formulating education policy on medical and allied subjects and in the detailed planning of curricula. The producers and the consumers will have to consult each other more closely in working out both national and local training schemes, as a great deal of economy can be secured by a joint effort. Both national and international leadership are urgently called for to meet the needs of education and training.

8. IMPROVEMENT OF LIVING AND WORKING ENVIRONMENT

The improvement of environmental sanitation has been largely dependent, in the past, on industrial and urban development. This has led to the belief that any large-scale environmental sanitation programme will have to wait until the economic situation of an area is ready for it. This conservative attitude has caused delay in action in many advancing communities. Governments are, however, becoming increasingly willing to accept the importance of improving the living and working environment of their people. Most of the technical facts about the provision of a safe water supply, the disposal of sewage and the health aspects of housing are already known, and with the knowledge and experience now acquired it should not be difficult to make substantial progress.

From the financial aspect, if the long-term view is taken, the cost of carrying out well-designed environmental schemes will be covered by the economic benefits derived from reduced death and sickness rates. In preparation for all these costly developments, the education of the public and local authorities is an important factor. Encouraging signs are already evident in many parts of the world—even in rural areas, where the public is demanding a healthier living and working environment and is, in some instances, taking the initiative through its own active participation.

9. PLANS FOR COMMUNITY DEVELOPMENT

Community development has recently been designed to prepare the way for a co-ordinated approach to various economic, educational, health and social measures aimed at the general improvement of rural communities with the active participation of the population. Health, as an essential element of this development, has been closely associated with it. In countries such as India, Burma, Iran, the Philippines and Egypt, where efforts to develop rural communities are being made, a health service has always been considered as a prerequisite, and the training of health workers for rural areas has been the fundamental step necessary to realize such a programme. The Government of India has included in its second five-year plan the establishment of 3000 local health units, most of them situated in the community development areas.

The plans for community development differ in emphasis according to the country. In some countries emphasis is laid on mass education as an initial step. In others, agricultural improvement has been used as an incentive to bring about co-ordinated action. In a few instances, through health services, the villagers have been activated to demonstrate self-help by building maternal and child health centres and by contributing labour for constructing water-supply systems. A co-ordinated, multi-purpose approach to community development in rural areas, involving all the essential elements, such as education, agricultural extension, health and welfare services, has recently been worked out and steps have been taken in a number of countries to start these programmes. Whether the countries in fact manage to achieve economic and social progress in the rural communities depends on the position of the rural economy in relation to that of the urban economy, and on the social status of the rural population in managing its own affairs. Experience has shown that social evolution will take its course if the people have the opportunity to learn modern ways and to exercise their ability in adjusting and improving their own living conditions.

10. HEALTH ASPECTS OF RADIATION

The development of atomic energy for peaceful purposes is fairly well advanced in only a few countries; and, in these, the use of nuclear energy, as well as of the radioactive by-products, is by no means as widespread as it may be expected to become during the next few years. An increasing number of countries are, at the present time, developing nuclear energy projects, and a still larger number are planning activities for the near future. These schemes will raise many public health problems, especially if they are hastily conceived and put into operation without fundamental studies being made in advance.
In the United States of America and the United Kingdom—two of the countries where atomic energy programmes are well advanced—a considerable amount of attention has been given to the medical aspects of working with sources of radiation, including nuclear reactors and radioactive isotopes. Programmes of health protection have grown up side by side with the technological advances in physics, chemistry and engineering. A great deal of attention has also been given to waste disposal and the possibilities of environmental contamination.

While, in the past, most of the activities in this field have been undertaken within the atomic energy organizations themselves, or in close association with them, in recent years there has been an increasing tendency for health authorities to formulate radiation control programmes at both the local and the national level. The development of radiation control programmes within the framework of health organizations is based on several factors. The health authorities realize their immense responsibilities in this area and the serious problems which may arise if adequate planning is not undertaken in good time. Many radiation health activities lie more appropriately with the national and local health authorities than with atomic energy agencies, where there is at least the possibility of a biased approach to the health problems involved. We have not enough information about the procedure adopted in the Union of Soviet Socialist Republics, but in other countries that have made great advances in the field of atomic energy the technical authorities are entrusted with the safety of their own operations and the protection of the public in their immediate neighbourhood. The health authorities, on the other hand, have a general responsibility to protect the people against the possibly harmful effects of radiation.

The health ministries of countries which are just beginning atomic projects or enlarging their activities in radiation are in a good position to gain from the experience of their counterparts in countries where this kind of work has been going on for some years. One of the greatest difficulties is to obtain a sufficient number of trained staff. This need, which is now widely recognized, has led to an expansion of training facilities in a number of countries, and the opportunities in both health protection and research are improving steadily.

11. FIELD RESEARCH AND INVESTIGATION

With the rapid extension of health services during the past ten years, the potentiality for further progress has become greater. Opportunities for practical observations and field studies have increased, and this has stimulated a number of questions in the minds of many public health administrators. What are the most effective measures? How can services for the protection and promotion of the health of the people be accurately assessed, and what are the means for measuring the health of a nation? To what extent is the health of the people dependent on the general level of education and the active participation of the people in community work? What is the best way to bring about successful co-ordination in planning economic, cultural, health, and other social programmes? What categories of medical and health personnel are needed to carry out an effective programme, and how should they be trained? What are the gaps in our knowledge and experience and in what way can health workers contribute to filling these gaps? What is the most economical way of financing medical services? What should be the role of private general practitioners in a national programme? How can the interests of social insurance and national health administration converge to serve the interest of the population as a whole?

Public health work has grown in the past by meeting emergencies and problems as they arose, and there has been little opportunity for public health workers to plan an orderly development of their services. The history is too short, and with two periods of world war intervening in the last half-century, no opportunities arose for careful observation and intensive study of some of the questions referred to above. The progress of clinical medicine, on the other hand, has been very much eased by the establishment of hospitals and laboratory facilities. For careful observation and study of some of the public health problems, the establishment of field studies and demonstration areas has now become essential.

During the last few years pilot studies of local health services have been initiated in five areas—the United Kingdom, India, the Netherlands, Puerto Rico and Sweden. Along with these studies family surveys on a sampling basis have also begun in four of the countries mentioned. The national authorities concerned are very much interested in the studies and have assigned local officers to take charge of the work. These pilot studies are designed to analyse the development of local health services in relation to the economic, cultural and social development in the areas during the past twenty years or so, and to assess the state of health of the local inhabitants within their living and working conditions. The findings of the pilot studies, because of the differences in social and economic backgrounds as well as in the pattern of local
health services, will be of interest not only to public health administrators, but also to health statisticians in connexion with the morbidity conditions in these areas. From the research standpoint this method of approach is unique in that it deals with the actual living medium of human community rather than any artificial media, and further progress in public health work will depend much on the extension of such field studies.

The use of demonstration areas to co-ordinate health services with economic and social development is another new approach. As health is intimately associated with the way of life of a people, the mere transfer of a pattern of health service from one country to another, without an attempt to fit it to the local cultural, economic and social conditions, will not be successful. In the last few years two demonstration areas were established—one in Egypt and the other in El Salvador. Various forms of local service have been demonstrated; the active participation of local inhabitants has been enlisted, and co-ordination of the various community measures has been worked out. The governments concerned are deeply interested in the results of these demonstrations and it is expected that more projects will be started before long.

12. INTERNATIONAL COLLABORATION

With the rapid means of transport and the convenience of modern travel, it has become more and more evident that "unequal development in different countries in the promotion of health and control of disease, especially communicable disease, is a common danger" and "the achievement of any State in the promotion and protection of health is of value to all". Governments are becoming increasingly aware of the need for fuller international collaboration. Mutual benefit has been obtained through the exchange of information and experience, as well as through technical assistance.

The general trend is towards fuller collaboration between nations in medical education, medical research, and public health training, on a regional basis. The establishment of the Gothenberg School of Public Health in Sweden, which serves the Scandinavian countries, and the founding of the Institute of Nutrition for Central America and Panama, are examples of such an effort.

Collaboration has also found expression in the successful control of the six quarantinable diseases and in the endeavour to eradicate malaria, while, in yet another domain, international action in creating fellowships for the training of public health personnel plays an important part in fostering mutual understanding and in strengthening national health services.

With a spirit of partnership prevailing in the planning and organization of international work to improve the world health situation, each country will benefit from collaboration. Preventive medicine is entering a new era—the era of the universal participation of the people—and there is great scope for development. But the essential condition for any advance in health work is a modest and co-operative approach, for every country has both something to learn and something to teach. Indeed, this principle of give-and-take is the very keystone of future progress.

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1 Constitution of the World Health Organization
Part II

COUNTRY REVIEWS
NOTE

Part II of this volume contains the reports submitted by governments and all amendments subsequently received. Since the present report covers, as indicated in resolution WHA9.27, the period 1954 to the end of 1956, it has not been possible to take into account all the changes in the political status of countries and territories that have taken place since the end of this period. Therefore such changes, and the modifications in terminology they would involve, may not be reflected in this volume.

In one or two instances the amendments submitted by governments to the reports on the health situation in their countries were not strictly confined to the period under review, but it was considered unnecessary to apply too rigid a deadline to material that might enhance the significance of the report.

The country reviews have been grouped in the six regions delineated by the World Health Assembly and arranged in alphabetical order under the relevant regional head. To facilitate reference, an alphabetical list of all countries and territories is included at the end of the volume.

In order to make data readily comparable the metric system has been used throughout. For the same reason US dollar equivalents have been given for amounts in other currencies, calculated at the rate of exchange prevailing on 31 December 1956 (unless otherwise stated).

To avoid repetition the denominators of the rates pertaining to births, deaths, infant mortality, and maternal mortality have been omitted. It should be understood that these rates are expressed throughout in the following terms:

- Birth rate: per 1000 population
- Death rate: per 1000 population
- Infant mortality rate: per 1000 live births
- Maternal mortality rate: per 1000 total births.

See Note, page II.
AFRICAN REGION
FIG. 6. AFRICAN REGION
The Portuguese Province of Angola is situated on the west coast of Africa between latitudes 4° and 18° south and longitudes 12° and 24° east. It is bounded on the north by French Equatorial Africa and the Belgian Congo, on the east by the Belgian Congo and Rhodesia, on the south by South-West Africa, and on the west by the Atlantic Ocean. Its area is 1,246,700 square kilometres. The total population in 1956 was estimated at 4,408,000.

The capital of Angola is Luanda. For administrative purposes, the Province is divided into 13 districts, each under a governor, and the districts are subdivided into councils and boroughs. A Governor-General is responsible for the government of the Province as a whole.

The territory is mainly agricultural; it produces coffee, sisal, palm-oil, tobacco, rice, sugar-cane, maize, tropical fruits, and European fruits in the uplands. Fishing is an important occupation along the 1,600 kilometres of sea-coast, and there is a well-developed industry for the drying and preserving of fish and preparation of fish oil and meal. The subsoil is rich in diamonds, which are one of the Province's most important exports. Copper, iron, manganese, gold, silver and coal are also produced.

**Health**

The health services were reorganized on the basis of a Decree promulgated in 1945 which related to the general structure of health services in the Portuguese overseas provinces. The highest authority is the Health Directorate, which exercises technical and administrative control over all the State health services and also supervises the work of voluntary organizations in the field of health. Apart from a General Secretariat in charge of personnel matters, the Health Directorate comprises three departments: medical, pharmaceutical and administrative.

The central services attached to the Health Directorate are as follows: inspection of pharmacies; public health and control of epidemic and endemic diseases (particularly malaria, leprosy and tuberculosis); trypanosomiasis control; medical care of African workers (the Nutrition Commission is attached to this service); maternal and child health; sanitary control (air, land and sea); health statistics; and general medical and hospital services.

The Health Directorate is responsible for the technical and administrative direction of five health regions under the charge of an inspector; 86 district health services; 188 health units; 76 health centres with or without a small hospital or nursing station; 32 maternity centres; six tuberculosis control centres; seven infant welfare centres; five leprosaria; 13 regional hospitals and two central hospitals. These establishments are distributed throughout the territory according to the administrative divisions to which they belong: the district health services cover the same areas as councils or boroughs; the health units cover smaller administrative areas; the health centres are established in the more populated and more developed localities; regional hospitals are in district capitals; and the two central hospitals, one in Luanda and one in New Lisbon, serve the two towns with the largest population.

District health services are in the charge of one or more medical officers, assisted by the necessary nursing staff; the health units are run by one or more male nurses who work under the direct supervision of the district medical officer.

Voluntary organizations, religious missions and industrial undertakings assist the Government in the medical and health care of the population, and provide the following facilities: 62 hospitals, 248 health units, 272 medical aid posts, six nursing homes, 16 maternity centres, eight leprosaria, 43 ambulances and 13 dispensaries. The Angola Diamond Company is responsible for all the health services in the borough of Chitato (Lumda), where its employees are working; it provides constantly increasing facilities for medical care, which at present consist of six hospitals, four maternity centres, 64 medical aid posts and four ambulances. These are staffed by 14 physicians, two pharmacists, 23 male nurses, 33 female nurses and auxiliary midwives, 117 assistant nurses, one European midwife, one laboratory worker and pharmacy assistant.

The following table shows the number of medical and para-medical personnel in Angola in 1956, in both government and non-government service:

<table>
<thead>
<tr>
<th>Personnel Type</th>
<th>Government</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>180</td>
<td>90</td>
<td>270</td>
</tr>
<tr>
<td>Nurses and auxiliaries</td>
<td>438</td>
<td>404</td>
<td>842</td>
</tr>
<tr>
<td>Midwives</td>
<td>29</td>
<td>59</td>
<td>88</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>18</td>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>665</strong></td>
<td><strong>563</strong></td>
<td><strong>1228</strong></td>
</tr>
</tbody>
</table>

During the period under review, the proportion of the total government budget devoted to the administration of the health services was as follows: in 1954, 74,500,000 Escudos (US $2,573,402), or 4.7 per cent. of the total government budget; in 1956, 75,500,000 Escudos (US $2,607,945), or 5 per cent. of the total. These percentages refer exclusively to the amounts set aside for running the services; costs of construction and equipment of hospitals and other establishments are met from another fund, from which 150,000,000 Escudos (US $5,181,347) were spent between 1954 and 1956. If this is taken into account,
the percentage of the total budget devoted to health is increased to 8 per cent.

The following facilities exist in Angola for training para-medical personnel:

(1) In Luanda, there is a regular nursing course of two years’ duration followed by one year’s hospital work; candidates for admission must have completed the first half of secondary education.

(2) Elementary courses in nursing are given in the district capitals; they are of two years’ duration, and candidates must have completed primary education.

(3) Courses for auxiliary nurse-midwives are of the same duration as those for auxiliary nurses, and candidates must also have completed primary education.

During the period under review, both the preventive and the curative aspects of the health services have increased in scope; the provision of services has been widened, special units have been set up for the treatment and prevention of certain diseases, the number of maternal and child health centres has grown, and the activities of the trypanosomiasis control service and the “Pentamidine Team” have developed into a mass control campaign. The results of this campaign are reflected in the statistics, which show an increase in the number of persons treated and a decrease in the number of new cases recorded as compared with previous years.

Health surveys have been carried out by the Endemic Diseases Survey and Control Service with the object of determining the over-all incidence and distribution of certain endemic diseases, such as yellow fever, malaria and its vectors, bilharziasis and its intermediate hosts, and onchocerciasis (including the distribution of *Simulium*).

Between 1952 and 1954, the Leprosy Survey services found 4000 cases of leprosy in the Bié district, and in 1954 and 1955 they surveyed the area of Huila, Malange and Luanda.

There are at present six tuberculosis dispensaries, and a recently organized tuberculosis control service is about to enter a more active phase, using mobile units for mass miniature x-ray examinations in addition to the existing facilities.

A survey of deficiency diseases was made in 1954-55, which made it possible to identify the most prevalent forms of these diseases. Changes in diet have been introduced, and the number of cases has decreased appreciably.

Particular mention should be made of the work done by the trypanosomiasis control service and the “Pentamidine Team” already referred to. Control operations are conducted through 83 health centres and by five mobile units, and the number of diagnosed cases has fallen from 997 in 1954, and 1015 in 1955, to 418 in 1956. Recent surveys of the population have resulted in more-accurate vital statistics. The following table shows the position:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>32.5</td>
<td>33.6</td>
<td>36.0</td>
</tr>
<tr>
<td>Death rate</td>
<td>13.9</td>
<td>14.9</td>
<td>15.7</td>
</tr>
<tr>
<td>Rate of increase</td>
<td>18.6</td>
<td>18.7</td>
<td>20.3</td>
</tr>
</tbody>
</table>

Many factors are contributing to the rapid progress being made in urban development and environmental sanitation, not only in the large cities but also in the smaller towns and villages. The population of the existing urban centres has increased, and new areas have been developed; municipal and government technical services have been organized; progress has been made in housing, water supplies, drainage and other environmental facilities; and the economic prosperity which has come to the Province has brought an improved standard of living to the majority of the population.

During the past three years, 403 permanent camps have been built for workers in government and private agricultural undertakings. On the outskirts of the large towns blocks of flats have been built to house 843 workers and their families. These developments, which have been accompanied by large-scale campaigns for the control of flies and mosquitoes, have improved conditions in vast areas of the territory, both urban and rural, and have contributed to raising the level of health of the African population.

### BASUTOLAND

Basutoland lies between latitudes 28° and 30° south, and longitudes 27° and 29° east. It forms an enclave within the Union of South Africa, bounded on the north and west by the Orange Free State, on the east by Natal and on the south by Cape Province. The territory is well watered and the climate is good. Most of the country is occupied by part of the great Drakensberg chain and is elevated and rugged, the altitude rising from about 1550 to 3100 metres above sea level. The average rainfall is approximately 70 centimetres annually. Serious droughts are rare, but not unknown. Its area is about 30 344 square kilometres, and the population, according to the 1956 census, consists of 638 857 Africans, 1926 Europeans,
247 Asiatics and 644 mixed races. The Basuto are a homogeneous people; they represent the southernmost concentration of the Sotho-speaking tribes of the Southern Bantu and are related to the Bechuana.

The territory is governed by a Resident Commissioner, under the direction of the High Commissioner for Basutoland, the Bechuana Land Protectorate and Swaziland, working in close co-operation with the Paramount Chief. For administrative purposes the territory is divided into nine districts, each under a District Commissioner, which are further subdivided into "wards" and smaller areas, presided over by hereditary chiefs and sub-chiefs, who are responsible to the Paramount Chief on all questions of local law and custom. These chiefs, particularly the headmen, are the authorities with whom the ordinary people deal in their daily affairs. They owe allegiance, through their immediate superiors, to the Paramount Chief, though in practice, in matters not entirely concerned with Basuto law and custom, they normally work with their relevant district commissioners. District Councils were established in 1943 as advisory and consultative bodies in all districts.

The principal occupations of the Basuto are agriculture and stock farming. Mineral prospects are poor; there are no factories and no industries other than two small printing works operated by missionary societies. The principal crops are maize, sorghum, wheat, peas and beans, and some barley and oats, the chief exports being wool, mohair and livestock. The Basuto have a strong predilection for maize as the main article of their diet, which is thought to be responsible for several of the deficiency diseases. A continuing excess of imports over exports has resulted from the export of labour to mines, industries and farms in the Union of South Africa. For example, 39,402 Basuto were recorded as being in employment in mines alone on 31 December 1956.

Soil erosion and exhaustion are serious problems in Basutoland and a large proportion of development expenditure is devoted to their solution.

African education is largely in the hands of three main missions under the direction of the Education Department. Community development and welfare have taken shape according to the indigenous pattern of Basuto society. Basuto law and custom provide solutions for social problems, assisted by the Administration where necessary. A number of halls have been established at district headquarters for community activities with the help of a Basuto Committee at each focal point. A Basutoland Homemakers' Association is responsible for over 150 clubs and gives advice and help on such matters as education, domestic arts, hygiene and child care and feeding.

Development projects include schemes for the improvement of agriculture, and an extensive survey for the supply of water to the western border.

Health

The Medical Department is under a Medical Director with headquarters at Maseru. Owing to the nature of the terrain and poor communications in the mountain areas, rural health work is not easy, and much travel has to be done on foot or horseback. There is one medical officer of health and one qualified European health inspector on the staff of the Medical Department, mainly concerned with sanitation and hygiene measures and the control of infectious diseases.

There is a government hospital in each district, with one or more medical officers and a trained nursing staff. Each hospital has an ante-natal and child welfare clinic, and tuberculosis, maternity, children's and isolation wards are being provided. There is a mental detention centre under the charge of an African medical officer, but this is to be replaced by a mental hospital, which is to be constructed in the immediate future.

In addition to the Director of Medical Services, the European medical staff consists of one medical officer of health, 14 medical officers and one assistant medical officer, one senior matron, one sister tutor, three nursing sisters in charge, ten nursing sisters, one pharmacist, one health matron, one male mental nurse and one superintendent of the leprosy settlement. The African staff comprises five medical officers, one assistant health inspector, six health assistants, one sanitation assistant, 31 dispensers, four pupil dispensers, seven ward sisters, 45 nurses, 27 student nurses and midwives, 112 ward attendants, 11 mental centre attendants, nine leprosy and health and welfare inspectors, one laboratory assistant, and 120 other African staff. The medical staff of the missionary institutions is composed of six medical officers, nine trained European nurses, eight African nurses, and 79 other African personnel. It is estimated that there is one doctor per 18,203 population and one hospital bed per 742 population.

Existing hospital facilities include nine government-controlled hospitals with 485 beds and four mission hospitals with 276 beds. In addition, there are 24 maternity and child welfare clinics, 21 venereal disease clinics, four health centres, three mountain dispensaries, 52 out-patients clinics, one leprosarium, one mental health centre and nine x-ray installations. Of the nine government hospitals, four are staffed by European nursing sisters with subordinate African staff, while five are staffed by trained African nurses and auxiliary African personnel. The leprosy settlement in the Maseru district, with 54 beds, is under the charge of a medical superintendent assisted by a ward sister and two trained African nurses. There is a children's home within the grounds of Emmanuel Mission (Seventh Day Adventist) in the Leribe district, for infants born to mothers who are leprosy patients in the settlement. This home is under the care of a former matron, who gives her services on a voluntary basis.

The principal diseases encountered are venereal diseases, chronic rheumatism, infections of the respiratory tract and diseases due to nutritional deficiency. Diphtheria, typhoid fever, measles and whooping-cough are endemic. Basutoland is almost uniquely
free from tropical or subtropical diseases and the communicable and general diseases are those found in temperate climates. Two of the major health problems are tuberculosis and nutritional and deficiency diseases, manifested by outbreaks of pellagra and kwashiorkor. A study of indigenous foods and their nutritive value is being undertaken with a view to the improvement of the nutritional status by a variety of means. Smallpox and typhus fever are kept under control by appropriate measures.

There is no medical school in the territory and the new Maseru hospital—the Queen Elizabeth II Hospital—is to be the main centre for the training of African nurses, midwives and auxiliary staff. There are two grades: student nurses for the Basutoland Executive Nursing Committee's certificate, and those for the certificate granted by the High Commission Territories Nursing Council. In 1957 there were 27 student nurses and midwives in training, two passing the final examination of the Council for medical and surgical nurses, and six passing the final examination for midwives. Six pupil midwives and four student nurses passed the final examination set by the Committee. Queen Elizabeth II Hospital is also the centre for training health assistants. Dispenser-anaesthetists are trained by the pharmacist under a system of apprenticeship to senior dispensers.

Of five Africans who received medical training overseas under the Colonial Development Scheme, three are in government service. In addition, nine Basuto are at present studying medicine in the Union of South Africa or the United Kingdom with assistance from public funds.

There are no laboratory facilities in the territory, but the Department has an agreement with the South African Institute for Medical Research for the performance of pathological and other investigations.

Medical research has been limited to the study of nutritional deficiency diseases by members of the Medical Department.

BECHUANALAND PROTECTORATE

Bechuanaland lies between 18° and 27° south and 20° and 29° east, partly within the tropics, partly outside. It is bounded on the south and east by the Cape and Transvaal Provinces of the Union of South Africa, on the north and north-east by Caprivi Strip, Northern Rhodesia and Southern Rhodesia and on the west by South-West Africa. It has an area of about 712,200 square kilometres and a dry climate, healthy for the most part of the year. Over 95 per cent. of the population is engaged in stock-raising. The lack of moisture hampers agriculture.

The estimated population in 1956 was 328,335. The great majority of the people live in the eastern and northern-western part of the country; about one-half live in villages of 1000 or more inhabitants, although many of these spend a large part of their time at outlying cattle stations.

The Protectorate is divided for administrative purposes into 12 districts, each under a District Commissioner. “Indirect rule” by tribal administrations has been formally established, and the rights and powers of African Authorities have been defined. Each African Administration has a treasury, of which the main revenue is a proportion of the native tax allotted by the Government.

As the basis of the territory’s economy, stock-raising and the export of stock and meat and animal by-products are extremely important. The staple subsistence foodstuffs produced comprise sorghum, pulses and beans, millet and maize. There are no significant manufacturing industries. The main mineral industry is the mining of chrysotile asbestos. Some mining of gold, silver, kyanite and manganese has been started, and the Government’s policy is to encourage the search for other minerals such as copper and coal, in order to free the country from its present almost total dependence on the cattle industry.

The educational system is determined by geographical and other factors, but is hampered by the seasonal migrations to the agricultural lands. The policy of “indirect rule” has led to the transfer of the immediate control of schools, in areas where there is an adequate social organization, from mission or government agencies to the tribes. No higher education is provided in the Protectorate, but a small number of students attend universities in the United Kingdom, Basutoland and the Union of South Africa.

Social problems are satisfactorily solved according to long-established tribal custom, strengthened by official social welfare schemes. Community centres and clubs have been established at several of the larger settlements and funds have been raised, through tribal initiative, for the building of dispensaries.

A Colonial Development and Welfare Fund allocation to Bechuanaland totalling £980 000 (US $2,744,000), together with an unexpended balance of £272 083 (US $761,832), will be devoted to schemes for the improvement of agriculture, water development, veterinary and disease control projects, education and medical services.

Health

The Medical Department of Bechuanaland is under the charge of a Director of Medical Services, who is responsible to the Resident Commissioner and advises him on health matters and policy. There are six government district hospitals, with 344 beds, including a mental hospital of 24 beds, each in charge of a medical officer, and seven mission hospitals (203 beds), for which there are four medical officers and 13 nursing sisters. The staff of health inspectors consists of two European inspectors, five local health inspectors and five health assistants. All the hospitals are well equipped with x-ray plant, adequate surgical equip-
Tributaries provide about 12,000 kilometres of navigable water—roughly of the southern and some of the northern part of the Congo basin. It is bounded on the north by French Equatorial Africa and Sudan; on the east by Uganda, Ruanda-Urundi, Tanganyika Territory and Northern Rhodesia; on the south by Northern Rhodesia and Angola, and on the west by French Equatorial Africa and the Portuguese enclave of Cabinda. There is a narrow coastal strip on the northern bank of the Congo delta. The character of the country varies from the mountainous regions of the east to the central depression drained by the Congo and its tributaries. The eastern boundary coincides approximately with the Great African Rift Valley. The Congo and its tributaries provide about 12,000 kilometres of navigable waterways. Leopoldville is the capital and Matadi is the chief port.

Public health activities are concentrated mainly on measures for the prevention of communicable disease rather than on general hygiene and sanitation. The health personnel is small and insufficient to deal with all health problems.

In planning the future development of health services, emphasis will be placed on the expansion of rural health services and the improvement of environmental hygiene by increasing the number of dispensary units or health centres throughout the country. This will entail the training of sufficient local personnel.

Although there is no section specifically charged with health education, this work is carried out by various agencies.

There is no medical school in the Protectorate, but the training of auxiliary personnel is undertaken. Nurses are trained in four government and four mission hospitals; facilities for training in nursing and midwifery at two of the government hospitals are good. The training of African nurses consists of a three-year course in general medical and surgical nursing and a one-year course in midwifery, at the end of which candidates receive a local certificate and are recognized as staff nurses. The High Commission Territories Nursing Council controls the training and registration of all nursing staff. There are relatively few candidates under training. Pupil dispensers and sanitary inspectors receive their training under the direction of medical officers, and health inspectors are required to pass local examinations.

In the absence of a research organization or institute, some research work has been carried out with other bodies, for example with the South African Institute for Medical Research, on tuberculosis, extra-veneraeal treponematoses, and nutrition.

Belgian Congo

The Belgian Congo is in Central Africa and is composed roughly of the southern and some of the northern part of the Congo basin. It is bounded on the north by French Equatorial Africa and Sudan; on the east by Uganda, Ruanda-Urundi, Tanganyika Territory and Northern Rhodesia; on the south by Northern Rhodesia and Angola, and on the west by French Equatorial Africa and the Portuguese enclave of Cabinda. There is a narrow coastal strip on the northern bank of the Congo delta. The character of the country varies from the mountainous regions of the east to the central depression drained by the Congo and its tributaries. The eastern boundary coincides approximately with the Great African Rift Valley. The Congo and its tributaries provide about 12,000 kilometres of navigable waterways. Leopoldville is the capital and Matadi is the chief port. Falls and rapids between Matadi and Leopoldville are avoided by a railway some 350 kilometres in length. The area of the territory is 2,345,525 square kilometres.

The total population in 1956 consisted of 12,843,574 indigenous inhabitants, 97,371 white and 1433 Asian. The African races are mainly of Bantu-Negro stock and the principal languages are Swahili, Lingaa, Kikongo and Tshibula. There are several types of social and political organization; the tribes who live by hunting are still in the patriarchal stage: when the family group becomes too large a section breaks off and forms another group. In the agricultural tribes, migration is rarer and the sense of coming from a common stock is more deeply rooted: there is a complete hierarchy reaching outwards from the family to the group, the clan, the sub-tribe and the tribe. The chief at each
level is generally the oldest person in the community; he exercises his authority with the assistance of notables and elders. Such societies are equilatitarian and highly decentralized.

The normal African diet is based principally on vegetables and farinaceous plants. In the forest areas, manioc, beans and bananas are plentiful and form the staple foods. Sweet potatoes are grown up to an altitude of about 1800 metres. Rice, maize, millet, lentils, groundnuts and sugar-cane are also grown. At higher altitudes, beans and similar vegetables replace manioc and banana, and are supplemented by millet and sorghum. Apart from the river tribes, who live largely on fish, the population generally lacks proteins in its diet—especially animal proteins.

The main resources of the territory are the mining and export of metal ores and metals. Vegetable products, principally coffee, cotton and palm oil, are the chief secondary resources. Typical industrial products are cement, lime, bricks and textiles.

The country is divided into six provinces, which are subdivided into 19 districts and 122 territories. Each province has a governor who is assisted by a provincial advisory council.

The ten-year development plan, instituted in 1950, is being carried out by the Administration with the assistance of semi-governmental agencies such as the Colonial Transport Office, the Electricity and Water Supply Board, the Native Welfare Fund, the National Institute for Agronomical Studies in the Belgian Congo and the Institute for Scientific Research in Central Africa.

There is special inter-racial education, given in the French language and on the same lines as in Belgium. There is also generalized education, adapted to the needs and potentialities of the majority of the Congolese; primary instruction is given in the vernacular, and more advanced instruction is given in French. Education is free, but not compulsory.

Health

There is a central health department in Leopoldville, which is administered by a chief medical officer assisted by a deputy chief medical officer, health inspectors and a chief pharmacist. The central health department is responsible for the organization and co-ordination of health and pharmaceutical services, medical laboratories, health inspection services and medical training.

In each province the provincial medical officer, assisted by a deputy, acts as director of medical services and adviser to the provincial governor. Each provincial medical department consists of:

(1) a division for the administrative co-ordination and guidance of all sections or institutions engaged in medical and public health work;

(2) a medical assistance section, responsible for the organization and management of medical establishments (general hospitals, clinics, maternity homes, rural medico-surgical centres and dispensaries, special units for tuberculosis, mental disorders and leprosy), and of mobile medical units which undertake detection of the main endemic diseases in rural areas;

(3) a public health section in charge of environmental sanitation, insect control, examinations of a preventive order, and enforcement of international and internal public health regulations;

(4) medical laboratories responsible for routine analyses, medical research, and the preparation of biological products for use in curative or preventive medicine;

(5) medical training schools.

In addition to government activities in medical and public health matters, assistance is also given by philanthropic associations, large industrial concerns and religious missions.

Medical facilities in the Belgian Congo in 1956 included 293 hospitals, with 42,910 beds; 115 clinics (government, mission and private), with 1,139 beds; 1,952 dispensaries and infirmaries, with a total of 15,362 beds; and 179 specialized institutions for the treatment of leprosy, tuberculosis and trypanosomiasis. There were 5.6 beds for every 1,000 inhabitants. During 1956, 2,413,735 Africans were treated in government hospitals alone, 445,633 of them as inpatients. The medical staff consisted of 643 physicians (or one per 20,000 population), 62 pharmacists, 37 dentists, 13 biologists, 581 medical auxiliaries and health workers, 1,084 female nurses, 1,161 male nurses, medical assistants and orderlies, 283 midwives and midwifery aides and 3,256 auxiliary male nurses.

A Faculty of Medicine was added to the Lovanium Congo University Centre of Leopoldville in 1954. In 1955 special schools of tropical medicine were established at Leopoldville, Stanleyville and Elisabethville, for the express purpose of providing post-graduate training for nurses and midwives with a Belgian diploma or recognized equivalent. African medical assistants are trained in three special schools, the six-year curriculum including two years' practical training in hospitals and laboratories. Other training facilities include 11 schools for male nurses; three schools for sanitaryfars, four for student nurse-midwives, 33 for midwifery aides, and 70 schools with a one-year curriculum for the training of auxiliary male nurses.

Medical care in hospitals and dispensaries is free of charge to all Africans in the lower income groups. Similar facilities, including accident insurance, are provided by commercial undertakings in accordance with the labour laws. Out of a total budget for 1956 of 1,102,509,000 Belgian francs (US $22,050,180), per capita expenditure on medical care was approximately 86 Belgian francs (US $1.72).

The main efforts of the health services are directed towards the improvement of living conditions (housing, diet, general environmental sanitation, etc.); the detection, constant surveillance and treatment of the main
endemic diseases (malaria, trypanosomiasis, leprosy and tuberculosis); maternal and child health and welfare; and the elimination of social evils such as alcoholism and venereal diseases.

Although malaria is still prevalent, most of the larger centres are more or less free of it, owing to the campaigns against insect vectors which have been carried out for several years. Malaria is also disappearing from some of the rural areas, where intensive insect control measures are undertaken. In other areas, chemoprophylaxis for infants and young children, and partial insect eradication, are carried out.

Large-scale tuberculosis surveys have been conducted in recent years in both urban and rural centres by means of tuberculin-testing and mass radiography, and more than one million people have been examined. The number of cases of pulmonary tuberculosis is estimated at about 96,000 out of a population of 12 million, with a tuberculosis morbidity rate of approximately eight per thousand. There are seven tuberculosis treatment centres with a total of 1275 beds, which is clearly inadequate. In 1955, 61,105 persons were vaccinated with BCG.

Available statistics show that 189,892 persons were treated for venereal diseases in 1956.

The incidence of trypanosomiasis has been reduced to some extent by systematic case-finding and chemotherapy, as well as by chemoprophylaxis in areas of extreme endemicity. In 1956 only 1604 cases were recorded out of 6122,524 persons examined.

Systematic case-finding and treatment of leprosy have continued. In 1956, 275,293 leprosy cases were treated—about two per cent. of the whole population. Non-contagious cases are treated in the rural dispensaries and medical centres, and contagious cases are segregated in organized communities under the direction of specialized personnel.

The prevalence of smallpox has been considerably reduced as a result of systematic vaccination and re-vaccination.

Maternal and child health activities have met with an increasing response. Special children's wards are now attached to the general hospitals in the main centres, and a Red Cross paediatric clinic has been established in Leopoldville. A growing number of African women attend the maternity hospitals, where 189,393 deliveries were recorded in 1956 (more than 40 per cent. of all births in the Congo), as against 161,775 in 1955. The MCH services include antenatal and post-natal clinics in general hospitals and dispensaries throughout the territory. Provision has been made for the training of African MCH personnel, nurse-midwives and midwifery aides.

BRITISH SOMALILAND PROTECTORATE

The Somaliland Protectorate occupies the north-east horn of the African continent, along the south of the Gulf of Aden. It is bounded on the east by Somalia under Italian administration, on the south and south-west by Ethiopia and on the west by French Somaliland. The territory has four main geographical features: (1) an almost bare, gently rising alluvial plain, ranging in breadth from about 800 metres in the east to about 100 kilometres in the west; (2) a maritime plain, with a similar slope, on which are many limestone ridges and hills of igneous rock; (3) a vertical escarpment of limestone about 600 metres thick; (4) from the top of the escarpment, a long, wide and almost featureless plateau slopes gently downwards to the south-east into the Haud, a belt of thorn wilderness and pasturages, which extends into Ethiopia and to Somalia.

The area of the country is 176,120 square kilometres. The population was estimated in 1956 at roughly 640,000, almost entirely of Somali race, and nomadic.

The country is divided for administrative purposes into six districts, each of which is in the charge of a District Commissioner, assisted by the Akil (Chief) who is paid by the Government to explain and carry out policy and to maintain order.

The economy is based almost wholly on nomadic pastoralism: most of the population is engaged in stock-raising, relatively few in agriculture and other pursuits. Trade is almost entirely confined to the export of a few primary products and the import of foodstuffs and manufactured goods. The territory has not yet been entirely surveyed and large areas of the potential mineral belt remain unexplored. In 1954, 450 pounds (about 200 kg) of high-grade columbite and beryl were produced during prospecting work. A Colonial Development and Welfare Scheme is investigating the possibility of a sound commercial fishing industry.

The normal community is the nomad tribe with its camels and flocks, which makes it difficult to organize any system of community development and welfare. Community centres are, however, established in all the main towns and these are provided with wireless sets, periodicals, posters and other facilities. The community response is most evident in agriculture, particularly in regard to soil conservation schemes.

Health

The Health Department, with headquarters at Hargeisa, is directly administered by the Director of Medical Services, who is a member of the Executive and Legislative Councils and is adviser to the Government on medical affairs. In addition to the Director, the expatriate senior staff consists of one senior medical officer (health), one senior medical officer (clinical), who is Medical Superintendent, three special grade medical officers, six medical officers
including one female medical officer, one dentist, one matron, six nursing sisters, one laboratory technician and one medical storekeeper. One chief medical assistant, three senior medical assistants and one hospital secretary — who are also senior staff — are Somalis. The junior medical staff are all Somalis apart from six Indian clerks; they consist of seven medical assistants, one health superintendent and 528 other workers. One Royal Army Medical Corps officer is attached to the Somaliland Scouts. Apart from a medical officer employed by an engineering firm, there are no private practitioners and no missionary societies or other agencies engaged in medical work.

Expenditure on the Health Department for 1958-59 is estimated at £165,185 (US $462,518), representing 25.5 per cent. of the total unaided services expenditure and 9.6 per cent. of the total budget. There are eight hospitals (including a tuberculosis hospital and a mental hospital) with a total of 861 beds, of which 185 are allocated for tuberculosis patients.

The progress of technical training is still hampered by lack of general education. Courses are run for the training of local personnel (male dressers, female nurses and assistant health superintendents) at the school attached to the Hargeisa Group Hospital, where the teaching is given by departmental medical officers and nursing sisters. Training of dressers is carried out as follows: in the case of low educational standard entries, there is an initial period of two years' practical instruction (Grade III), followed by a further two years' dresser training (Grade II), or — in the case of probationer dressers who are boys holding Intermediate School Certificate — direct recruitment for the Grade II Dressers' Course. After qualifying, candidates from both these courses can proceed to the Grade I course, and finally to promotion as medical assistants by selection. The training of female nurses is similar to that of dressers, but they suffer even more than the males from lack of education. In 1958, 13 Somalis, including two women, were receiving training in the United Kingdom, as shown in the following table:

Maternal and child health services are proving increasingly popular. A weekly ante-natal clinic is held at the Group Hospital, Hargeisa, and clinics are also held at other centres. As in most Moslem countries, medical work among women made slow progress at first, but women in Hargeisa are now reported to be attending hospital more readily.

There are 12 rural dispensaries and three sub-dispensaries throughout the country, as well as three others inside the adjoining Ethiopian territory which serve areas frequented by Protectorate tribesmen; there is also an out-patient dispensary in Hargeisa. Trained tribal aides treat simple ailments when necessary.

The most common diseases in the territory are respiratory infections, tuberculosis and malaria. The control of mosquitos presents great difficulties in many areas; in particular, the problem of Anopheles gambiae — the cause of seasonal epidemics in the Haud — has not yet been solved. A WHO team is working in the country with the object of mapping out the distribution of endemic malaria, and, at the same time, is following the course of epidemics with a view to preventing their occurrence. As a temporary measure, centres of mosquito-breeding are sprayed with residual insecticides, and the huts, frames and mats carried on camel back by the nomads are sprayed as opportunity offers.

With regard to tuberculosis, a survey carried out by WHO in 1956 showed a high positive rate in certain age-groups, and, out of 1600 persons examined at random in Berbera and Burao, about 20 per cent. were found to have acid-fast bacilli present in a single specimen of sputum demonstrated by direct microscopy. A scheme for the control of tuberculosis was evolved in the light of the information gained from this survey and from the Health Department records. This scheme is designed to: (a) tuberculin-test the younger age-groups and give BCG vaccination to negative reactors; (b) find cases; (c) treat patients with PAS and INH, using hostel accommodation to provide the nomads with a domicile until sputum negative, and then follow up with out-patient treatment; (d) raise the standard of living and housing of the population by propaganda and health education. The first building operations under this scheme began in late 1957, and the first units were opened in September 1958. It is hoped to take approximately 800-1000 new patients for treatment each year, and to have 1600-2000 under treatment at any one time. Mass miniature x-ray is not being used, at least until the organization is running smoothly.
In research, a good deal of field work is being done on malaria, tuberculosis, nutritional conditions and the epidemiology of tropical ulcer.

The whole question of water supplies is a vital one. All piped water supplies are under government control. There are two fairly large systems at Hargeisa and Berbera, and smaller ones at seven other townships but, generally speaking, the water supply is inadequate. For stock-watering, the nomads use the permanent shallow wells and underground tanks available in many parts of the country.

CAPE VERDE

The Portuguese Province of Cape Verde consists of ten islands and a number of islets, of volcanic origin, which lie in two groups in the Atlantic Ocean: Barlavento (windward) and Sotavento (leeeward).

The Barlavento group includes São Vicente, Santo Antão, São Nicolau, Santa Luzia, Sal and Boavista; the Sotavento group includes Maio, São Tiago, Fogo and Brava. The archipelago covers a total area of 4033 square kilometres; it lies 455 kilometres off the coast of Africa, between latitudes 14° 48’ and 17° 12’ north and longitudes 22° 41’ and 25° 22’ west. The population numbered 147,097 at the 1950 census.

For administrative purposes the Province is divided into councils and boroughs, one for every island, and the supreme authority is vested in the Governor, whose seat is the city of Praia (São Tiago).

Health

The health services were reorganized on the basis of a Decree of 1945 relating to the general structure of health services in the Portuguese overseas provinces. The 10 district health services and 17 health units are under the technical and administrative direction of the Chief of the Central Health Department. District health services are in the charge of one or more medical officers, assisted by the necessary nursing staff; the health units are run by one or more male nurses, who work under the direct supervision of the district medical officer.

The indigenous population is provided with free medical care through government hospitals, aid posts, health units and dispensaries. At the end of 1956, the proportion was 4.7 per cent. These percentages refer exclusively to the amounts set aside for running the health services, since the costs of construction and equipment of hospitals and other establishments are met from another fund. Data obtained from the civil registers give a death rate of 20.05 for 1954. Malaria is the principal endemic disease in the islands, and a control campaign is being carried out at the present time; surveys are under way to identify the vectors of the disease in the various islands in order that an eradication programme may be undertaken. In the island of Sal, Culicidae (particularly Anopheles gambiae) have been eradicated, and it is proposed to undertake campaigns for the eradication of A. gambiae in São Vicente, São Tiago and Maio.

At the same time surveys will be made of the epidemiology of filariasis and ankylostomiasis in the island of São Tiago. An important development has been the eradication of Aëdes aegypti from the island of Sal and from São Vicente.

Three infant welfare clinics and two maternity centres give advice on infant feeding and treatment for the diseases of infancy; other dispensaries provide pre-natal services, and care during child-birth is afforded by the maternity centres.

The government health personnel impart health education to the people to help them raise their standard of hygiene and defend themselves against the main endemic diseases of the area in which they live.

In the city of Praia the public welfare authorities are building low-priced dwellings for people in the lower income groups. Practically all government officials in the islands live in houses provided by the Government. The cities of Praia and São Vicente have a potable water supply and a drainage system. All recently constructed dwellings are equipped with sanitary installations.
COMORO ARCHIPELAGO

The Comoro Archipelago, consists of the islands of Mayotte, Anjouan, Grande Comore and Mohéli. These islands lie in the northern entrance of the Mozambique Channel, between the east coast of Africa and the north point of Madagascar, about 500 kilometres from that point. The area of the whole territory is about 2180 square kilometres, and that of the largest island, Grande Comore, is 1148 square kilometres. The capital is Dzaoudzi, on the island of Mayotte. The islands are of volcanic origin and the soil is fertile.

In December 1956 the total population was estimated at about 177 000, of whom 1006 were non-indigenous.

The principal local foods are mountain rice (a luxury), green bananas cooked in water, bread made from maize or manioc mixed with ground coco-nut, yams and taro.

Education is free. In 1955, there were 33 primary schools, with 2647 pupils, one secondary school, with 106 pupils, and three technical schools, with 92 students.

There are four administrative divisions, one for each of the four main islands.

Health

The health services of the territory are directed by a Chief Medical Officer, whose headquarters are at Dzaoudzi. He is also medical officer of health for the island of Mayotte, and is assisted by a superintendent of pharmaceutical stores and by administrative staff. There are two other medical districts, each in the charge of a medical officer, one for Grande Comore and one for the islands of Anjouan and Mohéli. There is also an industrial medical service, with a physician and a number of nursing stations.

In 1956 there were three general hospitals in the territory; one on the island of Mayotte (60 beds), one on Anjouan, opened in 1955 (60 beds), and one on Grande Comore, also opened in 1955 (90 beds). They have medical, surgical, obstetrical, dental, radiological and laboratory services. There were also three rural medical stations, with a total of 94 beds for in-patient accommodation, and 20 out-patient dispensaries. There are seven pharmaceutical stores in the various islands.

The staff of the health services in 1956 comprised four physicians and one dentist with French or equivalent degrees, and the following staff trained in Madagascar and seconded from the Public Health Service of that territory: seven physicians, one health visitor, five midwives, two malaria assistants, and 33 nurses (excluding auxiliaries).

The proportion of the territory’s total budget devoted to the maintenance of the health services in 1956 was 10 per cent., exclusive of grants received under development plans.

The health services provide free medical care and preventive services for the entire indigenous population, whose response is demonstrated by the fact that in 1956 a total of 2439 in-patients was recorded in hospitals and medical stations, and 316 621 out-patient consultations were given. Furthermore, the industrial medical services recorded another 50 000 consultations during the same year.

Increasing emphasis has been placed on preventive measures in recent years, particularly in connexion with the control of the main endemic diseases in the territory. A malaria eradication campaign was started in the islands of Mayotte and Mohéli in 1954, including the distribution of antimalarial drugs to children of school and pre-school age; in mid-1956 a similar campaign was started in the island of Anjouan. Altogether, during 1956, 3 923 000 square metres of walls were sprayed, and 25 307 children received weekly chemoprophylactic treatment. The average spleen index dropped from 72 per cent. at the beginning of the campaign in 1954 to 12 per cent. at the end of 1956.

Filariasis (Wuchereria bancrofti) is a fairly serious problem in the islands of Mayotte and Mohéli. A survey carried out in 1955-56 showed that of 1442 persons examined in Mayotte, 37.1 per cent. were positive; in Mohéli the number examined was 1996, of whom 43.7 per cent. were positive. The examinations were carried out between the hours of 8 p.m. and 11 p.m. Furthermore, out of 6636 persons examined for elephantiasis in Mayotte, and 5736 persons similarly examined in Mohéli, the infestation rate was found to be 1.7 per cent. in the first group and 2.7 per cent. in the second. Wall-spraying operations have not been found very effective against the Culicidae, and a larvicidal campaign was therefore initiated in 1956.

The number of cases of syphilis has remained fairly constant for some years, representing about 8 per cent. of out-patient attendances. In 1956, 11 751 cases were recorded, of which 4476 were treated as hospital in-patients. Yaws is endemic in the territory and has remained stationary for some time, since treatment given in medical stations has only succeeded in reducing the infection within a comparatively limited radius of the stations. The total number of known cases was 8200 in 1954, 9000 in
AFRICAN REGION

1955, and 9800 in 1956. Plans were drawn up for a large-scale yaws control campaign to begin in 1957.

Three hundred and nine cases of leprosy were known and treated in 1956. Each case is being treated with sulfonamides at the nearest medical station and only the severe and disabled cases are kept as in-patients in hospital.

Tuberculosis constitutes the main health problem, accounting for 30 per cent. of all hospital days registered by the health establishments of the territory; 178 cases were treated in 1954, 97 in 1955 and 147 in 1956.

Modern midwifery and obstetrical services have been slowly accepted by the female population. The following table shows the slight increase in institutional deliveries between 1954 and 1956, and the much greater increase in attendance at infant and child welfare clinics:

<table>
<thead>
<tr>
<th>Type of service</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance at pre-natal clinics</td>
<td>900</td>
<td>900</td>
<td>1100</td>
</tr>
<tr>
<td>Institutional deliveries</td>
<td>450</td>
<td>530</td>
<td>690</td>
</tr>
<tr>
<td>Attendance at post-natal clinics</td>
<td>900</td>
<td>700</td>
<td>600</td>
</tr>
</tbody>
</table>

Health education of the public is in its early stages but is being initiated through the medical stations and dispensaries, in schools, and among the various youth associations.

At the end of 1956, five students from the territory were studying at Tananarive Medical School in Madagascar, and one student was at a medical faculty in France.

Problems of water supply vary in the different islands. Reservoirs and dams exist in some localities on the islands of Mayotte, Anjouan and Mohéli, and others are being built. On the island of Grande Comore, however, there are no permanent water-courses, and the volcanic nature of the ground precludes the drilling of wells; tank storage has been found to be the only solution, and the programme of construction of tanks is progressing each year.

FRENCH EQUATORIAL AFRICA

French Equatorial Africa consists of four territories forming the Federation of Gabon, Middle Congo, Chad and Ubangi-Shari. It is bounded on the north by Libya, on the east by Sudan, on the south-east by the Belgian Congo, and on the west by French West Africa and Camerons. It has an area of roughly 2,723,000 square kilometres with a population, according to the December 1956 census, of 4,853,000 Africans and 25,207 Europeans. The African population may be divided into the Sudanese and the Bantu groups. There are also some pygmies.

There are about half a dozen fairly large towns, but most of the population live in villages, which are often widely scattered; there are some nomadic tribes in Chad. The general community system is tribal.

The High Commissioner of the Republic, whose seat is in Brazzaville, is both the representative of the French Government and the head of the group of territories which make up French Equatorial Africa. As representative of the Government, he is in charge of the State public services, both civil and military. As head of the group of territories, he is responsible for ensuring that the decisions of the Grand Council are carried out. The members of the Grand Council are elected by the territorial assemblies (of which they are also members), each territory sending five representatives. The Grand Council is responsible for administering matters of common concern to all the territories in the group; for voting the over-all budget; and for drawing up regulations on certain questions applicable to the group of territories as a whole.

The Governor of each territory is, on the one hand, the representative of the Government of the Republic and of the High Commissioner of the Republic, and, on the other, chief of the territorial administration; as such, he presides over the government council for the consideration of certain matters. The government council is composed of six to twelve members, elected by the territorial assembly; each member bears the title of minister and is in charge of a ministerial department. The member who receives the most votes is given the title of President of the government council, which is the instrument of the territory's executive powers and is responsible for the administration of the territory's public services and for implementing the assembly's decisions. The territorial assembly is made up, according to the territory, of a varying number of members elected by direct universal suffrage and by a single electoral body; it votes the budget, determines and votes the taxes, rates and duties to be levied; and draws up regulations applicable to the territory on a large number of subjects.

The people derive the greater part of their livelihood from the equatorial forests, from agriculture, and from cotton (which has become the main resource of Chad and Ubangi-Shari). In Chad there is also some stock-breeding. There has been a steady increase in agricultural production since 1952, particularly in timber and cotton, but coffee, cocoa and sisal have also gained in importance. A similar rise has been noted in industrial production, for example in the output of groundnut and palm oil, soap, beverages, lead ore, diamonds, columbite and tantalite. The principal imports are cotton fabrics, machinery, motor vehicles, motor spirit, wine, beer, and sugar. The principal exports are cotton, timber, coffee, cocoa, cattle, diamonds and gold.

Two four-year plans for the economic and social development of the territory have been carried out; the first commenced in 1947 and the second in 1953.
The essential aims of the educational policy are to raise the general level of living and to train the best elements as leaders in the community; to give boys and girls a parallel education in order not to upset the balance of the African family; and to make compulsory schooling and mass education possible by training African school-teachers. In French Equatorial Africa as a whole, the proportion of children attending both public and private schools rose from 2.5 per cent. in 1945 to 19.5 per cent. in 1954.

Since 1953, rural development has been planned on a wider basis than before, with the object of maintaining and improving soil fertility, raising the income and levels of living of the farmers and, in particular, of regrouping villages and improving housing.

Manioc is the basic food but does not provide a balanced diet. Efforts have been made to improve nutrition by developing other food crops and by the conservation and improvement of livestock.

Health

A law of 23 June 1956 placed the public health services under the responsibility of the territorial governments, and under the direct authority of the Minister of Public Health or Social Affairs of each of these territories. The Minister is assisted by a Director (or, in some territories, an Inspector) of Health Services, and ensures the provision of medical care services through health establishments—hospitals and treatment centres of various types—and by means of mobile units. The latter, which are called the Territorial Mobile Health and Preventive Services (Services territoriaux d’Hygiène mobile et de Prophylaxie—S.T.H.M.P.), undertake mass campaigns and control of important endemic diseases such as leprosy, malaria, trypanosomiasis and treponematoses.

In Brazzaville, the control of important endemic diseases is directed by a Permanent Inspector of Health and Preventive Services, who is responsible for studying the diseases most frequently observed in the group of territories, and their treatment; for research on and co-ordination of preventive measures to keep them in check; and for supervising the application of these curative and preventive measures. He is assisted by chiefs of the following technical sections: leprosy, trypanosomiasis, malaria, treponematoses, and nutrition.

In 1954, government and private health establishments included one general hospital (584 beds), 13 secondary hospitals (2088 beds), 179 medical centres (4268 beds), 281 medical posts (5554 beds), and 245 dispensaries. In addition, there were 136 maternity clinics (938 beds), one tuberculosis centre, 33 leprosaria (2390 beds), one psychiatry unit (24 beds), and 27 trypanosomiasis clinics (1126 beds). In addition to the main medical centre and secondary medical centres in the principal towns of the larger districts, there are medical posts and dispensaries in the villages, and consultation centres in markets and similar gathering places. In 1956 there were 355 such centres. There were also 30 mobile units which travel all over the country through the bush, with the object of detecting and controlling endemic diseases, giving vaccinations against yellow fever and smallpox, and general care for the sick. A new general hospital with modern equipment and 650 beds was to be opened in Brazzaville early in 1958, and a number of other modern hospitals and medical centres are under construction in various towns, while existing hospitals and clinics are being renovated.

In 1954, the staff of the public health services consisted of 180 medical officers, three dentists, 1657 male and female nurses, 45 midwives 84 technical workers and 15 pharmacists. A further 21 medical officers, seven dentists, three midwives and 24 pharmacists were in private practice. About 14 per cent. of the total budget is devoted to public health services.

In 1956, about 70 per cent. of the African population were examined by some unit of the health services, and each patient was examined on an average three times during the year; 2 per cent. were admitted to hospital, with an average of 23 hospital days per in-patient. A decrease in the number of hospital days has been noted, owing to the development of out-patient care for leprosy and trypanosomiasis, since these diseases formerly entailed prolonged periods of in-patient hospital care.

Considerable progress has been made since 1954 in mass campaigns for the control of the main endemic diseases. In January 1954, for example, only 56 670 cases of leprosy had been officially recorded, whereas at the end of 1956 the number registered had reached 136 150, of whom 126 006 were being treated. Despite the lengthy treatment involved, 6021 cases are no longer contagious, and 21 have been definitely cured.

Yaws exists mainly in Gabon, Middle Congo and southern Ubangi-Shari—all hot and humid forest regions. Since 1955 penicillin has been used for both active cases and contacts. As a result of mass treatment, the number of cases of yaws has decreased appreciably in comparison with previous years; in 1956, of the total number of patients treated for all diseases, 2.8 per cent. were suffering from yaws, as against 6.9 per cent. in 1947.

Malaria is still a serious problem throughout the territory, but is being successfully controlled. Weekly doses of nivaquin have been administered to 70 387 schoolchildren and to 33 256 children of pre-school age. In 1956, 26 million square metres of walls (14 447 dwellings) were sprayed with DDT.
In 1956, 2759 cases of tuberculosis were treated, more than three-quarters of them being of the pulmonary type. It has been found that tubercular infections are fairly widespread, although the number of active cases reported is comparatively small. A campaign to assess the prevalence of tuberculosis by tuberculin-testing and X-ray examinations has begun in Brazzaville.

Venereal diseases constitute one of the main health problems; 79 820 cases of syphilis were treated in 1956 as well as a large number of other diseases of the same group.

In all, 17 663 cases of amoebiasis were reported in 1956, as against 14 411 in 1955. There were few hepatic complications and only a small number of deaths, but the disease is nevertheless one of the major health problems of the territory. There are comparatively few reported cases of bacillary dysentery, but intestinal parasites are very frequent. Of 140 000 persons examined in 1956, 40 000 were found to be suffering from ankylostomiasis. Bilharziasis is found mainly in Ubangi-Shari and Chad. Filariasis occurs chiefly in the same areas; in the Mayo-Kebbi district it reached such proportions that a control campaign was undertaken in 1955 and 1956.

A trachoma control campaign was started in 1956, and experiments with self-treatment of conjunctivitis and trachoma, using aureomycin ointment, are being made in the Fort-Lamy region.

French West Africa consists of eight territories: Senegal, Sudan, Niger, Guinea, Upper Volta, Ivory Coast, Dahomey, Mauritania. It extends from the Algerian and Libyan Sahara in the north to the Gulf of Guinea in the south and to the Atlantic Ocean in the west; on the east it adjoins French Equatorial Africa. It has common frontiers with Ghana and the British territories of Gambia, Sierra Leone, and Nigeria, with Portuguese Rio de Oro and Portuguese Guinea and with the Republic of Liberia. The total area is 4 633 985 square kilometres.

The estimated indigenous population in 1956 was 18 258 900; the estimated European and assimilated population was 83 000. Three main groups may be distinguished in the indigenous population: (a) the Saharans, Moors and Tuaregs, who are pastoral nomads; (b) the Peulhs or Foulah, who may be nomadic, semi-nomadic or settled; and (c) the Negro-African groups, which comprise a large variety of races, speaking over 120 languages and 600 dialects.

The fundamental unit of African society is the enlarged "family" group including several generations and usually under the authority of the eldest member. The group is usually part of a larger community—the clan—the several families of which give one another mutual support. Families rarely live in isolation; they are nearly always grouped into villages under their chiefs; the normal community system in the rural areas is tribal. The people of the forests are more individualistic than the others. The urban communities vary in size from large towns such as St Louis and Dakar, with over 60 000 inhabitants, to scattered villages, and even groups of nomads in the north.

In rural areas the most usual dwellings are tents of wool, cotton, or sometimes skins among the Moors and some of the Tuaregs; round huts of straw, clay or wattle and daub with a conical thatched roof in Senegal and western Sudan; huts covered with an ovoid roof and made up of two round huts joined in the middle, among the Senufo; rectangular houses of dry stone or brick with flat or slightly raised roof in some of the hilly parts of Sudan; in the forest, rectangular huts of rammed earth, straw or bark, with a double-sloped thatched roof. In most places the various huts of the same family are enclosed in a compound surrounded by clay walls or reed palisades.

The usual African diet is mainly vegetarian. According to local resources, it is composed of a porridge of millet or rice, groundnuts, maize, manioc, yam, potatoes or bananas, generally cooked in oil or butternut fat and seasoned with tomato pimento etc. When obtainable, meat is included in the diet.
especially beef or mutton; much use is also made of fish, especially dried fish; in the pastoral regions milk and butter are important ingredients.

The High Commissioner of the Republic, whose seat is in Dakar, is both the representative of the French Government and the head of the group of territories which make up French West Africa. As representative of the Government, he is in charge of the State public services, both civil and military. As head of the group of territories, he is responsible for ensuring that the decisions of the Grand Council are carried out. The members of the Grand Council are elected by the territorial assemblies (of which they are also members), each territory sending five representatives. The Grand Council is responsible for administering matters of common concern to all the territories in the group; for voting the over-all budget; and for drawing up regulations on certain questions applicable to the group of territories as a whole.

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Industrial development is limited and the economy is almost wholly dependent on three very sensitive agricultural markets —groundnuts, coffee and cocoa. These three products account for about three-quarters of the total value of exports. Of the total area of about 470 million hectares, only 10 million can be used for agriculture. There are about 150 million hectares of pasture-land, of which 55 million are permanent and the rest seasonal. The principal minerals mined at present are gold, diamonds, phosphates and iron. There are substantial forestry resources. The chief imports are cotton cloth, rice and other foodstuffs, motor trucks, cars and spare parts, petroleum products and machinery.

Education is free in all public schools. Students in secondary and higher schools receive scholarships. Primary education is compulsory so far as accommodation permits. Private schools are subsidized by the territorial authorities; most of them are run by missions.

Health

A law of 23 June 1956 placed the public health services under the responsibility of the territorial governments, and under the direct authority of the Minister of Public Health or Social Affairs of each of these territories. The Minister is assisted by a Director (or, in some territories, an Inspector) of Health Services, and ensures the provision of medical care services through health establishments —hospitals and treatment centres of various types—and by means of mobile units. The latter, which are known as the Territorial Mobile Health and Preventive Services (Services territoriaux d’Hygiène Mobile et de Prophylaxie—S.T.H.M.P.), undertake mass campaigns and control of important endemic diseases such as leprosy, trypanosomiasis, treponematoses and malaria.

An Adviser on Endemic Diseases is stationed in Dakar; under the authority of the High Commissioner he is responsible for the co-ordination of and technical assistance to the mobile units (S.T.H.M.P.), and also acts as consultant epidemiologist. He has at his disposal, in carrying out these functions, units for research and for training of personnel, and is assisted by the chiefs of the following technical sections: trypanosomiasis, malaria, leprosy, treponematoses, nutrition and eye diseases.

The medical services are reinforced by a number of scientific institutions such as the Tropical Ophthalmology Institute of French West Africa, the Federal Blood Transfusion Centre, the Pasteur Institute and the African Diet and Nutrition Research Organization, all of them at Dakar.

The permanent health services of French West Africa in 1956 consisted of five large hospitals (3500 beds), eight secondary hospitals (1960 beds), 1057 medical centres (13 274 beds), 204 medical posts (2746 beds), 870 dispensaries, 246 maternity homes (4466 beds) and 82 private establishments (600 beds).

In 1956 there were 575 physicians (267 with French State Diploma, 308 with local diploma), 39 pharmacists (26 State, 13 local diploma), 18 dentists, 462 midwives (70 State, 392 local diploma), 3942 male nurses (90 State, 3852 local diploma), 718 female nurses (147 State, 571 local diploma), 180 technicians and other staff.

Medical education is afforded by the Dakar Medical School. This School is affiliated to the Institute of Higher Education of Dakar (founded in 1951) and covers the first three years of the medical curriculum, after which students complete their studies in France. Training for pharmacists, nurses and midwives is provided in institutions comparable with those in France. Auxiliary nurses and midwives are trained in Dakar and in some of the territories. The number of medical students in 1956 was 89, of whom 75 were African and 14 were European. More than 250 African students were studying at different medical faculties in France.

Registration of civil status is compulsory only in a few large towns, and vital statistical data are therefore incomplete. However, the estimated birth rate is between 40 and 50, and the death rate is between 20 and 30.
Progress during 1956 includes the modernization of the chief hospitals of the Federation, whose fittings and equipment are now considered comparable with those of European establishments; the expansion of many aspects of health work; the increasing use made by the population of the various health establishments and mobile health units, which is indicative of increasing confidence in these services; and the growing number of Africans who are eager to join the medical and para-medical staff.

The volume of work of the Mobile Health Services is increasing in various directions. Outbreaks of smallpox and cerebrospinal meningitis occurred in 1956, and were rapidly controlled. Among 5 686 383 people examined 5334 new cases of trypanosomiasis were found and 22 135 old cases were re-examined. Furthermore, among 5 547 315 persons examined, 44 415 new cases of leprosy were found; the total number of leprosy patients in 1956 was 270 541, of whom 4107 were treated as in-patients, 139 140 received ambulatory treatment and 1824 were treated by mobile units. A malaria control programme has been in progress since 1952, and DDT and dieldrin have been used in three areas to control *Anopheles gambiae* and *A. funestus*. Although the spleen and blood parasite rates have decreased, transmission of the disease has never been interrupted, owing to various factors. In the malaria control campaign the use of insecticides is now being combined with that of schizonticides and gametocides. Considerable attention is also being given to the control of venereal diseases, yaws, trachoma and bilharziasis.

Systematic vaccination campaigns are being carried out; in 1956, combined vaccination against smallpox and yellow fever was given to 3 632 338 persons; a further 1 829 564 persons were vaccinated against smallpox alone, and 43 038 against yellow fever alone. Inoculations against diphtheria, tetanus, cholera, plague and rickettsioses were also carried out, on a more limited scale.

Although the endemic diseases mentioned above are gradually being brought under control through the effective measures taken by the health services, tuberculosis is steadily becoming a more serious problem. Until it is possible to establish a network of effective tuberculosis control services, BCG vaccination is being intensified and extended. The Pasteur Institute in Dakar produced 707 220 doses of dry vaccine in 1956 and 1957 for use in the territories. A systematic scheme for tuberculosis control has been started at the tuberculosis centre in Dakar.

Malnutrition is prevalent in certain parts of the Federation, and is responsible for mild forms of kwashiorkor; studies are being made of the nutritional status of the people with a view to improving it.

Town water supplies are in some cases satisfactory and in others of doubtful quality. The immense problem of water supplies for the rural areas is being tackled systematically. Excreta-disposal methods are comparatively primitive even in urban areas, but progress in this direction is being made. Measures are also being taken in the towns to provide adequate low-cost housing for Africans of limited financial means.

GAMBIA (COLONY AND PROTECTORATE)

Gambia is on the west coast of Africa, near the mouth of the river Gambia. It extends up both banks of the river for some distance and is surrounded on land by French Senegal. The total area of the territory is 10 300 square kilometres, of which the Colony of Gambia occupies 76 square kilometres and the Protectorate the remainder. The rainy season lasts from June to October and the annual rainfall varies between 75 and 150 centimetres; for the rest of the year the climate is pleasant and generally healthy.

The Colony of Gambia consists of Bathurst—the capital and seat of the Governor—which is situated on the Island of St Mary at the mouth of the river, and the adjoining division of Kombo St Mary. At the 1951 census the population was 27 297, of whom about 550 were non-African; at that time Bathurst had 19 602 inhabitants, and in 1956 an estimated 21 022. The Protectorate is the strip of land—about 11 kilometres wide in most places—on each side of the river above the Colony. Its population in 1955 was 246 000. It is divided into four Divisions, each under a District Commissioner.

The territory is predominantly agricultural, the principal crop being groundnuts; millet and sorghum, rice and oil-palm kenels are also grown. There is a certain amount of seasonal immigration from neighbouring territories by farmers who provide labour in return for a share of the crops. All the land, except in the Colony, is held in trust for the African population, and is allocated to the farmers by the Native Authorities. An experiment in mechanized rice-farming is being carried out by the Government in the Protectorate. Livestock breeding and forestry resources are also being developed; 33 600 hectares of gazetted forest areas are being brought under the charge of the Native Authorities, who are to undertake forest management.

The chief imports in 1954 were cotton piece-goods, motor vehicles, kola nuts and sugar. The chief exports were groundnuts and palm kernels.

Primary education is available for all children in the Colony at a fee of ten shillings (US $ 1.40) a year, which may be waived in case of poverty. In the Protectorate, schools are managed jointly by the Education Department and local schools' committees, and there is an advisory board with an African majority. Teaching is mostly in English, but the vernacular is used in some of the Protectorate schools and Arabic in many Koranic schools.

The school system comprises pre-primary, primary and secon-
dary education. In 1954, government schools in the territory consisted of 38 primary schools (with 4078 pupils), one secondary school (96 pupils), three vocational training schools (42 students), and one teacher-training college (41 students); 92 students were pursuing higher education overseas.

Outside the towns most of the African population live as small farmers. The normal dwelling is the African grass-roofed hut. There is a certain amount of overcrowding in Bathurst, and 160 hectares of land have recently been reclaimed on the outskirts of the town for housing schemes within the means of lower income groups.

Health

The medical and health services of Gambia are administered by a Director of Medical Services, assisted by a Medical Officer of Health responsible for preventive health services, and (since 1956) by a Senior Medical Officer for the Protectorate. Other medical and health staff include the following: Medical Service: eight medical officers, two dental surgeons, one dental technician, seven nursing sisters (including matron), 107 junior male nursing staff, 79 junior female nursing staff, two junior dental staff, and six technicians. Health Service: three health superintendents, 33 health inspectors, seven community nurses and attendants, and three sanatorium attendants.

The percentages of the territory's total expenditure allocated to medical and health services during the period under review were: 1954, 9.4; 1955, 9.3; and 1956, 8.0.

There are two general hospitals in the territory — the Victoria Hospital in Bathurst (with 155 beds in 1956) and one at Bansang in the Protectorate (65 beds). The Victoria Hospital was completed and brought into use during the period under review, and includes, apart from general services, departments for infectious diseases, physiotherapy and dentistry. Minor medical units attached to this hospital include a mental hospital (24 beds), a home for the infirm for infectious diseases, physiotherapy and dentistry. Minor medical units attached to this hospital include a mental hospital (24 beds), a home for the infirm (20 beds, including two reserved for infectious cases), and a sanatorium (23 beds). In rural areas there are seven rural health units, 13 dispensaries and 24 sub-dispensaries.

Vital statistics are available only for Bathurst, where the following rates obtained during the period under review:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>33.3</td>
<td>37.4</td>
<td>42.5</td>
</tr>
<tr>
<td>Death rate</td>
<td>17.1</td>
<td>17.0</td>
<td>20.4</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>115.1</td>
<td>94.8</td>
<td>111.8</td>
</tr>
</tbody>
</table>

The increase in the birth rate is considered to be apparent rather than real, since, from 1956, the figures have been based on notifications from the professional attendants instead of on registration by parents, as previously. Elsewhere in the territory registration of both births and deaths, and notification of births, are voluntary and very incomplete.

Of the quarantinable diseases, smallpox causes some concern. In 1954 there were 107 cases with one death; in 1955, 31 cases and three deaths; and in 1956, 15 cases with no deaths. Vaccination is undertaken by the health services, and, in 1956, 36,948 smallpox vaccinations were carried out. A survey of immunity to yellow fever was made in 1955, revealing a high prevalence of immunity in the greater part of the Protectorate, but a very low degree in the coastal area, which was therefore considered to be at risk; a mass immunization campaign was undertaken in 1956, during which 18,934 persons were vaccinated — an estimated 99.7 per cent. of the population at risk. In a series of mouse-protection tests carried out before the campaign, immunity was demonstrated in only 29 per cent. of the population, whereas after the campaign it was shown in 90 per cent. No clinical cases of yellow fever occurred in 1954 or 1955.

Malaria is endemic in the territory, and although complete mortality and morbidity statistics are not available, it is undoubtedly an important cause of disease and death. Accurate mortality data are available only for Bathurst, where they show a very high proportion of deaths among children under five (three-quarters of all deaths from malaria during the period 1952-56); expressed as a percentage of deaths from all causes, malaria mortality for all age-groups in 1956 was 13.58. Morbidity statistics for the territory as a whole are incomplete, but returns from hospital out-patient departments in 1955 included 5829 cases of malaria — the commonest cause of out-patient attendance — and in 1956 rural health units, dispensaries and sub-dispensaries recorded 9972 cases — the second most common diagnosis. Routine control measures are carried out, and a great deal of research on the subject is in progress in the territory. Following a survey undertaken by a WHO consultant, plans were being made in 1957 to intensify the malaria control programme.

Tuberculosis is a serious problem, especially in Bathurst with its comparatively heavy concentration of population. The tuberculosis unit attached to the Victoria Hospital has 15 beds for males and eight for females (the female ward was added in 1955), and an out-patient tuberculosis clinic was opened at the Hospital in 1956. Cases notified in 1954, 1955 and 1956 numbered 49, 32 and 72 respectively, with a death rate per thousand of 1.4 in 1954 and 1.8 in 1955. These increases are thought to be due to improved case-finding and more complete notification rather
Maternal and child health services are provided in Bathurst at a special centre, and elsewhere at 20 rural health units and dispensaries. Shortage of staff has been a serious handicap to the development of these services, especially in view of their popularity, of which evidence is given in the following table:

<table>
<thead>
<tr>
<th>Type of service</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ante-natal clinics:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New cases</td>
<td>3634</td>
<td>3903</td>
<td>4346</td>
</tr>
<tr>
<td>Total attendances</td>
<td>16061</td>
<td>14349</td>
<td>16310</td>
</tr>
<tr>
<td>Child welfare clinics:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New cases</td>
<td>7183</td>
<td>9433</td>
<td>9458</td>
</tr>
<tr>
<td>Total attendances</td>
<td>63345</td>
<td>66462</td>
<td>69093</td>
</tr>
<tr>
<td>Domiciliary midwifery:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total births attended</td>
<td>1114</td>
<td>1278</td>
<td>1335</td>
</tr>
</tbody>
</table>

* Service based on above clinics

A clinic for schoolchildren is held in Bathurst; in addition to the usual functions of a school clinic, it also undertakes the treatment of minor ailments; in 1956 it recorded an attendance of 15,376, of which 8,403 were new cases. A survey of ascariasis in schoolchildren was carried out in the Bathurst area in 1955 and 1956; of 1038 children examined, infestation was found in 37 per cent. The prevalence varied from school to school but was heaviest among children from poorer homes. Treatment by means of a single oral dose of piperazine citrate gave 87 per cent. clearance in 237 cases. A dental survey carried out among schoolchildren in 1956 revealed that the permanent teeth of 858 (18.8 per cent.) of the 4,552 children examined required treatment.

Health education is carried out through talks by health inspectors to groups of people in their areas on simple health topics, and is also disseminated through Commissioners and local authorities, by attendance at conferences of chiefs, where a "question and answer" technique is adopted, by official speeches, and by means of the Government newspaper. Shortage of staff prevents the use of more systematic methods.

The diet of the population of Gambia is based primarily on bulrush millet, guinea corn and rice, and secondarily on fish and groundnuts. The fairly recent introduction of rice has improved the diet, and there appears to be a shortage of animal protein and of vitamin A, and it is not yet possible to gauge whether the change from the local crops to rice may give rise to a deficiency of vitamins of the B complex. A long-range school feeding and nutrition project was started in Bathurst in 1956 with assistance from UNICEF and WHO, the beneficiaries being children under the age of six, pregnant and nursing mothers, and schoolchildren between six and ten years.
In-service training of dresser-dispensers and midwives to staff the rural health units and dispensaries is carried out at the Bathurst hospital, and plans are being made for the organization of a nursing training programme in the territory. At present, however, all staff have to be sent outside the territory for training, and in 1956 two nurse-midwives and two health inspectors were receiving training in the United Kingdom. The lowering of the previous educational standard for entrance to the examination for the Health Inspector's Certificate of the Royal Institute of Health (West Africa) has recently made it possible for the first time for health inspectors from Gambia to enter for the examination; one certificate was obtained in 1955, and another in 1956.

Research on a wide range of subjects, with the chief emphasis on malaria, is carried out by the Medical Research Council Laboratories at Fajara, near Bathurst, and at the Field Station at Kenaba.

Bathurst has a piped water supply, which is being improved (with the help of Development and Welfare Funds) by the addition of water containing fluorides. Elsewhere in the territory the water supply usually comes from wells.

A new drainage system is being installed in Bathurst; the town is very low-lying and almost surrounded by water and it is therefore most important that it should be drained by properly levelled drains to prevent flooding during the rainy season and stop mosquito-breeding. Bathurst also has facilities for the collection of night-soil, from which compost is manufactured (1214 tons in 1956). In the Protectorate there is a limited system of night-soil collection, trenches and Otway pits being used for its disposal. In larger villages refuse is disposed of by controlled tipping or incineration; elsewhere, refuse is buried in swamps.

In 1957, a five-year plan for development of the medical services was submitted for Government approval; this plan includes improvements and extensions to hospital buildings, installation of new equipment, fellowships for training health personnel, the construction of new health centres, dispensaries and sub-dispensaries, and additional mobile facilities.

GHANA

Ghana became a sovereign State in 1957; the country embraces what was formerly the Gold Coast (Colony, Ashanti and the Northern Territories) and Togoland under United Kingdom Trusteeship. It lies on the Gulf of Guinea on the west coast of Africa, between 5° and 11° north and between 3° west and 1° east, and covers an area of approximately 292 367 square kilometres.

The 1948 census recorded an African population of 4 111 680, the total population of all races being 4 118 450. The population was estimated to have risen to 4 536 000 at mid-1954 and to 4 691 000 in 1956.

The chief natural resources of the country are gold, industrial diamonds, manganese, bauxite, forest products and cocoa, all of which are exported. Imports are mainly of consumer goods and machinery.

In 1956, about 340 000 boys and 180 000 girls were attending 3499 primary, 1029 intermediate and 61 secondary schools. There were also four government trade schools, four government technical institutes, and 30 teacher-training colleges. Higher education is provided at the University College of the Gold Coast and the Kumasi College of Technology; in 1956 the former had 310 students (290 men and 20 women) and the latter had 593 students.

The total length of railways open to traffic in mid-1956 was 987 kilometres. There were 12 880 kilometres of trunk and secondary motor roads, of which approximately 2190 kilometres were bitumen surfaced, as well as 8000 kilometres of local roads. There are four airports, that in Accra having international connexions.

Health

The Ministry of Health is responsible for advice on the formulation of government policy and its execution in the field of public health, the administration of health services maintained by the central government, supervision and guidance of health services maintained by local government authorities and bodies receiving financial assistance from the central Government, and the promotion of improved health standards throughout the country.

At headquarters (in Accra), the Minister of Health is advised on technical and professional matters by the Chief Medical Officer, and on administrative questions by the Permanent Secretary. At the headquarters of each region provision is made for a Principal Medical Officer or a Senior Medical Officer with appropriate staff responsible to headquarters for the health services in the region.

The expenditure on health has gradually increased; in 1956 it was £3 000 200 (US $8 401 568) out of a total revenue of £47 408 890 (US $132 760 823). This represents 6.3 per cent. of the general revenue for the year, compared with 4.2 per cent. in 1953.
Registration of births and deaths is not carried out universally in the country, but there are 36 registration areas (covering about 12 per cent. of the total population) under government auspices and provision is being made in a new Public Health Bill for the compulsory notification of births and deaths throughout the country. Figures available from the 36 registration areas are as follows:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>37.4</td>
<td>42.0</td>
<td>46.3</td>
</tr>
<tr>
<td>Death rate</td>
<td>21.1</td>
<td>32.8</td>
<td>21.3</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>119.0</td>
<td>109.0</td>
<td>98.0</td>
</tr>
</tbody>
</table>

There were 73 hospitals in the country in 1956; 39 were government-owned or conducted by missions for the Government, three were mission-owned, 11 were owned by mining and timber companies and 12 were mainly in private hands. The government hospitals are of two main types—the central hospital (four in number, at Accra, Kumasi, Sekondi and Tamale), and the district hospital. Specialist services are available at central hospitals, which serve the whole of the region in which they are situated. Laboratory services are provided at all government hospitals and there is a central laboratory at the Medical Research Institute in Accra.

Medical field units, with their headquarters at Kintampo in Ashanti, conduct campaigns against trypanosomiasis and yaws and control other epidemics as they occur. They also survey the incidence of disease in rural areas, undertake health education of the public and administer treatment at fixed centres.

Nine rural health centres had been completed and were in operation by 1956 and 10 more were being planned.

The total medical and health staff in Ghana in 1955 consisted of 182 registered physicians with British qualifications (104 in government service), 43 licensed physicians with non-British qualifications, 13 registered dental surgeons with British qualifications, four licensed dental surgeons with non-British qualifications, 221 nurses with British or equivalent qualifications, 978 nurses with local qualifications, 98 midwives with British or equivalent qualifications, and 421 midwives with local qualifications. There were in addition 662 nurses and 156 midwives in training.

In 1956 the central government public health services employed the following staff:

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical officers</td>
<td>71</td>
</tr>
<tr>
<td>Medical officers of health</td>
<td>6</td>
</tr>
<tr>
<td>Dental surgeons</td>
<td>8</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>81</td>
</tr>
<tr>
<td>Nurses</td>
<td>693</td>
</tr>
<tr>
<td>Midwives</td>
<td>50</td>
</tr>
<tr>
<td>Health visitors</td>
<td>12</td>
</tr>
</tbody>
</table>

* Excluding specialists

In 1954 the principal causes of mortality, in order of importance, were: malaria, diseases of the genito-urinary system, complications of pregnancy, child-birth and the puerperium, pulmonary tuberculosis, broncho-pneumonia and tetanus. The principal causes of morbidity were: malaria, chronic ulcers, pulmonary tuberculosis, complications of pregnancy, child-birth and the puerperium, intestinal obstruction and hernia, and injuries from road accidents.

In 1954, 6957 in-patients and 58 061 out-patients were treated at government hospitals for malaria, which, as shown in the preceding paragraph, is the most important cause of mortality and morbidity. Research is being undertaken into malaria control and the malaria service is being developed.

Tuberculosis in its pulmonary form is common, and surveys have been undertaken to assess the extent of the problem and the best methods of control of the disease. Apart from the main tuberculosis unit attached to the hospital at Accra, there are chest clinics at district and other central hospitals where free treatment is given by medical officers with the advice of the specialist, and where contacts are kept under observation by health visitors and health inspectors.

During 1954, 3503 cases, including 1077 in-patients, received treatment in hospitals; in 1955 there were 879 in-patients.

Cases of venereal disease are treated at all district hospitals, and 696 in-patients and 12 572 out-patients were attended in 1955 for syphilis and gonorrhoea. As a result of the work of the medical field units, great progress has been made in recent years in the control of yaws and in the treatment and control of trypanosomiasis.

Smallpox is endemic, and epidemics of varying proportions occur from time to time. Vaccination is carried out continuously and is performed by many different categories of staff; in 1954, 1 041 672 vaccinations were performed. Yellow fever surveys carried out in 1954 in seven widely separated areas indicated that, with the exception of one area, there had been no outbreak for the past twenty years. In one area in Ashanti the results indicated that yellow fever was endemic, a finding confirmed by the occurrence of an outbreak in 1955, in which four cases were confirmed. Cerebrospinal meningitis is also endemic, and 136 cases were admitted to hospitals in 1955.

The leprosy service, which has gradually developed since its inception in 1948, established clinics in different parts of the country in the period under review, and expanded its staff to provide supervision for these clinics, which were in many instances run by medical or lay auxiliaries. It has now been possible to bring
treatment more regularly to the patients, of whom there are approximately 32,000.

So far as maternal and child health is concerned, there are four large hospitals in which maternity work is a main interest, and all district hospitals provide for maternity cases. A large volume of district work is carried out at maternity clinics in both urban and rural areas by midwives under the direction of superintendents of health visitors. Child welfare work is carried out at district hospitals; a number of clinics are also held at hospitals, Red Cross centres, health centres or at child welfare centres, with the co-operation of private district midwives under the direction of a superintendent of health visitors.

The mental hospital at Accra was extended in 1954 to house the increasing number of patients. In 1955 there were 1030 in-patients; during the year 604 were admitted to the hospital and 223 were discharged.

There is as yet no medical school in the country and, in 1954, 74 students were studying under government auspices in the United Kingdom to qualify as doctors. Another 50 were in Germany, sponsored by the Cocoa Marketing Board. In addition to these, students from Ghana were studying the following subjects in the United Kingdom: dentistry (2), hospital administration (4), laboratory technology (3), radiography (6), physiotherapy (1), ophthalmics (1) and pharmacy (4).

Local training for the qualification of State Registered Nurse is given at the School of Nursing in Accra, and at another school attached to the Kumasi Central Hospital. There are six training centres for the Qualified Registered Nursing Diploma, which is based on the apprenticeship system. Four schools provide midwifery training, two of these (at Accra and Kumasi) being government institutions with 80 and 60 pupils respectively. Courses for health inspectors are held at Accra, Kintampo and Tamale; the course at Accra is of three years’ duration, and that at the other two schools—intended mainly for workers in rural areas—is of two years’ duration. Senior staff nurses are selected for a one-year course to qualify for appointment as health centre superintendents.

Health education is provided by health centres and medical field units, and in 1956 an officer was made responsible for the planning of health campaigns throughout the country. Four posts of health education officer have also been created to be filled by officers who are at present abroad, undergoing special courses in this subject.

KENYA (COLONY AND PROTECTORATE)

The Crown Colony and Protectorate of Kenya extend approximately from latitudes 4° north to 4° south and from longitudes 34° to 42° east. It is bounded on the north by Ethiopia and Sudan, on the west by Uganda, on the south by Tanganyika, and on the east by the Indian Ocean and Somalia.

There is a considerable range of climate. Three zones can be distinguished: (a) the coast and hinterland, with an average temperature of 27°C and an annual rainfall of 100-125 centimetres; (b) the low plains, between 100 and 600 metres above sea-level—mainly dry, with an average annual rainfall of 12-50 centimetres; and (c) the highlands, where the average temperature ranges from 20°C to 10°C according to altitude (from 1000 metres to 3500 metres), and the rainfall is between 100 and 150 centimetres. The northern part of Kenya is arid and comparatively waterless. The land area is approximately 563,000 square kilometres.

Nairobi, the capital and seat of the Government, is in the Kenya highlands, about 480 kilometres from the coast. The 1948 general census recorded an African population of 5,251,120; European, 29,660; Indian, 90,528; Goan, 7,161; and Arab, 24,175. Estimated mid-year populations for 1952 and 1954 were 5,760,000 and 5,948,000 respectively.

Kenya is divided into six provinces and the Nairobi extra-provincial district. The provinces are divided into districts, each in the charge of a district commissioner. At the next level are the district officers, both European and African, and below them come the chiefs, sub-chiefs and minor tribal authorities functioning in small areas. There are five main types of local authority: the city council (Nairobi being the only example at present); the Municipal Board; county councils; district councils and the African district councils in the African areas. The last-mentioned have powers analogous to those of municipal and county councils, with authority to raise their own revenue by rates, to engage staff and promote the welfare of the inhabitants of their areas.

The economy of Kenya rests on agriculture, with some forestry and mining. A high level of investment in industrial and commercial enterprise, particularly from overseas, is being maintained. The great natural attractions of the country draw tourists. The chief mineral product is soda ash from the mines at Magadi, but deposits of kyanite, graphite and diatomite are also worked. African food production varies according to the different ecological zones in the higher areas. Broadly speaking, maize, millet, sweet and European potatoes are grown in the high altitude; maize, beans, bananas, sweet and European potatoes and vegetables and colocasia in the grass zone, and the same crops, together with sorghum, millet, cowpeas and green grain, are produced in the woodland zone. The chief domestic exports are coffee, sisal, hides, skins and leather, wattle extract, tea, pyrethrum and sodium carbonate. Local secondary industries are developing steadily.

In 1956 the total enrolment of African pupils at government-aided and unaided schools (primary, intermediate and secondary) was 446,460, showing an increase of 51,387 over 1955. The
number of trained teachers rose from 6118 to 7451. In 1956 there were over 400 African pupils at the Medical Training Centre in Nairobi, in addition to 213 Africans at Makerere College in Uganda. There are four trade and technical schools in the country with an enrolment of nearly 1000 students. The number of students from Kenya studying overseas in 1956 reached 1555, of whom 157 were African.

There is a Ministry of Community Development which recruits and trains personnel for, and assists district administrations in, community development projects, trains African chiefs, local leaders and specialized staff employed by other government departments or local governments, and encourages voluntary organizations for community development. Responsibility for social welfare rests with the Ministry of Health.

Health

The Central Medical Department, under a Director of Medical Services, is responsible for formulating medical and health policy, for the control and treatment of infectious diseases and for the administration of government, provincial and district hospitals. The department includes a deputy director, two assistant directors, seven senior medical officers and 10 specialist officers. In 1956 the number of medical officers was increased by 11, bringing the total to 91.

There are two parallel systems of public health service, each related to a different form of local government. Municipal councils and county councils are responsible directly to the Ministry of Health for all normal local health services, consisting principally of ante-natal and child welfare, maternity care, infectious diseases control, day nurseries and nursery schools, and environmental sanitation.

In African district council areas, the district councils are the public health authorities; senior and supervisory staff are supplied by the Government. The services provided consist of comprehensive maternity and child welfare, including institutional and domiciliary midwifery on hospitals and health centres, and in some cases dispensaries; control of infectious disease, environmental sanitation, and ambulance services.

In 1956, 1.7 per cent. of the gross domestic income was allocated to health. The per capita cost of over-all health services was 8/- (US $1.12), being approximately 2/4 (US $0.32) for administration and preventive medicine services and 5/8 (US $0.79) for medical care.

Registration of births and deaths is compulsory for Europeans and Asians in both rural and urban areas, while registration of deaths of Africans is compulsory only in urban areas. Four African district councils have passed by-laws for the compulsory registration of births and deaths in their areas, whilst others are proposing to follow their example.

The main causes of death among Africans, taken from the annual return of government hospital statistics for 1956, were:

<table>
<thead>
<tr>
<th>Disease</th>
<th>Number of deaths</th>
<th>% of total deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronchopneumonia</td>
<td>1 166</td>
<td>16.4</td>
</tr>
<tr>
<td>Pulmonary tuberculosis</td>
<td>568</td>
<td>8.0</td>
</tr>
<tr>
<td>Gastro-enteritis and colitis (between 4 weeks and 2 years of age)</td>
<td>433</td>
<td>6.0</td>
</tr>
<tr>
<td>Lobar pneumonia</td>
<td>365</td>
<td>5.1</td>
</tr>
<tr>
<td>Kwashiorkor</td>
<td>225</td>
<td>3.2</td>
</tr>
<tr>
<td>Tetanus</td>
<td>211</td>
<td>3.0</td>
</tr>
<tr>
<td>Typhoid</td>
<td>191</td>
<td>2.7</td>
</tr>
<tr>
<td>Pneumococcal meningitis</td>
<td>176</td>
<td>2.5</td>
</tr>
<tr>
<td>Burns</td>
<td>158</td>
<td>2.2</td>
</tr>
<tr>
<td>Meningococcal infections</td>
<td>156</td>
<td>2.2</td>
</tr>
<tr>
<td>Malaria</td>
<td>156</td>
<td>2.2</td>
</tr>
<tr>
<td>Gastro-enteritis and colitis (2 years of age and over)</td>
<td>147</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3 952</strong></td>
<td><strong>55.5</strong></td>
</tr>
</tbody>
</table>

Hospitals can be divided into four groups: (1) African government hospitals (of which the main one is King George VI Hospital in Nairobi), staffed by specialists, registrars and interns and providing special forms of treatment. (2) Provincial hospitals (of which there are four—at Nyeri, Nakuru, Kisumu and Mombasa), each staffed by a physician and surgeon with specialist qualifications, and supporting staff. (3) Special hospitals, which consist of the Mathari Hospital for Mental Diseases, Nairobi, the Orthopaedic Hospital, Nairobi, the Infectious Diseases Hospital, Nairobi, Port Reitz Chest Hospital, Mombasa, and the Itesio Leprosarium, Elgoy Nyanza District. The Infectious Diseases Hospital, Nairobi, has accommodation for general infectious diseases, tuberculosis, and a special unit equipped to treat all types of poliomyelitis. (4) District hospitals, of which there are 52 (main and subordinate). These government hospitals provide a bed/population ratio of 1:2:1000.

Further African accommodation is available at 16 mission hospitals: six in the Central Province, two in the Coast Province, two in Rift Valley Province, one in Southern Province, and five in Nyanza Province. Every main district hospital includes an African district council maternity ward. The municipalities of Mombasa, Nairobi, Nakuru and Kitale and the county councils of Nakuru and Naivasha operate their own African maternity hospitals or maternity ward units.

There are eight European hospitals, provided by the European community and controlled independently. Two of these are in Nairobi, and Mombasa, Nakuru, Nyeri, Nanyuki, Eldoret and Kitale have one each. The Government also runs one hospital for
for Europeans, at Kisumu. Further accommodation for Europeans is available at the Port Reitz Chest Hospital, the Infectious Diseases Hospital, Mathari Hospital, and the Consulata Catholic Mission Hospital, Myeri.

There are three Asian hospitals — the Pandya Memorial Clinic, Mombasa, Rahimtulla Indian Maternity Home, Mombasa, and the Aga Khan Home, Kisumu. Accommodation is also available for Asian patients at the King George VI Hospital, the Infectious Diseases Hospital, the Mathari Hospital, the Port Reitz Hospital, as well as at three provincial and nine district hospitals. The Social Services League, an Indian welfare association, runs an Indian maternity hospital at Nairobi, and the Ismailia community have built the Aga Khan Hospital for all races.

Tuberculosis remains one of the most important communicable diseases, and the Infectious Diseases Hospital and the Port Reitz Chest Hospital, together with the provincial hospitals of the Central Province, Rift Valley Province and Nyanza Province, form main centres for the tuberculosis service; they are used for in-patient treatment, radiography, and assessment, and supply a general consultant service. Twenty-two main district and subordinate hospitals have an average of 10-12 beds reserved for tuberculosis patients, and form centres for the district service. The total number of beds in government hospitals available for Africans with tuberculosis is 636; for Asians, 56; and for Europeans, 16. A number of mission hospitals also have beds reserved for this disease.

Clinics for tuberculosis patients receiving outpatient and domiciliary treatment are held regularly in nearly every hospital in the territory, at health centres and at some dispensaries; this form of treatment was established as a firm policy of the Government in 1956, when a tuberculosis field officer was appointed to control this work.

Malaria may generally be said to be endemic to hyperendemic in the coastal area and the Lake basin, and epidemic in the highlands, where, however, it is largely controlled. Control measures against this disease and against bilharziasis are given considerable attention by the Government, especially in resettlement and irrigation schemes in the Rift Valley and the Central Provinces.

Considerable progress has been made in the extension of rural health services through the establishment of health centres, of which there are two types: the main health centres (12 in number), integrated with the service of selected district hospitals, and the "locational" health centres, built with the co-operation of the local authorities, mainly the African district councils. The locational health centres, 33 of which had been completed by 1956, are staffed entirely by Africans, the aim being that at each there shall be an African medical assistant in charge, with an assistant health inspector, midwife and health visitor as a minimum. Facilities in these health centres also include a domiciliary service for maternity and sickness, and child welfare clinics.

The training of local personnel is undertaken by government and municipal authorities and mission hospitals. At the Government Medical Training Centre in Nairobi, more than 400 African students are undergoing courses of training as hospital and laboratory assistants. In 1956 the training of medical assistants was also commenced at this Centre. The basic standard of education is higher than that required for hospital assistants, and the standard of medical training given will accordingly be much higher. In addition, the training of health visitors is carried out at two rural centres. There are also 10 medical mission training centres for nurses and midwives, and three municipal and other hospitals at which African and Asian midwives are trained. A Nurses' and Midwives' Council has been established and is recognized as the statutory body for the training and registration of nurses, assistant nurses and midwives in Kenya.

A considerable contribution to medical research in East Africa is being made, under the aegis of the East Africa High Commission, by the Council for Medical Research for East Africa, which has four main inter-territorial centres — two in Tanganyika, one in Uganda, and the Leprosy Research Institute in Kenya.

Much research is also done by the Division of Insect-Borne Diseases in Nairobi on problems such as kala-azar, malaria, relapsing fever, bilharziasis and filariasis, and in Kenya itself a number of individual workers conduct investigations in various fields.

Liberia

The Republic of Liberia is situated on the bulge of tropical West Africa, about 4° north of the equator. It is generally plateau land, rising gradually from the coast to the interior, where a mountainous range reaches the height of 1000 to 1200 metres above sea level. The average annual rainfall ranges from 300 to 380 centimetres and there are two distinct dry and rainy seasons in the year.

Liberia is bounded on the east by the French Ivory Coast, on the north by Sierra Leone and former French Guinea, and on the south and west by the Atlantic Ocean. The land area
There is a public health clinic in each principal town the Firestone Plantation maintains a general hospital. In addition, there are six other government hospitals in the more important towns. The government hospital in Monrovia has about 350 beds, including the maternity unit; the tuberculosis hospital in Congotown has about 100 beds and there are six other government hospitals in the more important towns. In addition, the Firestone Plantation maintains a general hospital. There is a public health clinic in each principal town throughout the country. All mission hospitals or clinics are subsidized by the Government. In 1956, there were 40 physicians in government service and 65 in private practice.

In 1946 the national budget for health was little more than US $100,000; in 1956 it was over US $2,000,000.

There has not so far been an official census of the population of Liberia, but during the period under review plans were made for a census to be taken in 1958; the Census Advisory Committee which was to be appointed was to include at least one member of the National Public Health Service. No uniform system of recording vital statistics has yet been established, but plans were under way to train personnel in the recording of births and deaths within the structure of the government services, so that eventually a complete service may be available for the whole country.

Smallpox, which used to be present in epidemic form and cause many deaths, is now fairly well under control. There is a strict system of reporting, and a vaccination programme. Malaria is still the most serious public health problem, but it is being attacked through residual spraying and chemoprophylaxis.

Yaws, which was the problem second in importance, is now practically eliminated through the use of penicillin in a nation-wide campaign.

Trypanosomiasis is found particularly in the Western Province and parts of the Central Province. For its control, the Government is training technicians to undertake surveys, give treatment to infected persons. Plans are now under way for an eradication campaign.

Tuberculosis does not seem to be a very serious scourge at present; all known tuberculosis patients are flown to Congotown and cared for in the sanatorium there.

There are five settlements for the care of leprosy patients, with a total of 2000 patients under supervision and treatment.

The Dyer Memorial Maternal and Child Welfare Centre in Monrovia is run by the Government, and includes a maternity hospital; during the 12 months ended September 1956, 308 pre-natal visits and 471 deliveries were recorded, and 498 babies were seen at infant welfare clinic sessions.

With regard to health education, efforts are being made to provide school-teachers during their course of training with sufficient knowledge to enable them to carry out health teaching in primary schools. Courses in health education have also been prepared for the UNESCO Fundamental Education training project near Monrovia.

For the training of doctors there is a long-term fellowship programme, consisting of both govern-
ment and WHO fellowships, to enable Liberian students to take undergraduate medical studies abroad. By the end of 1956, 21 Liberian medical students were studying in Belgium, England, Egypt, Germany, the Netherlands, Switzerland and the United States of America. By 1960 it is expected that fully qualified Liberian physicians will begin to be available to strengthen the health services of the country.

The school of nursing in Monrovia, which was established with assistance from the United States of America early in 1950, is now training an average of 20 students a year, and has an annual output of about eight graduates. There has been difficulty in recruiting students for the school. The midwifery training programme is under the school of nursing. There are four training centres, two of them for literate and two for illiterate midwives. The two latter schools are located in the Central and Western Provinces.

A five-year plan, which is being drawn up for the development of the health services, includes a co-ordinated scheme for the location and size of hospitals and other health establishments. The terms of the plan will govern the operation of the entire National Public Health Service — its organizational structure, staffing arrangements, and all public health activities.

MADAGASCAR

Madagascar is situated off the south-east coast of Africa, separated from it by the Mozambique Channel, which is about 400 kilometres wide. It is the third largest island in the world, with a coastline of some 7500 kilometres and an area of 590 000 square kilometres. Tananarive is the capital. The island consists of various geographical regions differing widely in relief, soil geology, climate and vegetation. Except in the south-west, it is well watered.

There are four distinct climates: east, central and west, becoming progressively drier, and a warm sub-desert in the extreme south and south-west. The centre is cooler and frost is known above 1500 metres.

In 1955 the total population was estimated at 4 777 225; non-indigenous inhabitants included about 66 089 French, 3417 other Europeans, and 21 346 Asians.

The widely differing geographical regions provide a great variety of resources and a large range of export commodities. The principal agricultural products in 1955 were manioc, sugar-cane, maize, tapioca and batata. Graphite, mica and precious stones are mined. The forests contain many valuable woods, and rubber, gum, resins and plants for tanning, dyeing and medicinal purposes abound. Cattle-breeding and agriculture are the main occupations of the indigenous population. The chief imports are foods, metals, cement, fuel, machinery and cotton.

The territory is divided into six provinces, which are administratively and financially autonomous. Each province is divided into districts and subdivided into governments, cantons and villages. Village chiefs and notables, who do not take part in the administration proper, are designated by the population. There is a traditional village organization, the Fokon Olona, which is being modernized and used by the Government to encourage social and economic development of the rural areas.

Education is compulsory and free.

Health

The Public Health Service consists of a central Directorate at Tananarive and a main office in the capital of each province. The provinces are sub-divided into medical districts, each of which is under the charge of a medical officer. There were 31 such districts in 1956.

In Tananarive there are two general hospitals — the Colonial Hospital and the main Government hospital — as well as a special children's hospital. The Institute of Social Hygiene is responsible for the control of malaria, tuberculosis, leprosy and venereal diseases, and for organizing the school medical services, and the health visitors' school. There is also a Pasteur Institute, which includes a central anti-plague service and a central pharmacy.

Apart from the province of Tananarive, which is served by the central health establishments in the capital, each of the five other provinces has a general hospital, and each of the medical districts has one or more district hospitals. In 1956 there were 61 district hospitals, as well as 277 medical centres, 314 maternity centres (not including the maternity departments of the larger hospitals), 88 dispensaries, one psychiatric centre, and 16 leprosy settlements. Other specialized services included venereal disease control (at 11 centres), and 53 quarantine stations for travellers by sea and air, as well as for local cases of infectious disease. Several mobile health teams, operating at provincial or district level, provide health services for the rural population, and the Fokon Olona also has a share in health work.

The staff of the Public Health Service in 1956 consisted of 283 European and 2120 indigenous personnel, distributed as follows:
Physicians:
- with French State degrees: 94
- with Madagascan degrees: 18
- Total: 112

Pharmacists:
- with French State degrees: 13
- with Madagascan degrees: 3
- Total: 16

Dentists:
- with French State diplomas: 2

Midwives:
- with French State diplomas: 78
- with military diplomas: 49
- locally trained: 1,257
- Total: 1,394

Health visitors: 93

Malaria inspectors: 33

Mobile health team leaders: 32

Total: 283

**Note:** Dentists trained at the Tananarive Medical School are included in the 318 physicians with Madagascan degrees.

In 1956, 9.68 per cent. of the total budget of the territory was devoted to the medical and health services.

The popularity of the territory's medical care services is illustrated by the returns from health establishments in 1956. The establishments described above provided a total of 12,207 beds and recorded 203,456 in-patients during the year. Over four million people visited the out-patient departments of hospitals, medical centres, dispensaries, etc., the total number of out-patient visits during the year being 8,898,652, and mobile health teams recorded over 500,000 more consultations.

The reported death rate in 1956 was 12.6, and the infant mortality rate was 78.0. The main causes of death among cases treated in the hospitals in 1956 were diseases of the respiratory and digestive tracts. These were also the most important diseases treated in the medical centres and dispensaries. Other principal diseases treated were: malaria, helminthiasis, eye diseases, and skin conditions.

As a result of the control campaign launched some years ago, malaria is no longer common in the island. Twenty cases of plague with 11 deaths were reported in 1956; 799,907 inoculations against plague were carried out. Leprosy cases are not segregated unless they are contagious, and domiciliary treatment is encouraged. A tuberculosis control programme has been started by the central tuberculosis service, and is being carried out through the tuberculosis dispensary and the mobile health units, which are equipped for mass X-ray examinations.

Special emphasis is being laid on maternal and child health. In 1956, 185,576 pregnant women received ante-natal care, and there were 123,884 hospital deliveries and 3014 home deliveries during the same year. Post-natal care was given to 121,352 mothers, and infant and child welfare clinics provided care for 427,986 infants under one year of age and 481,761 children between one and four years. Medical supervision of older children is carried out by the school health service.

A special section was set up in 1955 to carry out research on feeding and nutrition, and the first surveys have been undertaken in the northern suburbs of Tananarive.

The School of Medicine and Pharmacy in Tananarive provides a five-year medical course for physicians (including one year of pre-clinical studies) leading to a medical diploma which qualifies graduates to work in the territorial Medical Service; it also provides a four-year course for pharmacy students (including one preparatory year) leading to a pharmacist's diploma and thence to appointment as a pharmacist in the territorial Medical Service. The school also has a stomatological centre, which organizes a two-year course for dental mechanics. The Tananarive Midwifery School has a three-year diploma course for midwives, and the Health Visitors' School also gives a three-year course ending with a qualifying examination. A Nursing School was opened in Tananarive in 1954; it offers a two-year course and is organized on the same lines as nursing schools in France, awarding a diploma of the same standard as the French State diploma. Nursing courses are also organized at the two main general hospitals in Tananarive and at the provincial hospitals. Other types of training include a six-month course for malaria inspectors, a one-year course of specialization in various subjects for nurses, and a one-year course for prosthetic technicians. In 1956, graduates from the School of Medicine and Pharmacy and from auxiliary training schools included: 18 physicians, three pharmacists, 24 midwives, 13 health visitors, and 42 nurses.
MAURITIUS AND DEPENDENCIES

Mauritius is an island in the Indian Ocean about 20° south of the Equator. The area (including a number of islands—or "dependencies"—scattered in the Indian Ocean) is 2096 square kilometres. The highest point is 826 metres above sea level and there is an elongated central plateau at 550-580 metres which slopes gradually to the sea on the south and south-east. Port Louis is the capital. The climate is comparatively mild and equable for the latitude, with an abundant but variable rainfall.

The estimated population at the end of 1957 was 596,621. The larger urban areas of Mauritius have had their own local government for many years. Local government in rural areas was started in 1946. By 1952 the number of village councils had increased to 90. Three district councils have since been set up to advise the district civil commissioners on matters of policy.

The island's economy depends on sugar, which accounted for 97 per cent. of the exports in 1954. The subsidiary crops are tea and aloe fibre, the production of which is increasing. The island is largely dependent on imported food. There is a ten-year development programme for agriculture, education, health and nutrition, sewerage and water supply, roads and buildings, the sugar industry, and research.

Education is free and not compulsory. Scholarships are available for free secondary education. Language is a particular problem; English and French are compulsory subjects and Hindu, Tamil, Hakka and Chinese are optional in the schools. The population uses a lingua franca based on French and known as "creole" and, although it is not officially encouraged, its use in the classroom as a vehicle of expression is common.

Health

The Public Health Department is under the Director of Medical Services, who is assisted by two deputy-directors. The department is divided into three main divisions: administration, public health, and curative and diagnostic services. The latter are subdivided into the hospital and dispensary service and the laboratory service.

There are eight public hospitals, with a total of 1202 beds; an orthopaedic centre, with 156 beds; a mental hospital, with 707 beds, and a settlement for leprosy patients, with 62 beds. In addition to 48 out-patient clinics, there is a mobile dispensary service comprising four units and attending to the needs of 64 villages. The first chest clinic is nearly completed and a second chest clinic and a tuberculosis hospital will be constructed in the near future. There are 16 centres specially concerned with maternal and child health, each of which provides a district midwifery service, and there are also two midwifery services based on two of the hospitals. A full school medical service is in operation.

In 1957, the following medical and health personnel were working in the territory, either in government service or in private practice:

<table>
<thead>
<tr>
<th></th>
<th>Government</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered physicians</td>
<td>73</td>
<td>60</td>
</tr>
<tr>
<td>Principal matron</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Matrons</td>
<td>4</td>
<td>—</td>
</tr>
<tr>
<td>Senior nursing sisters</td>
<td>5</td>
<td>—</td>
</tr>
<tr>
<td>Nurses in hospitals</td>
<td>192</td>
<td>—</td>
</tr>
<tr>
<td>Dressers in hospitals</td>
<td>222</td>
<td>—</td>
</tr>
<tr>
<td>Superintendent of midwives</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Midwives</td>
<td>65</td>
<td>—</td>
</tr>
<tr>
<td>Sanitary inspectors</td>
<td>59</td>
<td>—</td>
</tr>
<tr>
<td>X-ray specialists</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Assistant radiologist</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>X-ray technicians</td>
<td>5</td>
<td>—</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>2</td>
<td>42</td>
</tr>
<tr>
<td>Dentists</td>
<td>4</td>
<td>26</td>
</tr>
</tbody>
</table>

Medical personnel are trained overseas. With a few exceptions auxiliary personnel are trained locally. In order to meet the needs of the expanding health services, efforts are being made to train more health workers, including specialists, by offering scholarships and fellowships.

Notification and registration of births is compulsory. Medical certification of causes of deaths is in force only in the districts of Port Louis and Plaines Wilhems, and covers just under half of the population. The birth rates for 1954 and 1957 were 41.3 and 43.1, and the recorded death rates in the same period were 16.0 and 13.0. The infant mortality rate has dropped from 81.1 in 1954 to 75.1 in 1957.

There was an outbreak of Asian influenza in 1957. However, vigilance is maintained to prevent the return of communicable diseases once prevalent in Mauritius. Vaccination against smallpox is compulsory; whooping-cough and TAB vaccines are available free of charge. Malaria has been practically eradicated. Venereal disease cases are treated at all hospitals and dispensaries. BCG vaccination is included in the tuberculosis control programme of the Health Department and by the end of 1957, 25,749 children had been vaccinated. Intestinal diseases are still a serious problem and health education of the population is proceeding with special reference to this problem. Vaccination of the most vulnerable groups of the population against poliomyelitis started at the beginning of the 1957 summer season.

Water supplies are gradually being improved, and by 1958 every resident of Mauritius will have at his disposal filtered and chlorinated water. Fluoridation
of one of the main supplies will become effective by the end of 1957 or early 1958.

Malnutrition is at present an important concern of the health service, the most current deficiencies being in protein and iron. All children attending primary schools receive food supplements during the mid-day breaks.

A special unit, which has x-ray therapy machines and radium at its disposal, is engaged in the treatment and control of cancer.

A new five-year health programme of expansion and development was approved in 1956, and is already being carried out. This programme covers the need for additional hospital beds, expansion of the maternal and child health services and of the out-patient facilities, and the establishment of a new public health laboratory. It also includes the modernization of equipment, improvement of the ambulance service, and staff housing facilities.

MOZAMBIQUE

The Portuguese Province of Mozambique is on the east coast of Africa and lies between latitudes 10° and 27° south. It is bounded on the north by Tanganyika, Nyasaland and Northern Rhodesia, on the south by Natal (Union of South Africa), on the west by Lake Nyasa, Southern Rhodesia, Transvaal, and Swaziland, and on the east by the Indian Ocean. The total area is 771,125 square kilometres. At the 1950 census the population was 5,738,911; in 1955 the non-indigenous population numbered 117,405.

For administrative purposes the Province is divided into districts, each under a local governor, and subdivided into councils or boroughs; all are under the authority of the Governor-General, whose seat is the capital, Lourenço Marques.

Mozambique is essentially agricultural, although industrialization is taking place slowly. The principal products are cotton, maize, groundnuts, palm oil, tobacco, sugar, sisal and tea, all of which are exported.

Health

The health services of Mozambique were reorganized in accordance with a Decree of 1945 concerning all the Portuguese overseas provinces. At the central level, the health services are administered by a Directorate of Health, which comprises three departments — medical, pharmaceutical and administrative. Associated with the Directorate are a number of bodies — some of an advisory nature, such as the Public Health Council; others with executive functions, such as the services for the control of leprosy, tuberculosis, malaria, and trypanosomiasis, and for mental health, social welfare and maternal and child health.

For health administration the Province is divided into four health regions, nine health areas and 76 district health services, with medical officers of different categories in charge at each level. Each health region is under the direction of a medical inspector, whose chief task is to guide and supervise the activities of the district medical officers. The district health services are in the charge of medical officers (categories I or II) who are under the direct supervision of the chief medical officer of the health area concerned.

Each district health service is provided with the necessary nursing staff, and has a regional nursing station or small hospital and one or more maternity centres associated with health units. The latter are run by male nurses, and sometimes also include an auxiliary midwife; they are visited periodically and at fixed times by the district medical officer.

Preventive and curative medical care is provided through hospitals, nursing stations or aid posts, and other health establishments run under either government or private auspices. Home care is also provided when necessary. In 1956, government health establishments included two central hospitals (one in Lourenço Marques and one in Beira), 10 regional hospitals, 53 regional nursing stations, 203 health units, 89 rural maternity centres, seven leprosaria, two tuberculosis dispensaries, 15 infant welfare centres, 12 pre-natal clinics, and 66 leprosy out-patient dispensaries. Private institutions in the same year included six nursing homes, one maternity centre, 13 hospitals, six medical stations, 145 health units and 172 ambulances with first-aid posts.

The following medical and health personnel, both government and private, were working in Mozambique in 1956: 276 physicians, 143 pharmacists, 450 male nurses, 232 auxiliary nurse-midwives, laboratory and pharmacy assistants, and nurses in the service of missions, etc.

Training of nurses, auxiliary midwives and laboratory and pharmacy assistants is undertaken in technical schools, which are under the administration of the health services, and which in 1956 trained 130 male nurses, 50 auxiliary midwives, nine laboratory assistants and eight pharmacy assistants.

In the control of communicable diseases, the following developments are particularly noteworthy.

Leprosy control has been intensified, through case-finding surveys, improvement of existing leprosaria, the setting-up of special dispensaries for ambulatory
treatment of leprosy patients, and the large-scale application of modern chemotherapy.

A campaign for the control of tuberculosis was conducted in 1954 and 1955, during which 8000 medical examinations and more than 60 000 x-ray examinations were carried out, and treatment was given to confirmed cases.

Measures for malaria control have been in operation for more than twenty years, and are continuing; it is hoped that the incidence may at least be reduced, even if complete eradication is not possible. Efforts have been concentrated chiefly on control in urban areas, and the disease has almost disappeared in those places where treatment has been most intense. In 1955, spraying operations covered some eight million square metres of malarious country, and about 190 000 dwellings.

The fight against trypanosomiasis is continuing. The tsetse fly is one of the most complex problems in Mozambique, since about 400 000 square kilometres of the territory are infested with Glossina palpalis. A special body has been set up for the control of both human and animal trypanosomiasis.

Smallpox is not a public health problem. Only a few cases are recorded each year, and large-scale vaccination is carried out; during the past five years, six million persons have been vaccinated or re-vaccinated, 1 150 000 in the last year alone.

Both vesical and intestinal bilharziasis are widespread; 26 679 carriers of the former and 789 of the latter were treated in 1956.

Large-scale campaigns are being conducted against yaws, venereal diseases and mycosis. In the latest yaws control campaign 31 195 patients were treated.

Ninety per cent. of the indigenous population suffer from helminthiasis. Measures adopted in an effort to control these infestations include continuous anti-parasitic measures, health education, and improvement of diet.

There is a good maternity service in Mozambique, but it needs to be developed in order to become even more efficient and useful. The first hospital delivery in the Province was recorded in 1899, but not until 1922 were any steps taken to organize maternal and child welfare services, and the first pre-natal services started in 1927. Since then, assistance to mothers before and after child-birth has gradually increased, and in 1955, 34 217 pre-natal and post-natal visits were recorded.

Many rural areas have sanitation facilities and water-supply systems. The installation of latrines has been undertaken on a large scale in rural areas. The inhabitants are shown how to construct them.

Health education campaigns among the African population aim at improving environmental sanitation and encouraging the development of new housing schemes. Great efforts are being made to raise the standard of living of the African population, particularly their nutritional status and level of personal and collective hygiene, and the preventive and curative health services are contributing to the success of these efforts.

FEDERATION OF NIGERIA

Nigeria, situated in West Africa, is bounded on the south by the Gulf of Guinea, on the west and north by Dahomey and French Niger and on the east by the Cameroons under French administration.

A belt of mangrove swamp 16 to 96 kilometres wide lies along the whole sea coast. To the north there is a zone 80 to 160 kilometres wide of tropical rain-forest and oil-palm bush. North of that again the land rises and becomes open woodland and savannah. In the extreme north the country is almost desert. There are few mountains in Nigeria except along the eastern boundary.

The climate varies according to these zones, but everywhere it is tropical and temperatures are high; humidity is high at the coast and falls off northward. The rainy seasons is from May to October; the annual rainfall ranges from under 65 centimetres in the extreme north to 380 centimetres on the eastern coastline. During the dry season the hot and dusty harmattan blows from the desert in the north.

Including that part of the Cameroons which is a trust territory administered by the United Kingdom as part of Nigeria, the area is about 995 500 square kilometres. Nigeria is divided into the Northern Region, the Eastern Region and the Western Region, with regional headquarters at Kaduna, Enugu and Ibadan. In 1954, the country became a Federation; the Federal Capital is at Lagos, which, including the Lagos Islands, forms the Federal Territory. The total population at the 1952-53 census was 31 200 000, divided between the Northern Region (16 800 000), the Eastern Region (8 000 000), and the Western Region (6 400 000). The Federal Territory of Lagos had a population of 312 000.

There is a Council of Ministers for the Federation and Executive Councils for the three regions and for the trust territory of the Southern Cameroons. Local government is the main responsibility of a large number of indigenous administrations.

The economy of Nigeria is predominantly agricultural. The principal farm crops are cassava, yams, guinea corn, millet, cocoyams and maize. The chief tree crops are palm kernels and cocoa. About 96 per cent. of the livestock is found in the Northern Region. The cattle are kept partly by nomads and partly by more settled people who, according to the season, migrate only between the savannah and river grazing-grounds. Mass immunization of livestock is necessary to keep down disease. Forestry is productive only in the coastal rain-forest.
The smaller trees of the savannah are necessary for soil conservation.

The principal mineral products are coal, tin ore and columbite. The Geological Surveys Department has recently investigated coal-fields, iron ore deposits, columbite, limestone and groundwater. Further deposits of columbite were found.

The increasingly favourable trade of recent years and grants from the United Kingdom Colonial Development and Welfare Fund have greatly helped economic development. An economic programme of the Government of the Federation of Nigeria 1955-60 was approved by the House of Representatives in 1956. The programme makes a capital provision of £2,591,000 (US $7,254,800) for 1956-60 with resultant additional recurrent expenditure of £2,711,000 (US $7,578,000) per annum.

Each Region has a Director of Education who, under the regional Minister for Education, supervises generally the work of the regional Department. Primary education is the responsibility of indigenous authorities, local government councils, and voluntary agencies (mostly missions). In the Western Region universal free primary education came into effect in January 1955, and the Eastern Region will soon follow suit.

Handicraft centres give training for senior classes in primary schools and part-time trade or craft training for adults. Trade centres provide courses of from three to five years’ duration for selected apprentices who have completed primary school education.

At the Nigerian College of Arts, Science and Technology, professional training was proposed (1954) for civil, mechanical, electrical and mining engineers, architects, land surveyors, pharmacists, secretaries, accountants and specialist teachers. The University College, Ibadan, comprises faculties of arts, science, agriculture and medicine and has over 500 students in four residential colleges. A large number of students, some private and some officially sponsored, study overseas.

The Adult Branch of the Education Department aims at promoting adult literacy and civic consciousness, and at producing visual aids, literature, and practical demonstrations.

The West African Institute of Social and Economic Research was set up in 1950. Its headquarters are attached to University College, Ibadan, and its aim is to co-ordinate social and economic research in British West Africa.

The communities range from large towns to villages and there are some nomadic tribes in the north. Adobe construction is still the most common for buildings outside the larger towns. In several areas villages are being replanned and there are building plans and regulations for most of the towns. Development grants are used for self-supporting housing schemes. Advice is obtained from the building research stations at Watford, England, and at Accra, Ghana, and the Tropical Testing Establishment, Port Harcourt. Modern building techniques are taught in trade training centres.

There are various seasonal movements of labour. Farmers go to the towns to work for short periods and return to their farms. Well-paid seasonal work, such as cocoa harvesting, draws unskilled labour from the towns and leaves some urban areas short of labour for building and road-making. There are also movements of labour in the timber industry in the Western Region and in tin mining in the Northern Region. Nigerian labour is recruited for work in the Spanish territories of the Gulf of Guinea and in Gabon in French Equatorial Africa.

Health

Since the adoption of the Constitution of the Federation of Nigeria on 1 October 1954, the medical services have been decentralized into four separate services: the Federal Medical Service, and those of the Western, Northern and Eastern Regions. The Federal Medical Department is under the direction of the Chief Medical Adviser, who is responsible to the Federal Minister of Social Services, and is assisted by a deputy. In addition to services for the whole of the Federation, the Federal Ministry is also responsible for the health services of the Federal Territory of Lagos and of the trust territory of the Southern Cameroons, which is under the direction of a principal medical officer. In 1955 the staff of the federal medical services included a chief pathologist for the federal laboratory service, a senior pathologist for the forensic science laboratory, a senior malarialogist for the federal malaria service, a chief pharmacist, a medical statistician, an adviser on nutrition, a principal matron, a port health officer (Lagos and Ikeja), an airport medical officer (Kano, Maiduguri and Calabar), and a senior medical officer for Lagos Territory.

In each region there is a Director of Medical Services, assisted by a Deputy Director, a senior health officer and a matron. The Director of Medical Services is responsible to the regional Minister of Health, who in turn is responsible to the Executive Council of the regional government.

The local unit of administration in each region is the medical area, which usually coincides with one or more administrative divisions. It is based on a general hospital and is in the charge of a medical officer responsible for both medical and health work in his area. Medical areas are grouped into medical divisions which cover two or more provinces and are under the charge of senior medical officers.

Since 1954, the three regional governments have been virtually autonomous in medical and health matters and publish their own separate annual reports. The Federal Government, however, retains exclusive legislative powers over the following subjects, which have a bearing on health: the census; the University College Teaching Hospital at Ibadan; the School of Pharmacy; port health work and quarantine at seaports and international airports; and external relations. The regional governments have legislative powers concurrent with those of the Federal Government, which, however, has over-riding powers whenever federal and regional legislation conflict, on the subjects of the control of dangerous drugs; prisons and other institutions for the treatment of offenders; quarantine; scientific research; statistics; and professional qualifications of personnel in medicine, dentistry, veterinary medicine, pharmacy, nursing and midwifery.
Training facilities under federal control for medical personnel comprise the following: the Faculty of Medicine at University College, Ibadan; the School of Pharmacy; the School of Dental Technology; the School for Dental Hygienists; the School of Radiography; the School of Physiotherapy, and the School of Medical Laboratory Technology. In addition to these institutions, which accept students from the whole Federation, the regions have their own training facilities for nurses, midwives, sanitary inspectors and health visitors. The training syllabus and examination of nurses and midwives are, however, federally controlled by the Nigerian Nursing Council and the Midwives Board respectively.

University College, Ibadan, which is in special relationship with London University, provides a three-year pre-clinical course for medical students; the clinical course, also lasting three years, is at present taken at London University and leads to the London M.B., B.S. degrees. Clinical teaching was to be undertaken at Ibadan on completion of the University College Hospital in 1958, with an expected annual output of about 50 doctors. In addition, there were 60 medical students studying abroad in 1955 on government scholarships.

The School of Pharmacy of Yaba, Lagos, has an annual intake of 40 students, and offers a three-year course with a syllabus almost identical with that used for the pre-1948 qualification (M.P.S) of the Pharmaceutical Society of Great Britain. It is proposed in 1958 to transfer this school to the Nigerian College of Arts, Science and Technology, which will teach a four-year syllabus leading to the B. Pharm. degree. The Yaba school will then train a lower grade of dispensing assistants.

The School of Dental Technology was enlarged in 1955, and now accepts 20 students. It is the only school of its kind in West Africa and trains in a three-and-a-half year course to a standard a little above that of the Intermediate London City and Guilds examination. A School for Dental Hygienists—the first of its kind in West Africa—was approved in 1955 and was expected to open in 1958 upon completion of building.

The School of Radiography trains x-ray technicians for the whole of Nigeria; the course lasts three and a half years and accepts 35 students. The School of Medical Laboratory Technology also trains students for the whole country; in 1956 the Institute of Medical Laboratory Technology in London approved the teaching syllabus and agreed to hold its intermediate examination in Lagos.

There are preliminary training schools for nurses and midwives at Lagos, at Ibadan (two, one being that of University College Hospital) in the West, at Kano and Wusasa in the North, at Enugu, Aba and Iyi-eniu in the East, and at Victoria in the Southern Cameroons.

Hospital training for successful student nurses is given at two hospitals in Lagos, 13 in the Northern Region, 15 in the Eastern Region, 12 in the Western Region, and two in the Southern Cameroons. These 44 hospitals, which are approved by the Nursing Council and the Midwives Board, train a total of about 500 nurses and midwives annually. Each region, and Lagos, has its own School of Hygiene for the training of sanitary inspectors and health visitors. The West African Examination Board of the Royal Society of Health holds annual examinations for the Society's Certificate in Lagos and Kano.

Government medical and health staff in 1956 were as follows:

<table>
<thead>
<tr>
<th></th>
<th>Lagos</th>
<th>Northern Region</th>
<th>Eastern Region</th>
<th>Western Region</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical officers</td>
<td>68</td>
<td>73</td>
<td>66</td>
<td>66</td>
<td>273</td>
</tr>
<tr>
<td>Dental officers</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>Nurses and midwives</td>
<td>531</td>
<td>416</td>
<td>461</td>
<td>592</td>
<td>2000</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>58</td>
<td>53</td>
<td>74</td>
<td>47</td>
<td>232</td>
</tr>
<tr>
<td>Laboratory technicians</td>
<td>13</td>
<td>18</td>
<td>10</td>
<td>11</td>
<td>52</td>
</tr>
<tr>
<td>Radiographers and physiotherapists</td>
<td>11</td>
<td>6</td>
<td>7</td>
<td>2</td>
<td>26</td>
</tr>
</tbody>
</table>

The total estimated expenditure on federal medical and health services for the fiscal year 1 April 1956 to 31 March 1957, was £1 201 860 (US $3 365 208). In addition, for the same period, the health expenditure under the economic programme, which includes the building of three new dispensaries, three maternal and child health and school clinics, a new general hospital of 600-bed capacity, a new 150-bed maternity hospital and training facilities for radiographers, dental technical assistants, dental hygienists, assistant physiotherapists and medical laboratory technicians, etc., amounted to £205 350 (US $574 980). Excluding the expenditure under the economic programme, the amount spent for health in the year 1956/57 constituted about 4 per cent. of the total estimated revenue of the Federal Government and amounted to approximately £4.9 (US $13.72) per head of population of the Federal Territory of Lagos. The corresponding figure for the year 1955/56 was approximately £4 (US $11.20). The health and medical expenditure for the Western Region, for the year ending 31 March 1957, was £1 463 700 (US $4 098 360), amounting to approximately 4.6 shillings (US $0.64) per head of the population of the region and about 10 per cent. of the total estimated revenue of the region. Medical expenditure in the Eastern Region was 2.6 shillings (US $0.36) per head of the population, and 1.5 shillings (US $0.21) per head in the Northern Region. These figures do not of course include expenditure by missionary
and other non-governmental bodies, which play an important part in the medical services of the Federation.

Hospital facilities available in 1956 are shown in the following table.

<table>
<thead>
<tr>
<th>Region</th>
<th>Government hospitals</th>
<th>Mission and private hospitals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>beds</td>
<td>number</td>
</tr>
<tr>
<td>Lagos</td>
<td>7</td>
<td>1067</td>
<td>24</td>
</tr>
<tr>
<td>Northern Region</td>
<td>30</td>
<td>3390</td>
<td>16</td>
</tr>
<tr>
<td>Eastern Region</td>
<td>29</td>
<td>1907</td>
<td>38</td>
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<tr>
<td>Western Region</td>
<td>32</td>
<td>2560</td>
<td>27</td>
</tr>
<tr>
<td>Southern Cameroons</td>
<td>6</td>
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<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
<td>9306</td>
<td>118</td>
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</table>

According to the 1956 annual report of the Federal Medical Service, among the communicable diseases of Africans treated in the clinics and hospitals in Lagos, malaria, acute infection of the respiratory system, intestinal helminthiasis, tuberculosis, dysenteries and venereal diseases were common. Accidents, poisonings and violence accounted for some 26,000 hospital cases in the Federal Territory of Lagos. In the Western Region, although smallpox was still endemic, no serious epidemics were reported in 1956. A yaws control campaign was carried on successfully in Ondo and Benin provinces by three medical field units. At the end of 1956 there were 70 treatment centres for leprosy in the Western Region, with about 7000 patients.

The Federal Medical Service has an active malaria service, under the direction of a senior malarialogist, carrying out malaria surveys and a malaria control pilot project (in Western Sokoto), making investigations of sickle-cell trait and chemotherapeutic trials, and preparing plans for a malaria eradication pilot project in an area of the Eastern Region. The tuberculosis service of the Federal Medical Service has similarly carried out important work in the Lagos area, as well as liaison work with the regional medical services, each of which has a tuberculosis medical officer. The tuberculosis mortality rate in the Lagos Territory was 45.0 in 1955 and 35.6 in 1956 per 100,000 population. Among 150,000 persons examined with mass miniature x-rays in Lagos in 1955, a rate of five active tuberculosis cases per 1000 was found. In the same year a total of 27,000 tuberculin tests and 8000 BCG vaccinations were made in Lagos; similar facilities for tuberculosis control work are made available to the regions.

PORTUGUESE GUINEA

The Portuguese Province of Guinea lies on the west coast of Africa, between latitudes 10° 59' and 12° 20' north, and is made up partly of mainland and partly of islands—the Bijagos archipelago. On land it is bounded by Senegal (French West Africa) in the north, and by former French Guinea on the east and south. The total area is about 31,800 square kilometres, with a population of 540,690. The soil is rich and productive.

For administrative purposes, the province is divided into councils, and is under the authority of a Governor, who resides in Bissau, the capital.

Health

The structure of the health services is based on a Decree of 1945, under which the health services in the Portuguese overseas provinces were reorganized. The Central Health Department has technical and administrative supervision of ten district health services, 44 health units, the hospitals, aid posts and pharmaceutical services (to which is attached the Central Store of Pharmaceutical Supplies), the schools of nursing, and the special units for control of leprosy and other endemic diseases.

The activities of the medical services include: protection of the public health by preventive and curative measures; control of endemo-epidemic diseases — intestinal parasitic infections, treponematoses, bilharziasis, leprosy and tuberculosis; care of
The Department of Réunion, which is in the southern hemisphere 750 kilometres east of Madagascar, is one of the oldest French overseas territories. It is a volcanic island which was uninhabited until the arrival of a group of French mariners during the 17th century; it has an area of some 2500 square kilometres, and now has a population of more than 310 000.

In the past few years, however, efforts have been made to develop food crops and stock-breeding.

Improvements made in the existing facilities for medical and health care, and extension of their scope, are contributing to the reduction of some of the chief endemic diseases. Of particular importance in this connexion are the programmes for control of certain specific diseases already mentioned, and the work of the mobile health teams in carrying out health education campaigns in both urban and rural areas. There is a noticeable improvement in the standard of living of some categories of the population.

Progress is being made in housing and urban development. There is a marked increase in building under private initiative, and examples of urbanization include two new roads opened in the district of Farim, and the draining of swamps on the outskirts of the village. Elsewhere, village markets have been constructed, lighting systems and water supplies have been improved (including the boring of wells for potable water), and in urban areas septic tanks are being installed for the disposal of sewage.

RéUNION

The Department of Réunion, which is in the southern hemisphere 750 kilometres east of Madagascar, is one of the oldest French overseas territories. It is a volcanic island which was uninhabited until the arrival of a group of French mariners during the 17th century; it has an area of some 2500 square kilometres, and now has a population of more than 310 000.

The capital of the island is Saint-Denis. Réunion has a tropical climate tempered by the southern trade winds and by its altitude. The temperature varies between 18° and 20° C in June and 28° and 30° C in December on the coast, and falls as low as 5° C at night in June and July in the mountain valleys. Two-thirds of the island are so mountainous and barren that very little use can be made of them; the population is therefore concentrated in the relatively limited area where cultivation is possible.

There are few food resources, the main items of production being sugar-cane, perfume essences, and vanilla. In the past few years, however, efforts have been made to develop food crops and stock-breeding.

The acute population problem in Réunion is aggravated by the fact that the present annual excess of births over deaths is more than 14 000, while food resources, which are inadequate...
to meet the needs of the population, are only improving very slowly. The result is that a large proportion of the people are under-nourished and in poor physical condition.

Health

Since Réunion is a department of France, its administration — including its health organization — is identical with that of all metropolitan departments. ¹

Among the communicable diseases, tuberculosis presents one of the gravest health problems, and diphtheria and tetanus are very common. Cases of leprosy are still comparatively frequent, but this disease is not nearly such a serious problem in Réunion as it is, for example, in the French departments in the Caribbean area. Malaria has been practically non-existent in the island for several years.

The infant mortality rate is about 96; this high rate is chiefly due to the effect of nutritional diseases, intestinal parasitic infections and contagious diseases on a population which is under-nourished and, consequently, in a deficient physical condition.

¹ See under France, (European Region).

FEDERATION OF RHODESIA AND NYASALAND

The Federation of Rhodesia and Nyasaland covers an area of 1,262,986 square kilometres, including Lake Nyasa (31,100 square kilometres). The land is bordered on the south by the Union of South Africa; on the west by Bechuanaland; on the north-west by Angola; on the north by the Belgian Congo and Tanganyika, and on the east by Mozambique.

Although the entire Federal area lies within the tropics, most of Southern and Northern Rhodesia is at an altitude ranging from 1,000 to 1,700 metres above sea level. Except for the Lake littoral and the Shire valley, the elevation of Nyasaland varies between 800 and 2,000 metres. Over a great part of these areas, therefore, climatic conditions are favourable. The principal rainfall throughout the Federation is limited to a season extending from November to March.

The population estimate at mid-1956 was 7,281,300.

The Federation is under a Governor-General, and the territories forming it have their own governors.

The most important single food crop is maize. It forms the staple diet of a large proportion of the Africans and is also used widely for animal food. Tobacco is the most valuable cash crop in the Federation, and tea comes next. There is a cattle population of some 4.3 million, a high percentage being owned by Africans. Large areas of the country are still unsuitable for cattle-raising because of the presence of the tsetse fly.

The Education Departments of the territories control a number of schools of various types, but several primary, secondary and teacher-training schools, trades and domestic training establishments, are managed by the missions, local authorities and by commercial enterprises. A university has now been established in Southern Rhodesia.

Great emphasis has been laid on hospital construction. A modern 450-bed hospital has been built at Saint-Denis; a sanatorium with 200 beds is now being built and is due to open early in 1959. Construction of a new psychiatric hospital has been decided upon and is due to begin in 1959. Improvements are still needed in the other hospitals of the department, particularly those of Saint-Pierre and Saint-Paul, which are the largest towns after Saint-Denis.

In planning improvements needed in the health services, other matters of urgent priority include the building of more health centres and expansion of the scope of their services; mass vaccination against smallpox, diphtheria, tetanus and typhoid; and intensified control measures against tuberculosis, particularly by systematic case-finding and BCG vaccination.

Further development of environmental sanitation in the urban areas is also needed, especially the improvement and expansion of existing water-supply systems and the construction of new ones. A sewage-disposal system for the town of Saint-Denis is under construction.

The two Rhodesias are served by the Rhodesian Railways, which connect with the South African Railways at Mafeking. The total length was about 4,023 kilometres in 1953. An important new line, 644 kilometres long, links the midlands of Southern Rhodesia with Portuguese East Africa. Nyasaland is served by its own railway system, nearly 805 kilometres long, which connects the country with the port of Beira in Mozambique.

Main roads connect all the principal centres of the Federation with one another and with the adjacent territories. The total road length is about 85,280 kilometres, of which 17,700 kilometres are designated main roads. An airline operates within the Federation as well as linking it with important surrounding territories and London. There are international airports at Salisbury and Livingstone.

Health

The national public health service of the Federation provides for medical and public health services in all
areas outside the municipalities. In the larger municipalities the local authority maintains its own staff of medical officers of health, health inspectors and health visitors. It is also responsible for running the infectious disease hospitals with financial assistance from the Federal Government. Smaller municipalities often have their own health inspectors, with a part-time medical officer of health, or they may rely on the Federal Government to provide the services. In all the towns and other centres the Federal Government operates directly its own hospitals independently of the local authority. In 1954 the proportion of the total budget allotted to health was 11.3 per cent.

The Federal Ministry of Health appoints a Regional Director of Medical Services in each of the three territories. Each Director has a staff of provincial medical officers in charge of the provincial areas outside the municipalities. In Southern Rhodesia these medical officers have public health qualifications and are separate from the clinical and hospital staffs. They are responsible for the medical inspection of schools, control of infectious disease, advice on environmental sanitation, vaccination and inoculation campaigns, and control of food, milk and water supplies. In Northern Rhodesia and Nyasaland the provincial medical officers, in addition to the above-mentioned duties, also have oversight of the curative and hospital facilities in their areas. All district medical officers have preventive functions as well as curative work in their areas, and health education forms an important part of their duties.

There were 633 hospitals in the Federation in 1956, including 422 government hospitals, 192 State-aided mission hospitals, six local authority hospitals and 13 mining and private hospitals. In 1956 also there were 994 registered doctors in the Federation. In Southern Rhodesia alone there were 2443 nurses, 1155 midwives and 304 pharmacists.

No facilities exist for medical training, but scholarships are available for medical schools abroad. Europeans can be trained as laboratory assistants at three centres, leading to a qualification equivalent to "laboratory technician" in Great Britain. In 1956, 73 nursing orderlies and 14 health demonstrators passed their examinations in Southern Rhodesia, and 14 hospital assistants qualified in Northern Rhodesia. Medical aids, health, midwifery, and nursing assistants are trained in Nyasaland, and various other hospital and nursing auxiliaries are trained in Northern Rhodesia.

A campaign for malaria control, using residual insecticides, has been in progress in Southern Rhodesia since 1947, and it now covers the greater part of the area. Pilot projects using the same techniques have been started in special districts in Northern Rhodesia and Nyasaland. There has been increased emphasis on anti-tuberculosis work in all three regions and special trials are being made with vole bacillus vaccine in co-operation with copper-mining companies in Northern Rhodesia. In Southern Rhodesia, where the tuberculosis problem is serious, the number of hospital beds for tuberculous patients has been increased by facilities and staff provided by the Federal Government, the local authorities and approved medical missions.

Work has also been proceeding in the campaign against bilharziasis, especially in Southern Rhodesia, through the organization of area control of snail vectors, and the supply of oral drugs for the mass treatment of African labourers on the farms.

In Southern Rhodesia increased facilities have been provided by the Government in co-operation with local authorities for better hospital care of complicated maternity cases. In urban areas this provision is now being used to an increasing extent by African women, even for normal confinements. In the two northern territories the village midwife tradition persists, and efforts are therefore made to provide the village midwives with simple training and equipment. All medical institutions are encouraged to organize maternity and child health clinics. The school medical service has now been incorporated within the provincial health organization, thus making for wider and more economical use of medical staff.

A number of pamphlets, films and filmstrips have been prepared for health educational purposes on nutrition, malaria, bilharziasis, general sanitation, rural water supplies, and leprosy. They are used in schools, women's clubs and other village meeting-places. The African broadcasting station at Lusaka has some programmes on health education, and a number of playlets are performed from time to time in the vernacular languages used in the Federation. In the press, health education of the public is restricted to short cartoon treatment of health problems. Films on health subjects are shown from the mobile units touring through the African townships and rural areas.

The housing situation is at present difficult, largely owing to the annual immigration of 15 000-20 000 Europeans. In the urban areas rents form a big proportion of the family expenditure. During the period 1954-56 a great effort has been made to meet the shortage of accommodation by the erection of blocks of flats, and by low-cost, high-density housing schemes. African housing has been much improved by the work of the territorial governments and the local authorities.
RUANDA-URUNDI

Ruanda-Urundi is bounded on the north by Uganda, on the east and south by Tanganyika, and on the west by the Belgian Congo. Usumbura is the capital. The territory is united administratively with the Belgian Congo, of which it forms a separate Vice-Government General. It has a separate legal status and its own budget. Ruanda-Urundi has a total area of 54,172 square kilometres and is the most densely populated area in Central Africa, with an average of 81 inhabitants per square kilometre. The total population in 1956 was estimated at 4,415,595. The indigenous population, representing over 99 per cent. of the territory's total population, comprises three main ethnic groups: the Batwa, the Bahutu and the Batutsi. The Batwa, who are pygmies of relatively unmixed blood, are assumed to be the earliest inhabitants; they engage primarily in hunting, make pottery and are gradually taking up agriculture. The Bahutu, negroes of Bantu origin (representing 84 per cent. of the population), are mainly farmers who are beginning to take up cattle-breeding; they are healthy and have a high birth rate. The Batutsi, of Hamitic and Nilotic origin, are remarkable for their size and stature; they are primarily shepherds. There are also other groups, such as, for example, a few thousand Waswahili and Wabwari.

The Territory is governed, under a system of indirect administration, by a Belgian administration headed by a Governor, who also bears the title of Vice-Governor-General. Legislation is normally enacted by the administering authority in Belgium; emergency legislation of temporary validity can be adopted by the Vice-Governor-General and by the Governor-General of the Belgian Congo. Ruanda-Urundi is divided into two indigenous states, called pays, each of which has a Mwami at its head. Each state is divided into districts administered by chiefs and sub-districts administered by under-chiefs. Councils have been established at the levels of sub-chiefdoms, chiefdoms, districts and states, which must be consulted on all matters of concern to their areas.

The economic activities of the territory are mainly centred around agriculture and stock-raising, with some mining. The principal exports are coffee, ores and metals, livestock, cotton and hides.

The number of schools, both State and privately subsidized, for indigenous inhabitants, as well as school attendance, has appreciably increased during recent years, and a third-year course has been established at the inter-racial boys' school at Usumbura. In 1955, 21 Africans from Ruanda-Urundi were studying overseas; this number rose to 30 in 1956. A pre-university institute was opened in 1955 and admitted 21 pupils during that year.

Health

The health services of the territory are administered by one senior and one assistant medical officer, and auxiliary staff. The health services consist of a medical assistance section responsible for general medical and hospital care in urban and rural areas, and a public health section in charge of environmental sanitation, preventive medicine, medical research laboratories and medical education and training.

The territory is divided into a number of medical sectors, each provided with a hospital and a network of dispensaries. At the end of 1956, there were 55 hospitals (government, mission and private) and 135 dispensaries, served by 70 doctors, four dentists, 39 medical auxiliaries, 80 female nurses and midwives, two x-ray technicians, and five pharmacists. Sixteen per cent. of the 1956 budget was earmarked for health services. There were 773 qualified indigenous staff, of whom 93 were medical assistants and 183 were male nurses.

The following students were attending medical training schools in 1956: 74 as medical assistants, 249 as male nurses, 10 as sanitarians, 18 as nurse-midwives, 57 as assistant midwives, and 64 as male nursing aides.

Important public health achievements in 1956 included: malaria control by residual spraying throughout the territory (one million dwellings are sprayed twice a year); a mass campaign against tuberculosis by BCG vaccination; leprosy control; improvement of the drinking-water supply by the installation of wells or water-points, which at present serve 2,770,000 inhabitants; and revaccination of the entire population against smallpox.

In maternal and child welfare, 190,481 consultations were registered in 1956 at 41 ante-natal clinics; 59,896 infants were registered at 61 child-care clinics, to which 1,356,668 visits were made.

Health education of the public is promoted mainly in the schools and with the help of posters displayed at the dispensaries.

Research work is being conducted on nutritional problems—especially kwashiorkor—at the government laboratory in Usumbura; the Astrida laboratory is studying rickettsial and virus diseases, tuberculosis, salmonella, typhus and shigella in co-operation with the Antwerp Institute for Tropical Medicine; and the laboratory of the Institute for Scientific Research in Central Africa is carrying out a biometric and nutritional study (the Rwaza pilot project).
ST HELENA AND DEPENDENCIES

The island of St Helena lies in the South Atlantic Ocean, 1535 kilometres south of the equator, in latitude 15° 55′ south and longitude 5° 42′ west. The nearest point of the West African continent is 1825 kilometres distant. It is of volcanic origin and contains many rugged mountains, interspersed with ravines. The south-east trade winds keep the climate cool and equable. Before the Suez Canal was opened, St Helena was a well-known port of call for ships bound to India from Atlantic ports, and it was probably used for the refitting of ships. It has an area of 121 square kilometres, and at the census taken in 1956 the population was 4642.

St Helena is administered by a Governor, who is responsible to the United Kingdom Government, and is assisted by an Executive and an Advisory Council. All ordinances are made by the Governor.

The economy depends on agriculture, the principal crops being flax, potatoes and other vegetables. The cultivable area is small. Electricity is available in Jamestown but not elsewhere in the island. There are few raw materials; part of the island’s food supply and all other consumer and capital goods are therefore imported. The adverse balance of trade has been aggravated in recent years by a heavy fall in export prices and by rising costs. The only industry is the export of phormium tenax as hemp and tow, and a small amount of rope and twine is also manufactured. There are five mills engaged in this process, but only three were in operation in 1958. Special attention is paid to soil conservation and agricultural development, and £82 000 (US $229 600) were allocated from Colonial Development and Welfare Fund for this purpose for the period 1955-60. Of the total area, 2.6 square kilometres are arable, 15.5 square kilometres are suitable for growing permanent crops, 18 are meadow or pasture, and less than 2.5 square kilometres are woodland or forest land.

Education is free and compulsory between the ages of 5 and 15. Practically the whole population is literate.

Most of the people live in reasonably satisfactory simple rural conditions. Water supplies are adequate; measures are being taken to prevent pollution and to improve domestic sanitation in rural areas. Assistance is provided by the Government to enable people to build their own homes, to extend existing ones, and to effect repairs.

Health

The Public Health Department is administered by a Senior Medical Officer advised by a Board of Health. Of the total 1958 budget, 11.6 per cent. was devoted to expenditure on health. Health personnel in the same year consisted of two registered physicians, one dentist, three nursing sisters, eight nurses, three orderlies, and two sanitary and health auxiliaries. Provision is made for a health sister, but the post was vacant in 1958.

Most of the medical and nursing staff are trained overseas. Sanitary assistants are trained by the sanitary inspector, and a scheme was started in 1954 for training midwives for work in rural areas. A semi-official body called the “Midwives and Nurses Board of Control” has been set up for the purpose of considering the non-statutory control of the training and registration of local hospital nurses. In 1954 a St Hellenian sister returned to the island on appointment, after qualifying as State Registered Nurse and midwife in the United Kingdom. There is a branch of the British Red Cross Society in the island.

A new hospital with 38 beds and modern electrical equipment was completed in 1956. Other hospital facilities in the island include a mental hospital and a station for leprosy patients (although the latter has not been used for many years, since the disease has died out). There is a school dental service and five rural health centres. The medical officers and the health sister hold various types of clinics at these centres and at the out-patient department of the hospital, including ante-natal and child welfare clinics.

General health is good. The principal causes of death are degenerative heart diseases, associated with old age, and cancer. Roundworm infestation is common in children in some areas, and in 1958 an eradication campaign was started by the provision of chemical closets in the most badly infected area. The reputed low incidence of tuberculosis was confirmed by a WHO consultant, who visited St Helena in 1958 and reported a low immunity to this disease.

The island is far distant from any other resources and from time to time the Medical Department has to deal with serious cases of illness on ships that call at the island, including major surgery.

Ascension

The island lies some 1100 kilometres north-west of St Helena in latitude 8° south and longitude 14° west, and was made a dependency of St Helena in 1922. It has an area of 83 square kilometres, and its rough basaltic hills reach nearly 900 metres above sea level. The climate is kept cool by the south-east trade winds. There is little vegetation apart from a small area on Green Mountain, on which there is a farm which provides the inhabitants with food. The local supplies are supplemented by imported food. The population at the end of 1957 was 434, most of whom are employed by Cable and Wireless Ltd. The principal settlement is Georgetown.
Ascension is administered by the Government of St Helena, through the local manager of Cable & Wireless Ltd., who has magisterial powers. Another officer of the Company is appointed a Justice of the Peace. There are two St Helenian police constables. Cable & Wireless Ltd. maintain radio and telecommunications between Africa and South America. Since November 1955 there has been a radio-telephone service to the United Kingdom.

A medical officer, employed by Cable & Wireless Ltd., is responsible for the health of the population.

Tristan da Cunha

Tristan da Cunha, a dependency of St Helena since 1938, is one of a group of islands in the South Atlantic Ocean about 2400 kilometres south-west of St Helena, in longitude 13° west and latitude 38° south. Tristan is a volcanic peak, rising to over 200 metres above sea level. The climate ranges from cool to cold. It has an area of about 100 square kilometres, and at the end of 1957 the estimated population was 290.

The island is in the charge of an Administrator appointed by the Governor of St Helena, assisted by an Island Council.

After whaling and sealing died out at the end of the last century, the island remained almost isolated until 1949, when a South African fishing company was granted a concession to establish a fishing industry there. There is now a substantial export of tinned and frozen craw-fish. Since 1952 the island has gained some revenue from the sale of postage stamps. Living conditions have improved with the rise in prosperity and the advent of an agriculturalist, who is maintained by the fishing company. Connexion with South Africa is provided by the company's vessels.

The fishing company employs a doctor and a qualified nurse to look after the health of the inhabitants, and also provides a qualified teacher for educational purposes.

SÃO TOMÉ AND PRINCIPE

The Portuguese Province of São Tomé and Principe consists of the two islands of São Tomé and Principe and some smaller islands, lying in the Gulf of Guinea in the Atlantic Ocean, with a total land area of 964 square kilometres, of which São Tomé occupies 854. The islands are of volcanic origin.

The estimated population in 1955 was 61,882. The island and city of São Tomé is the capital and the seat of the Governor. For administrative purposes, the province is divided into councils under the charge of an administrator.

The soil is fertile, and coffee, cocoa, palm oil, groundnuts and copra are produced.

Health

The health services are organized on the basis of a Decree of 1945 relating to the reorganization of health services in the Portuguese overseas provinces. A central Health Department directs and supervises two district health services — one in each island —, ten health units, the Central Hospital in São Tomé, the Regional Hospital in Principe, a tuberculosis dispensary, and a nursing home. Some agricultural undertakings run private hospitals and dispensaries for the medical examination and care of their workers. In 1956, there were 60 private hospitals and other health establishments. Medical care of workers is provided free in the government hospitals and other health establishments.

In 1956, the staff of the health services was as follows: 13 physicians, 208 male nurses, six midwives and seven pharmacists.

The sum earmarked for health services represented 8.37 per cent. of the total government budget in 1954 and 7.49 per cent. in 1956. These percentages refer exclusively to the amounts set aside for running the services; costs of construction and equipment of hospitals and other establishments are met from another fund.

One of the most important public health achievements has been the tuberculosis control campaign. In 1952, a tuberculosis control centre was set up, together with a case-finding and BCG vaccination service, and a mass campaign was started, which included x-ray examination, tuberculin-testing, and BCG vaccination. A new ward for the in-patient treatment of tuberculosis patients was established at the Central Hospital in 1955.

Encouraging results have been obtained in the control of malaria by means of house-spraying with residual insecticides, and treatment of swamps with malirol.

The tsetse fly, which was eradicated from the island of Principe in 1911, was again found to be present in 1956, and a special service was established to take immediate control measures.

The government health personnel impart health education to the people, to help them to raise their standard of hygiene and improve their nutritional habits, thereby defending themselves against the prevalent endemic diseases.
There is a school for auxiliary male nurses, with a training course of two years.

Plans are being concluded for the urban development of the populated localities of Taindade, Guadalupe, Neves, Madalena, São João dos Angolares, Bombom, Santo Amaro, Santo António do Principe and Santana.

These plans include the construction of roads, water supplies and sewage-disposal systems, the installation of electricity, the building of schools, public utilities, health units, shopping centres, and houses for government officials. Work is to begin in 1958 in the first five of the localities.

**SEYCHELLES**

The Seychelles are a group of 92 islands in the Indian Ocean, with a total area of 405 square kilometres. The climate, in spite of the latitude (4° south of the equator) is equable and the islands are healthy. The estimated population in 1956 was 40,417, of whom 10,000 lived in Victoria—the only town—situated on the principal island of Mahé. The rest of the population is distributed over the rural areas, with slight aggregation at the 14 different parish headquarters. Over a thousand plantation labourers and their families live in the outlying islands.

The Seychelles are primarily dependent on agricultural exports, copra and essential oils. Coco-nut plantations are estimated at 29,000 acres (11,735 hectares), cinnamon plantations at 12,000 acres (4,856 hectares), and there is grazing land in most areas.

Primary education is free. In 1954 about 75 per cent. of the child population were enrolled in primary schools. For those who complete the primary course satisfactorily, free education for another three years is available. Vocational training is given in a technical training centre. Training in domestic science is provided at the two government modern schools and at the girls' secondary school.

So far as vital statistics are concerned, all births and deaths are registered; all deaths, except a very few occurring on outlying islands, are also certified by medical officers. Compilation of vital statistics is undertaken by the medical officer of health from data provided by the chief civil status officer. The following rates were recorded for 1956: birth rate, 36.9; death rate 11.5; and infant mortality rate, 54.2.

Medical care is provided in one general hospital with 126 beds, three cottage hospitals with a total of 55 beds, one dispensary with two beds and two outpatient dispensaries. There is, in addition, a mental hospital and a leprosarium, and a tuberculosis sanatorium has recently been completed.

Apart from the staff of the Medical Services mentioned above, there were the following medical and health personnel in the territory in 1956: five doctors; one dentist; four nursing sisters (religious); one sister tutor; 16 nurses qualified in general nursing and midwifery; two qualified male nurses; 17 probationer general nurses; three probationer male nurses, seven probationer midwives; one locally trained pharmacist.

A venereal disease control campaign was carried out between 1953 and 1956, and as a result syphilis is reported to have been eradicated, although gonorrhoea still remains. So far no malaria and trachoma cases have been reported. A programme of immunization against diphtheria, whooping-cough and tetanus was started in 1956. Rigid quarantine precautions exist against the infectious diseases, vaccination against smallpox and yellow fever being required from travellers.

A school health service has been established and it is hoped to cover all schools in the principal islands of the territory. Infant welfare clinics have been set up in rural areas, and it is planned to have one clinic in each health district.

With the object of improving environmental sanitation, a programme was initiated with assistance from WHO in August 1953. This included a morbidity survey to investigate epidemiological factors and the incidence of intestinal diseases.
SIERRA LEONE

Sierra Leone lies on the west coast of Africa, bounded by former French Guinea on the north and by Liberia on the east and south-east. The country is well watered and hilly, and the greater part is a plateau between 300 and 1000 metres above sea level. The climate is hot and moist, with an annual rainfall of more than 380 centimetres, the rainy period being between July and September. The capital is Freetown, one of the finest harbours in West Africa. The population estimate for 1956 was about two million, with 70,000 in Freetown, but there are no exact figures.

The chief agricultural products are palm kernels and palm oil, and the main food crop is rice. Forestry is being developed, and diamonds are found in the territory.

Health

Since 1953 the Minister for Health, Agriculture, and Forests has been responsible for health policy. The health services are administered by the Medical Director and his colleagues in the Health Department. On the whole, local government authorities are taking an increasing interest in the health services, but the administration of local services, such as health centres, dispensaries, and environmental sanitation, was handed over to the District Councils in 1954, and staff was assigned or transferred from the Medical Department for the purpose. Owing to problems of taxation and other difficulties, however, it has been decided that health centres and dispensaries should revert to the Medical Department in 1957, although the sanitary staff would still be assigned to the District Councils. At present the Health Department administers the hospital services, health centres and dispensaries, and is responsible for the control of epidemic disease, port sanitation and control of the quarantine group, and medical stores.

The staff of the medical and health services in 1956 included some 46 medical officers, 276 nurses and midwives, six dental officers, 21 radiographers and laboratory personnel, 72 pharmaceutical personnel and 79 other staff. Of the medical officers on the staff of the Medical Department, 19 were Sierra Leoneans.

Expenditure on medical and health services amounted to £456,097 (US $1,277,225) in 1954, and £564,887 (US $1,581,873) in 1956; this does not include expenditure on medical schemes under development plans, which by the end of 1956 amounted to £87,616 (US $245,354).

It is not possible to present accurate and up-to-date vital and health statistics for Sierra Leone, because only a very small proportion of the deaths are medically certified. Records of disease and death in the government hospitals, however, indicate the most important causes of morbidity and mortality. Infant mortality in Freetown in 1956 was 133, but no doubt the figure in the provinces is much higher.

There were in 1956 a total of 22 hospitals, with 936 beds and 117 cots. In addition, 42 health centres and dispensaries were distributed throughout the territory. Four of the five new provincial hospitals which were under construction have now been almost completed, but on account of staff shortage in the Public Works Department only two have been opened. A number of existing units are being extended, especially to provide additional services for the care of mothers and children. The last two of the 20 health centres built under the Colonial Development and Welfare Scheme were completed in 1956; unfortunately, owing to lack of staff, it was only possible to bring nine of these centres into use. The temporary tuberculosis hospital at Lakka (about 16 kilometres from Freetown) did good work during the period under review, but still awaits reconstruction and new equipment. The infectious diseases hospital at Lakka was not finished by the end of 1956, and alternative accommodation had to be found to serve the needs of the smallpox patients in a unit generally used as an annex to the Connaught Hospital in Freetown. In consequence of the interruption there was a list of over 2000 patients awaiting operation at the end of the year. Overcrowding in the Kissy mental hospital continues to increase, as in mental hospitals in most countries, and at the end of 1956 there were over 200 patients in accommodation intended for 110. Every effort is being made to develop home care of the mentally sick.

The principal diseases notified during 1956 included dysentery (2709 cases with four deaths), pneumonia (1023 cases with 17 deaths), and smallpox (946 cases with 19 deaths). As a result of the outbreak of smallpox, the port and airport of Freetown were declared infected under the International Regulations and remained so from August till the end of the year. Altogether, 612,880 persons were vaccinated against smallpox during 1956, 6924 of them in and around the airport as a special preventive measure. There were no cases of yellow fever during 1956, but 2293 persons were vaccinated against this disease.

Malaria is endemic in Sierra Leone, and control measures include the protection of Freetown by application of larvicides, supplemented by residual
spraying in the urban and rural districts of the town, and around the airport. Regular estimates of the Aëdes index are made in the neighbourhood of the port and of the airport.

A mobile endemic diseases control unit was formed during 1956 as part of a yaws control campaign in which UNICEF and WHO are assisting. A mass treatment campaign was carried out during the year in a pilot area, where 230 470 people (including 92 366 children) were examined and treated; the total number of active yaws cases found was 50 560, although this figure should be interpreted with caution. Apart from individual variation in the diagnosis of yaws, persons diagnosed as suffering from other diseases, such as tropical ulcer, may also have been treated and included in the number of cases. This mobile field unit brought medical services to many villages for the first time and received an enthusiastic response from the population; furthermore, valuable experience was gained by the members of the teams, and it is believed that such units will play an important part in bringing modern medical treatment — beyond the scope of the yaws control campaign — to the people living in the bush, who make up a large proportion of the population.

Progress in tuberculosis control has been made as a result of surveys carried out with the assistance of WHO. A leprosy control programme is also being planned.

As regards the maternal and child health services, there has been a steady increase of maternity cases admitted to the provincial hospitals, and the use and training of village maternity assistants have on the whole been satisfactory, although the facilities for maternity work are inadequate in many hospitals. In 1956, 53 girls successfully completed the course and were supplied with UNICEF midwifery kits for their work. There is an urgent need to build the maternity centres which are already planned for all hospitals. In Freetown, 57 per cent. of the births registered in 1956 took place in the maternity hospital (a record number of over 2000), and attendances at the ante-natal, post-natal, and infant welfare clinics amounted to over 45 000. The domiciliary midwifery service in Freetown has been in operation since 1954; owing to shortage of midwives progress has been slow, but gradual advances are recorded.

A school medical service has been in existence in Freetown for many years, but recently attendance at the school clinic has been so heavy that the clinic may be said to have become in effect a children's out-patient department of the main Connaught Hospital, and the medical officer in charge has been unable fully to carry out the normal duties of school inspection. More than 31 000 attendances were recorded at the clinic in 1956. Treatment is often made difficult by the fact that many young children between the ages of five and ten visit the clinic unaccompanied by adults and are unable to describe their symptoms accurately; they cannot be expected to understand the treatment instructions given them, nor can they be entrusted with medicines. Outside Freetown there is no special school medical service, but schools rely upon local hospitals and medical officers. A routine weekly visit by the school medical officer has, however, been instituted at one of the new health centres, where it was found that many children were coming for treatment.

There is no medical school in the territory; during 1956 four Sierra Leonean doctors were undergoing post-graduate training abroad. Nurses and auxiliary staff are trained locally. A Nurses Ordinance, establishing a Nurses Board and a register of nurses and nursing assistants, was enacted during 1956 with the object of raising the standard of nursing throughout the territory, and a Midwives Ordinance for registering and enrolling midwives and village maternity assistants with a similar object was also enacted. Nurses are trained at the Connaught Hospital in Freetown, and at Bo Hospital in the Protectorate. A nurses' hostel is under construction at Bo to accommodate female nursing students. Midwives are trained at the Maternity Hospital in Freetown. Dispensers are trained at the Connaught Hospital, and health inspectors in a school at Bo, where 36 students were enrolled in 1956; one of these students passed the examination of the Royal Institute of Health (West Africa).

In each province the Medical Department is building up teams, under a chief health superintendent, to organize sanitation and town planning. Sanitation in rural areas is generally primitive, and great difficulties have arisen in recent years on account of the lucrative development of alluvial diamond mining in some areas, with its attendant overcrowding, shack building, shortage of water, lack of latrines, and risk of imported infectious diseases.
SWAZILAND

Swaziland is bordered on the north, west and south by the Transvaal province of the Union of South Africa, and on the east by part of the Natal province and Portuguese East Africa. It forms three fairly well defined regions running north and south, descending from about 1500 metres in the west to 150 metres in the east, known as the high, middle and low veld. It is a well-watered subtropical country with considerable areas of good soil that could be good agricultural land under irrigation. The rainfall is irregular. The territory has an area of about 17,364 square kilometres and at the 1956 census the population consisted of 229,744 Africans, 1378 of mixed origin, and 5919 of European origin. The Swazis are of Bantu race, akin to the Zulu. They are an agricultural and pastoral people, living in small family kraals.

The territory is governed by a Resident Commissioner under the direction of the High Commissioner for Basutoland, the Bechuanaland Protectorate and Swaziland. For administrative purposes, the territory is divided into six districts, each in charge of a District Commissioner. The traditional system of government among the Swazi people is a Paramount Chief acting in conjunction with the Council, normally composed of the chiefs and leading men. The Paramount Chief and his Council have been formally recognized as the Native Authority for the territory and have power to issue to Africans in Swaziland legally enforceable orders on a wide range of subjects. Native courts and a Swazi National Treasury have been set up. There are four proclaimed townships, each with an Urban Area Advisory Committee.

The Swazis are essentially a pastoral people in transition to agriculture and largely content with subsistence farming. There are no manufacturing industries of any significance. The mining industry is an important feature of the territory's economy, and mining royalties and income tax from mining concerns ensure the balancing of the budget without grants-in-aid. Livestock production is increasing in importance and more crops are grown for export, although the territory is not yet self-supporting in food. Spectacular developments have taken place in recent years in commercial forestry and irrigation, in which both the Colonial Development authorities and private enterprise have taken important parts. In 1957, more than 164,000 acres (66,000 hectares) had been afforested.

The chief imports are general merchandise, building materials, motor vehicles, petrol, oil, etc., mining stores and groceries. The chief exports are asbestos, slaughter stock, fruit (fresh and canned), seed cotton, butter, rice and patulite. A sugar industry has now been established.

Education is not compulsory for African schoolchildren, but their enrolment in schools has increased by 241 per cent. in the past ten years, to 26,624.

Health

The Director of Medical Services is responsible for the administration of the government Medical Service; he is, ex officio, a member of the Protectorate European Advisory Council and attends the annual meeting of the Swazi National Council with the Resident Commissioner.

Curative services are provided at eight hospitals (four controlled by the Government, three by missions, and one by a mine), with a total of 503 beds, and 22 dispensaries. Government medical officers are posted to hospitals for general work and also supervise dispensaries as part of their duties. The headquarters of the Medical Department is at Mbabane, where the main government hospital is located. Ante-natal and maternity services are provided at government and mission hospitals and at dispensaries. There is routine inspection of schoolchildren at some schools.

The Medical Officer of Health is stationed at Bremersdorp, where there is a public health laboratory. In addition to the Director, the staff of the Medical Department consists of one medical officer of health, seven medical officers, two pharmacist-storekeepers, two matrons, 14 nursing sisters, two health inspectors, one laboratory technician, three hospital assistants, two dispensers, two pupil dispensers, 70 nurses, two out-patient attendants, two laboratory assistants, 10 ward attendants, 14 orderlies, one senior malaria assistant, and 10 malaria assistants.

 Estimated territorial expenditure for 1957/58 amounted to £1 222 670 (US $3 423 476), of which the allocation for the Medical Department was 10.2 per cent.

There is no medical school in the Protectorate. African nurses and midwives are trained at the Raleigh-Fitkin Memorial Hospital, which is recognized by the High Commission Territories Nursing Council for the issue of certificates in general nursing and midwifery. There are two courses of training, one for the High Commission Territories Nursing Council Certificate and the other for the Swaziland Executive Nursing Committee's certificate. The length of the courses is four and a half years—about three years in nursing and 18 months in midwifery. There is also a two-year course for nursing aides. In 1957 there were 40 probationer nurses in training.

African dispensers and laboratory assistants are trained at two of the Government hospitals, and African malaria assistants at the public health laboratory as required.

There is one leprosy hospital, one malaria control unit and a public health laboratory for research on malaria and bilharziasis. The more complicated
pathological and bacteriological examinations are carried out at the South African Institute for Medical Research in Johannesburg.

The important health problems in Swaziland are tuberculosis, malaria and bilharziasis. Considerable success has been achieved in malaria control. A scheme of tuberculosis control is under consideration. Investigational work into the problems of bilharziasis is being continued.

Water supplies, outside the urban areas, are assured by wells and rivers but are subject to pollution at the onset of the rains.

TANGANYIKA

Tanganyika is in East Africa, and extends from the Umba River on the north to the Rovuma River on the south, with a coastline of about 724 kilometres; it includes the adjacent islands, except Zanzibar and Pemba. The total area is 939 361 square kilometres including about 51 780 square kilometres of water. Dar-es-Salaam is the capital and chief port. The estimated population at 31 December 1956 was: Africans, 8 390 000; Europeans, 25 000; non-Africans (mainly Asians), 106 000. The African population is made up of members of more than 100 tribes, each with a distinctive dialect and varying customs. Most of the tribes are of Bantu origin, although there are considerable Hamitic and Nilo-Hamitic intrusions. Swahili is generally spoken and understood.

The territory is divided for administrative purposes into eight provinces. Native administrations have been established formally throughout the rural areas, and the responsibilities, rights and powers of Native Authorities have been defined. Revenues are vested in Native Treasuries or Local Council Treasuries. Dar-es-Salaam and Tanga operate their own services, and there are five other urban authorities as well as 25 township authorities.

The economy of the country is based mainly on the production and export of primary produce, chiefly sisal, coffee, cotton, hides and skins, and on the growing of staple foodstuffs (maize, sorghum, cassava, millet, fruit, vegetables and sweet potatoes for local consumption). The most important commodity exported is sisal, of which 176 500 tons were produced in 1955—approximately one-half of the world's supply. There is an important mining industry, the main exports being diamonds, gold, lead and mica. The estimated value of mineral production in 1956 was £5.5 million (US $15 400 000). There is also an important trade in mill-sawn timber. Investigation of oil-bearing possibilities is being carried out in the coastal belt and adjacent islands. A branch of the United Kingdom Atomic Energy Authority is now established in Tanganyika, and intensive prospecting with scintillometer and geophysical equipment is being conducted. A number of successful new fisheries have been established on the larger dams, and much coastal fishing is carried out, almost exclusively by indigenous inhabitants.

Primary schools for all races are maintained by the Government, voluntary agencies and local authorities. Secondary education for the African and Asian communities is provided at government and grant-aided schools. Facilities for higher education are offered by the University College of Makerere at Kampala (Uganda) where, in 1956, there were 167 students, including five women, from Tanganyika.

Community development is the responsibility of the Department of Social Development. As regards welfare, there is a traditional tribal system of social security for the individual. A Tanganyika Council of Social Service was established in 1956, consisting of a number of government nominees and representatives of religious, cultural, educational and social service organizations, with the aim of co-ordinating and extending social work in the country. The Tanganyika Council of Women has established a number of African women's clubs and does much to encourage African participation in homecraft and cultural classes.

Health

The Medical Department, under the responsibility of the Minister of Social Services, is in the charge of the Director of Medical Services, with headquarters at Dar-es-Salaam. It is responsible for formulating medical policy, for the control and treatment of infectious diseases, the administration of government, provincial and district hospitals, the training of local personnel, and the supervision of local health services. There is a senior medical officer in each of the eight provinces, and district medical officers are appointed to local areas for public health work.

In 1956, the establishment of the Medical Department consisted, in addition to the Director, of one Deputy Director, three Assistant Directors, 12 specialists, 11 senior medical officers, 75 medical officers, one matron-in-chief, nine matrons, 137 nursing sisters, 33 health inspectors, three laboratory technicians, and three radiographers. Other staff included 10 medical officers (East African), 55 assistant and sub-assistant surgeons, 375 trained nurses and midwives, 185 medical assistants, 47 laboratory assistants, 45 assistant health inspectors, and five radiographer assistants.

Medical expenditure for 1956/57 amounted to 12.4 per cent. of the total budget.

In 1956 there were 53 government general and special hospitals (tuberculosis, infectious and mental), with a total of 5484 beds, and 20 government dispensaries, with 402 beds. Mission hospitals and dispensaries number 212, with 5441 beds, and there are 565 Native Authority dispensaries with a total of 729 beds. There were in all 947 out-patient dispensaries, 227 maternity centres and maternal and child welfare centres, eight tuberculosis units (519
Out-patient treatment was given to 18,472 leprosy patients.

During the period 1954-56 emphasis was placed on the expansion of training facilities, with a view to providing the trained staff necessary for the planned development of curative and preventive health services. Training of various types is carried out at 26 government and mission hospitals. The first trained health nurses entered the Service in January 1954 and the first government-trained assistant health inspectors took up posts in January 1955. Government training of village midwives started in 1956. A Nurses and Midwives Council established in 1952 is responsible for the conduct of training of nurses and midwives, and the Tanganyika Medical Training Board controls the training of medical, laboratory, dental and pharmaceutical assistants, all of whom follow a three-year course. The total number of trainees in government and mission training centres at the end of 1956 was 938, exclusive of village midwives.

Malaria is an important public health problem in most parts of the country, with a varying degree of endemicity. A Malaria Unit (part of the Medical Department) is responsible for control measures. Residual spraying has been carried out in some important urban areas, towns and settlements. In 1956 spraying of peri-urban swamps around Dar-es-Salaam with dieldrin granules was carried out. A long-term investigation on malaria is being conducted in the Pare/Taveta area.

Exact information about the incidence of tuberculosis is lacking, but the disease appears to be on the increase in some areas. A survey made among the Masai tribe showed a fairly high infection rate. Although full control measures are not applied throughout the whole territory, a province-wide control scheme has been started in the Southern Province with the appointment of a full-time government tuberculosis officer and the co-operation of mission hospitals.

Bilharziasis is the cause of some concern, particularly because of the risk of its spreading concurrently with the development of irrigation and static water schemes. The disease is widespread but mainly prevalent in the warmer areas around Lake Victoria and on the coast.

There were 646 cases of trypanosomiasis in 1956, the least recorded since 1952. Control measures are the responsibility of inter-territorial as well as territorial organizations.

The prevalence of yaws varies and is highest in the Western Province. A number of limited treatment campaigns with penicillin have been undertaken in recent years.

Poliomyelitis has increased during the period 1954-56. Proposals have been made for a survey of the incidence of the disease in certain parts of the territory with a view to deciding on the practicability of control by selective vaccination or other means.

Preventive measures have been successful in checking the spread of plague. Filariasis has been under investigation for some years by the East Africa Institute of Research, and much progress has been made in epidemiology and control.

Respiratory diseases and diseases of the digestive organs are the main causes of morbidity, while tropical ulcer and anaemia are not uncommon.

Maternal and child health services are expanding. District hospitals have maternity and child welfare clinics, and health visitors also conduct them at dispensaries. In some places a domiciliary service has been introduced with good results.

A health education section of the Medical Department was established in 1956, and a workshop was set up for the production of visual aids and other materials required for educative work. Simple and practical health education is demonstrated through the medium of women's clubs by the Social Development Department, and the press and radio are widely used for the purpose.

The Council for Medical Research for East Africa, of which mention has already been made in the review of Kenya (page 120), has two of its four main institutions in Tanganyika: the East African Institute of Malaria and Vector-Borne Diseases at Amani, and the Medical Research Division at Mwanza. The former conducts research into malaria, bilharziasis and other diseases, and provides advisory services throughout Africa; the latter carries out work on various problems, including the biochemistry, etc., of nutrition, filariasis, haematology and bilharziasis.

In Tanganyika much medical research is also undertaken by individual workers in various subjects, such as bilharziasis. The Medical Department Malaria Unit carries out research into malaria and related problems. Other departmental research is concerned with drug treatment in trypanosomiasis and yaws.

A Public Health (Sewage and Drainage) Ordinance was passed in 1953. In the central area of Dar-es-Salaam and Tanga there is a water-borne sanitary system for excreta disposal, and storm-water drainage is in process of being installed in Dar-es-Salaam. Elsewhere in urban areas excreta are disposed of by septic tank, cesspit or bucket latrine systems. Pit latrines are still the principal disposal system in African urban areas and in rural areas, where the construction of bore-hole latrines is being encouraged.
Togoland is a narrow strip of land extending almost due north from the Gulf of Guinea. It covers an area of about 55,000 square kilometres and averages 600 kilometres in length and 120 kilometres in width. It is bounded on the west by Ghana and on the north and east by the French West African territories of Haute-Volta and Dahomey respectively. The climate is mainly tropical, with a rainy season from July to September. The population at the end of 1955 was estimated at 1,094,000 Africans and 1,300 Europeans. The capital is Lomé.

The ethnic composition of the population is extremely complex, and tribal and cultural ties tend to reach east and west across the frontiers into neighbouring territories rather than from north to south. The central chain of hills which in the past constituted a natural obstacle to migratory movements divides the territory roughly into two distinct ethnic sections. The northern section is populated mainly by tribes of Sudanic origin, while those of the negroid type are predominant in the south.

Maize, millet, yams, cassava, groundnuts and other crops are cultivated by the Africans; oil palms and dye-woods grow in the forests, but the main commerce is the barter trade for palm oil, cocoa, rubber and copra carried on with the European factories. Indigenous industries include weaving, pottery, smithwork, straw plaiting and wood carving. A Mines Department was set up in 1953 after the discovery of valuable deposits of phosphates, chromite, iron and bauxite.

**Health**

The health services of Togoland are under the responsibility of the Minister of Public Health and are divided, at both the central and the local level, into Medical Care Services and Mobile Health Services. At the central level, the Director of Public Health is immediately responsible to the Minister and is in charge of all the services, assisted by an administrator and by a chief pharmacist, who is in charge of the central pharmaceutical supply service, the chemical laboratory, and supervision of pharmacies throughout the territory. Advice on matters of health policy is given by a Higher Public Health Council, whose chairman is the Minister, the Director of Public Health being technical adviser to the Minister and vice-chairman of the Council.

At the local level there are 11 health districts corresponding to the territory's administrative districts, each under the charge of a medical officer, who is at the same time physician in charge of all health establishments in the district. In the chief town of each district there is a medical centre, consisting at least of a polyclinic, a maternity clinic, and general in-patient accommodation, including a surgical ward and an operating-theatre. At other central points throughout the district there are establishments varying in size from a polyclinic with a maternity ward to a dispensary with some in-patient accommodation or a simple rural dispensary; these units, according to the services they offer, are staffed by an African physician, a health assistant or a competent male nurse.

There is a central hospital at Lomé, opened in 1954, which has 44 wards and 480 beds (including the maternity unit) and which affords services in most of the modern specialties, all under the charge of qualified doctors. This hospital deals with all complicated and serious cases which are beyond the competence of the district medical services. Other medical facilities are provided by 10 auxiliary hospitals or medical centres with a total of 1,046 beds, 115 dispensaries (54 beds), and six privately-run rural dispensaries. A further 370 beds are provided in 14 separate maternity units. There are also two leprosy treatment centres, with a total of 710 beds, and three treatment centres for trypanosomiasis (72 beds) attached to medical centres. There is no special mental hospital, with the exception of a small 12-bed unit at Zébé, which is used for the observation of mental cases. In 1956, a total of 1,478,571 persons, mostly Africans, received medical care at out-patient departments of hospitals, medical centres and dispensaries; a further 26,283 were treated as in-patients.

The staff of the health services in 1956 was as follows:

- Physicians, graduates of French medical schools . 20
- Physicians, graduates of the Dakar Medical School . 12
- Pharmacists, graduated in France . 1
- Pharmacists, graduated at Dakar . 1
- Administrators . 1
- Dentists, trained in France . 1
- Midwives, trained in France . 2
- Midwives, trained at Dakar . 29
- Male nurses, French diploma . 2
- Male nurses, local diploma . 242
- Female nurses, French diploma . 11
- Female nurses, local diploma . 47
- Health assistants . 32
- Sanitarians . 34
- Other auxiliary technical staff . 89

Twenty-nine members of the above staff were European and 495 were African. In addition to the staff employed in the health services, there were four private practitioners, of whom two had French degrees and two had graduated from the Medical School at Dakar; six pharmacists with French diplomas, and two midwives, one with a French diploma, the other with a Dakar diploma. There are no other
Control of communicable diseases is carried out by the Mobile Health and Preventive Services, whose activities cover more than half the northern portion of the territory, and who have their own mobile teams, equipment and transport for case-finding surveys and curative and preventive care of the rural population. These teams carry out systematic vaccination campaigns against smallpox and yellow fever; take measures against trypanosomiasis in areas where this disease is endemic; detect cases of leprosy and send patients to leprosy treatment centres; and also provide simple medical services in remote areas, sending patients who need further treatment to the nearest dispensary centre. In view of the very valuable services offered by these teams, it would be most desirable, if circumstances permitted, for many more teams to be formed, in order to give a better coverage of the areas in which they operate.

Large-scale control campaigns are at present being carried out, with assistance from WHO and UNICEF, against malaria and yaws. The malaria control programme, which started in 1953, had covered 3000 square kilometres by 1956 and protected 360,000 inhabitants. Since the beginning of the campaign the Anopheles index had dropped from 80 to 7 per cent. by 1956, and the spleen rate from as much as 65 to between 6 and 9 per cent. Further chemotherapy campaigns were planned for 1958 in two pilot areas, to be extended if successful to other parts of the territory. The mass yaws control programme started in 1956 and in its first phase covered 570,000 persons, of whom 78,900 active yaws cases and 172,978 contacts were treated. The first re-survey showed a decline in yaws morbidity from its previous rate of between 13 and 33 per cent. to less than 4 per cent., but further consolidation measures are being planned before yaws control can be left in the hands of the dispensaries, which are adequately equipped to deal with the low rate of incidence that it is hoped will result from the campaign. On completion of the yaws control programme, mass campaigns are planned first against leprosy and then against tuberculosis.

Ante- and post-natal care is afforded at all the maternity and obstetrical units attached to the medical centres and dispensaries, and a special home visiting service has been organized at Lomé. In 1956, 6016 deliveries took place in hospital and 1093 deliveries were assisted by health staff in the home. In all, 14,444 pregnant women received ante-natal care, and 4805 received post-natal care; 72,481 infants under one year of age and 109,622 children between one and four years of age were also seen at infant and child welfare clinics.

Physicians, pharmacists, dentists and midwives are required to hold French State degrees or diplomas or a recognized equivalent, such as the diploma of the Medical School at Dakar. A scholarship system enables qualified African students to complete their studies in France. Thus, in 1956, the following Togolese were studying in France: 14 in medicine, two in dental surgery, six in pharmacy, five in midwifery and two in nursing. In Togo training courses are organized for health assistants (to hold posts of importance, such as that of head of a dispensary), for male and female nurses (a two-year course at the nursing school attached to Lomé Hospital), and for sanitarians (a one-year course under the auspices of the Lomé Public Health Service). Some nursing students go to schools in Ayos (French Cameroons) or Brazzaville (French Equatorial Africa), where courses are given which lead to French State nursing diplomas.

UGANDA

Uganda is in east Central Africa; it is bounded on the south by Tanganyika and Ruanda-Urundi, on the west by the Belgian Congo, on the east by Kenya, and on the north by Sudan. Most of the country is at an altitude of about 1350 metres; the central plain is fairly flat but there are mountains on the periphery. On the west the Ruwenzori range rises to over 5500 metres and on the east is Mount Elgon (about 4500 metres high). There are four climatic zones: the Lake area, around Lake Victoria; Karamoja; West Uganda; and the Acholi-Kyoga-Katonga zone. In the Lake area there is no definite rainy season but rainfall is least in January and February and in June and July. In Karamoja there is a rainy season from April to August; December and January are the driest months. Western Uganda has a fairly uniform rainfall, with peaks in April and October. In Acholi-Kyoga-Katonga the climate is fairly uniform, with a wet season from March to November. The average temperature of the country is 27° C. The total area is 243,411 square kilometres, including 35,441 square kilometres of swamps and water.

The population in 1957 was estimated to consist of about 5,610,000 Africans, 59,000 Asians and 9000 Europeans. The Africans are of three main races: Bantu, Nilotic and Nilotic Hamitic.

Uganda is administered by a Governor, assisted by an
Executive Council of 11 ministers and the Resident, Buganda. The territory is divided into four provinces (Buganda, Eastern, Western and Northern), which are subdivided into 16 administrative districts. Each district is again subdivided into counties, subcounties and villages. Constitutionally Buganda is on a different footing from the other provinces, since the Kabaka is a constitutional ruler. Responsibility for certain services previously administered by the Protectorate Government has been transferred to the Kabaka's Government. The seat of the Government is at Entebbe but Kampala is the business capital of the territory. African district councils have been set up in the Eastern, Northern and Western Provinces and are being given increasing responsibility. Kampala and Jinja are the only two self-governing municipalities. There are over 100 other townships which have township authorities appointed by the Governor.

Uganda is primarily an agricultural country. A copper and cobalt mine in the Toro district started production in 1956 and there are also tea plantations as well as fishing and salt industries. In south-west Uganda there are wolfram and tin mines and in the Eastern Province a cement factory, a plant for the manufacture of asbestos sheets, and the apatite and pyrochlore deposits of the Sukulu mineral complex are being exploited. Unemployment, as commonly understood, does not exist in Uganda and more labour is required than can be obtained locally. The main food crops are plantains and finger millet as well as sorghum, beans, groundnuts, sesame, sweet potatoes, cassava and an increasing amount of maize. The fishing industry is being developed.

The Government's long-term education policy is to provide a minimum of four years' primary education for all children. Education is neither free nor compulsory. There are at present about 1 250 000 African children of school age. Higher education is provided at Makerere College—the University College of East Africa—and the Uganda Government and African local authorities provide scholarships for education overseas.

The Department of Community Development, under a commissioner, a deputy commissioner and an assistant commissioner (female) is responsible, under the African Minister of Social Development, for community development and welfare, although certain social development services fall within the scope of the education and medical departments. There are 25 community development officers, four of whom are African, and 20 posts of African assistant community development officers, as well as 161 African community development assistants. In the probation and after-care service there are nine European and African workers. In 1957, 690 men and 252 women passed through training courses at the Nsamizi Training Centre in Entebbe in various subjects including local government, civic, commerce and so forth. Several rural training centres have now been established. The stimulation of the spirit of self-help and co-operation among rural communities for their own betterment continues to be an important aspect of the Department's work. Many improvements have been achieved, mainly at the local or village level; for example, the protection of water supplies, leprosy settlements, village roads, building of workshops, bridges, etc. in which the people have usually contributed more than half the total cost. Emphasis is placed on adult education and literacy, for which work four mobile book vans are used as well as radio and visual aids. There is a growing demand from women for instruction in homemaking and child care, and there are many women's clubs and community centres in Uganda.

Health

The health services are under the responsibility of the Minister of Health. The administration of the Medical Department is carried out by the Director of Medical Services. In addition, the government medical staff consists of one deputy director, two assistant directors, 14 specialist medical officers, nine senior medical officers and 129 medical officers, of whom 42 are African.

A senior medical officer in each province is responsible for health administration in general, and together with the provincial commissionier and other senior officers, forms a provincial team. The main district general hospitals are in the charge of district medical officers who also control the rural medical centres and act as medical officers of health. In turn, they form part of a district team, much coordinated work being accomplished in this way. The Kabaka's Government has assumed responsibility for medical and health services in Buganda, although many of the professional staff are at the moment seconded by the Central Government. The Kampala and Jinja municipalities employ their own medical officers of health and inspectorate staff, but in all other townships the government medical staff act on behalf of the township authorities.

Mission bodies, with some 1700 hospital beds, provide a strong reinforcement to medical services, including the management of five leprosy settlements. In 1957/58, 8.15 per cent. of the territory's total budget, or nearly seven shillings (US $1.00) per head, was expended on health services.

Medical and health staff included 371 registered medical practitioners (130 government, 241 private and mission); 18 licensed practitioners (government and mission, and a few on the larger estates); 166 registered midwives (76 government, 90 private and mission); 857 certified midwives (124 government, 733 private and mission); 161 senior health inspectors and health inspectors (government); 10 government senior and 73 assistant laboratory and x-ray personnel. The nursing division of the Medical Department is headed by a matron-in-chief and comprises eight matrons, 35 tutors, 106 nursing sisters and health visitors, 405 nurses, midwives, and nurse-midwives. The pharmaceutical section has a chief pharmacist and six assistants. There are 21 registered dentists and eight licensed dentists. Nine dental surgeons and four dental mechanics are employed by the Government. There are, in all, 36 general hospitals and two mental hospitals, with
a total of 5227 beds; 34 out-patient dispensaries; 213 dispensaries, with 7214 beds; and five leprosy settlements, with 1700 beds.

Malaria is the largest single cause of morbidity and is prevalent throughout a large part of the territory. Control or eradication measures have hitherto been limited to urban areas, where they are meeting with considerable success.

The position in regard to tuberculosis will be better understood when the report is received from the WHO inter-country team which carried out sample surveys throughout the territory in 1957 and 1958. A tuberculosis officer was appointed in 1955 to co-ordinate diagnosis and treatment and to supervise schemes of control. A medical advisory committee assists in over-all policy matters. In addition to the Mulago Hospital in Kampala, several district hospitals have been supplied with x-ray facilities and special tuberculosis wards.

Progress is being made in the treatment and control of leprosy. The total estimated number of cases in the territory is 70,000, of which more than 30,000 are now under treatment. A project of leprosy control, partly in operation, consists of specially constructed treatment villages and of out-patient clinics where continuous treatment can be given.

Bilharziasis is found in many parts of the territory. The distribution of *Schistosoma haemotobium* is found on the western shores of Busoga and in the southern part of Lango districts, both of which abut on Lake Kyoga. *S. mansoni* is found throughout the Northern Province and to a lesser extent in the Eastern Province and the districts of Bunyoro in the Western Province. Direct preventive measures are extremely difficult owing to the nature of the snail breeding-ground.

Nearly 900 new cases of onchocerciasis were treated during 1957. Surveys indicated that this disease is transmitted in many parts of the territory, in fact wherever running water and forests are found together. *Simulium damnosum* has been completely eliminated from the Nile area below Ripon Falls, Jinja. Research is proceeding elsewhere into the best method of controlling the breeding of *S. neavei*, the vector responsible in most of the hilly areas.

Nearly 500 new cases of trypanosomiasis were detected—three times as many as in recent years. The majority of these cases were of the mild *gambiense* type in North Lango. In addition to the usual control measures in this area, the Trypanosomiasis Control Department has sprayed dieldrin in a 6 per cent. solution on to the vegetation on the banks of the main river and its tributaries—a total distance of 364 kilometres. The other major focus of the disease is the south-eastern corner of Uganda bordering on Lake Victoria, where 167 new cases, of the *rhodesiense* type, were detected. The staff of the East African Trypanosomiasis Research Centre continue their research work by admitting cases and by field investigations. Smaller numbers of cases were also noted in Mengo, Acholi, and West Nile districts.

The incidence of relapsing fever is steadily falling. No cases of yellow fever, plague, cholera or louse-borne typhus were reported in 1957. In the same year there were 114 cases of poliomyelitis with seven deaths, compared with 72 cases and seven deaths in 1956: 5000 injections (compared with 12,000 in 1956) were administered. Smallpox in a mild form was reported from nearly all districts; in all, 477 cases were notified, with four deaths. Sporadic cases of typhoid fever occurred in most districts.

A health education centre has been established under a senior medical officer, and various means are being used for the promotion of health education of the public. Environmental conditions are continually improving as regards both housing and sanitation. A gradual and accelerated improvement in the traditional types of rural houses in particular can be seen as a result of the work of various agencies, notably the Health and Community Development Departments.

The training of local personnel has been undertaken in Uganda for many years. There are training schools for health inspectors, medical assistants, nurses and midwives, assistant radiographers, pharmacists and laboratory assistants. An effort is being made to expand local training to the degree required for the necessary personnel to staff the services covered by hospital and rural health expansion programmes. In East Africa higher education is provided at Makerere College, which incorporates the Mulago Medical School. In 1956 there were 224 Africans from Uganda studying in the United Kingdom and the Republic of Ireland in receipt of scholarships from the Protectorate or local governments. Forty-eight more were in India, 47 of them with scholarships, and a further 71 Africans were studying overseas on their own.

The Virus Research Institute at Entebbe is one of the four main institutions of the Council for Medical Research for East Africa, already mentioned in the reviews of Kenya (page 120) and Tanganyika (page 142). The work of the Institute includes field epidemiology of virus infections, ad hoc surveys, and much laboratory investigation. A considerable amount of individual research is also carried out by members of the Medical School on onchocerciasis, nutrition, bilharziasis, and on child health.
The Medical Research Council of Great Britain runs a unit for infant malnutrition in conjunction with the staff of Mulago Hospital.

In 1955 a committee was appointed to examine the existing stage of development of medical and health services in Uganda and to make recommendations for future policy. The report of the committee, which was largely accepted by the Government, recommended, inter alia, an increase of staff, expansion in training of local personnel, medical care and hospital services, maternal and child welfare services, rural health, statistical services, nutrition, health education; and the formation of a central planning authority. Successive phases of this development programme are expected to extend up to and including 1964.

**UNION OF SOUTH AFRICA**

The provinces of the Union extend from the southernmost point of the African continent to the courses of the Limpopo, Molopo and Orange rivers—i.e., from 34°50' to 22° south. They include all territories within those limits except Basutoland, Swaziland, Bechuanaland and part of Mozambique. The most southerly province contains many parallel ranges which rise in steps towards the interior. Between the Great Swartling and Langberg ranges and the Roggeveld and Newveld ranges to the north lies the Great Karroo plateau. In the east are ranges which join the Drakensberg mountains between Natal and the Orange Free State. The Orange Free State has a succession of undulating grassy plains with good pasture-land and a general elevation of some 1200 metres. The Transvaal is also mainly an elevated plateau with two ranges of no great height. Natal, to the east, has pastoral lowlands and rich agricultural land between the slopes of the Drakensbergs and the coast; the interior rises in terraces as in the southern provinces.

The climate ranges from Mediterranean and humid temperate in the south to dry tropical in the north. The mean annual temperature is remarkably uniform largely because the altitude increases with the decrease in latitude, but both the annual and the daily changes of temperature increase with distance from the sea and with altitude. The rainfall is very variable and generally decreases from east to west. The area is 1 223 409 square kilometres.

The population at the 1951 census was 12 667 759, of whom 57.4 per cent. lived in rural areas, and the annual rate of increase in the same year was 2.10 per cent. The European population, estimated at 2 642 713, is of British, Dutch and some French descent. The majority of the African population are Bantu (8 537 375); in addition there were 366 664 Asians and 1 103 405 "coloured" (or mixed).

The main occupations of the white population are agriculture, mining, manufacture and commerce, while the non-white races absorb rather more than 200 000 workers. The European population, estimated at 2 642 713, is of British, Dutch and some French descent. The majority of the African population are Bantu (8 537 375); in addition there were 366 664 Asians and 1 103 405 "coloured" (or mixed).

The main occupations of the white population are agriculture, mining, manufacture and commerce, while the non-white races absorb rather more than 200 000 workers.

Each province has a provincial council with power to legislate on certain specified subjects and on any others which may be delegated to it. The members are elected on the same system as members of parliament. The administration is vested in an Administrator with an executive committee of four members. The provincial council has the same number of elected members as there are electoral divisions in the province for the House of Assembly but with a minimum of 25, and may raise direct taxation for its own purposes.

Although South Africa is the world's largest producer of gold, and although there are other important mining industries, about 15 per cent. of the national income is derived from agriculture, fishing and forestry—a greater proportion than the revenue from mining and second only to that from manufacture. Wool is the most important single agricultural product; the largest crops are wheat and maize. Sugar production is now expanding and fruit-growing has become a very large export industry. Gold and diamonds are the most important minerals but there are also large supplies of coal. The principal imports are foodstuffs, cotton piece-goods, textile manufacture, motor spirit, motor cars and various types of machinery. The principal exports are gold, sugar, hides, fruit, wine, diamonds and various metals. Production is mainly in the hands of private enterprise, although several of the principal secondary industries are financed by the Government.

The direction of public education, other than higher education, rests with the provincial education departments. Most European schools are State schools and most of the others are State-aided. Primary education for all races is free. Secondary education is also free, with an age limit of 19 years in the Cape Province. The Union Department of Education, Arts and Sciences has responsibility for the nine universities and for technical, vocational and special schools.

The chief ports are Cape Town, Port Elizabeth, East London and Durban. In 1954 the government-owned railways had a length of nearly 22 000 kilometres, most of them of 3' 6" (105 centimetres) gauge. There is now a through connexion from Cape Town to the lower Congo and direct connexion with Nyasaland by the Trans-Zambesia Railway. There are internal air services between all the chief centres of the Union, and a regular service between Johannesburg and London.

The Department of Social Welfare administers a comprehensive scheme of relief and rehabilitation, and there are over 200 trained social workers attached to voluntary organizations. In 1953, 1 602 000 persons were covered against accidents of employment, and 585 000 against unemployment.

**Health**

A Central Department of Health with headquarters in Pretoria undertakes advisory and executive duties laid down by the Health Act. The Union is divided into the following six regions, each under the control of a chief health officer: Cape Western; Cape Eastern; Natal; Orange Free State and the northern portion of the Cape Province; Southern Transvaal; and Northern Transvaal. In addition to regional functions, the Cape Town and Durban offices control pathological laboratories. A biological control laboratory and a vaccine institute are maintained at Cape Town.

There are over 700 local authorities, which are the real foundation of the health organization.
Their services vary a great deal; on the one hand there are the larger municipalities, such as Cape Town, Johannesburg and Durban, with highly organized health departments under the direction of full-time medical officers, and on the other there are health committees and village councils under small teams of workers.

The Union is fortunate in having assistance from many voluntary bodies, notably the Red Cross Society, St John Ambulance and the South African National Council for Child Welfare, as well as from mission hospitals, religious associations and various health services connected with the mines. On the professional side the South African Medical Council and the South African Nursing Council are of great importance to the health organization. Research in epidemiology is undertaken by the South African Institute for Medical Research in Johannesburg.

At the district level medical officers, known as district surgeons, are employed by the Government in health and medical work; in the larger centres a few are whole-time but the great majority undertake government work in addition to their private practice. In June 1956 there were 446 district surgeons, of whom 59 were whole-time.

The control of food, drugs, etc., rests with the Department of Health, but local authorities are required to co-operate in the executive work.

The smaller urban communities and rural districts are visited from time to time by medical officers of the Union Health Department. The larger urban areas employ their own technical officers, including medical officers of health and health inspectors, who are concerned with the whole range of environmental sanitation.

The following vital statistics were recorded for the European population in 1954: birth rate, 24.6; death rate, 8.6; and infant mortality rate, 33.3. Very little change had been reported over the preceding three years.

The provincial administrations are responsible for the provision of hospital accommodation, except in respect of infectious diseases and mental cases. In 1955, there were 45 649 beds in general and maternity hospitals, 6539 beds in infectious diseases hospitals, and 20 029 beds in mental hospitals. There has been an extensive development of out-patient services in the various hospitals; in Cape Province alone, 1 174 868 out-patient visits were recorded in 1955, as against 1 034 337 in 1954.

The Union Health Department is responsible for subsidizing district nursing and midwifery services. A woman medical officer is in charge of this department at headquarters and specially qualified nurses undertake inspection tours. At the end of 1955, 1156 nurses were receiving subsidies.

By far the most important problems of industrial hygiene at the present time are associated with the gold-mining industry of the Witwatersrand. Compensation for disabilities contracted in the mines is a heavy drain on the resources of mining companies, but increasing advances have been made in industrial hygiene, which is chiefly concerned with pneumoconiosis.

The prevalence of paralytic poliomyelitis has been increasing. Extensive epidemics occurred in 1948 and again in 1956, each of them with more than 2000 cases. In the 1956 epidemic the change in race incidence became apparent, with as many infections among the Bantu as among the whites, whereas in previous epidemics there were about 10 times as many cases among the white population. Vaccine is now being prepared on an increased scale in the laboratories of the Poliomyelitis Research Foundation.

Bilharziasis is endemic in many areas of the eastern half of the Union, and both forms occur, the incidence being dependent on local conditions. Intensive research is being undertaken by the State and other organizations with the object of controlling the disease.

Diphtheria still constitutes an important public health problem. Immunization has been urged repeatedly by the Government, but has not been generally adopted in spite of the fact that the Health Department is now entitled to give financial assistance to local authorities. Enteric fever is unfortunately still widespread, especially among the rural non-white population, but it is becoming progressively less common in the large urban areas on account of improved sanitation and water supplies. Inoculation against typhoid fever is free wherever the risk of infection exists. Both bacillary and amoebic dysentery occur sporadically, the latter especially along the Natal coast.

In 1924 the administration of leprosy laws was transferred from the Department of the Interior to the Department of Health. A Leprosy Advisory Committee exists and a less rigorous interpretation of segregation has now resulted in an increased number of leprosy patients seeking voluntary admission to institutions. The introduction of sulfone drugs has revolutionized treatment; the clinical response is rapid and patients are generally fit for discharge within 12 months. The lepromatous cases which were previously regarded as incurable also respond to sulfones.

In the past malaria was endemic in the river valleys and the coastal belts of Natal and also in the river.
valleys and Low Veldt of the Transvaal, while it spread over wide areas in epidemic form. The effective anti-malaria measures of recent years have reduced the incidence of endemic malaria to insignificant proportions. At one time severe epidemics of measles occurred, which caused a high death rate among the non-white population. This disease continues to be prevalent but its severity has decreased a great deal in recent years. Pellagra is still fairly common among the poorer sections of the community, owing partly to the increased cost of living since the war and partly to the lack of health education on suitable diet and food values.

Mantoux and x-ray surveys have been conducted for many years in all four provinces by the Union Health Department. It is estimated that the incidence of tuberculosis is: white, 0.5 per cent.; Asian, 1 per cent.; Negro, 2 per cent., and “coloured”, 2 per cent. A number of authorities and organizations assist in providing hospital beds for tuberculosis patients, but all such buildings, as well as their equipment and maintenance costs, are subject to refund by the Government. The present-day tuberculosis hospital bed position is as follows:

<table>
<thead>
<tr>
<th>Organization</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Health Department</td>
<td>4,480</td>
</tr>
<tr>
<td>Provincial administrations</td>
<td>510</td>
</tr>
<tr>
<td>Local authorities</td>
<td>1,930</td>
</tr>
<tr>
<td>Missions</td>
<td>3,102</td>
</tr>
<tr>
<td>National Tuberculosis Association</td>
<td>3,496</td>
</tr>
<tr>
<td>Private</td>
<td>1,003</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14,521</strong></td>
</tr>
</tbody>
</table>

There has been an extensive development of facilities for out-patient treatment of tuberculosis patients, and approximately 40,000 tuberculosis patients are being treated outside hospitals.

At one time typhus fever was one of the most formidable epidemic diseases in the Union. Between 1919 and 1923 an average of over 8,000 cases was returned annually. In the following eleven years, up to June 1935, there were about 35,000 Negro cases and 700 white cases. The stage has now been reached when the disease is no longer a public health hazard.

Venereal disease is still one of the major health problems and is especially prevalent in the non-white population of both urban and rural areas. The Government provides special grants, amounting to 87 1/2 per cent. of the net cost, for venereal disease control schemes maintained by local authorities, including clinics and hospitals. Similar assistance is given in rural health centres and stations, and specific drugs are supplied free of charge.

The South African National Council for Mental Health is a recognized representative body, dealing with prevention, after-care and mental health education. The Council establishes mental health societies employing qualified social workers, who conduct free out-patient clinics with the assistance of government psychiatrists. The societies are autonomous and independent bodies but receive financial assistance from the Council, which in turn is subsidized by a grant-in-aid from the Department of Health.

The Department of Nutrition, under the control of the Secretary for Health, co-ordinates nutritional research and undertakes the distribution of foodstuffs under a special scheme operating in sub-economic areas, as well as controlling imports and exports of foodstuffs and administering the State-aided milk and butter scheme. A National Nutrition Research Institute has been established by the Council for Scientific and Industrial Research.

There are five separate medical schools in the Union, where provision is made for students to undertake a full course of studies leading to the degrees of M.B., Ch.B. The training of nurses and midwives is undertaken by provincial hospitals and provincial-aided hospitals.

At the end of 1944, a housing amendment act was introduced creating a National Housing and Planning Commission. The Commission is empowered to erect houses, to render technical and financial assistance to local authorities and utility companies and to grant loans to individuals. Local authorities have also been given power under a slums act of 1934 to deal with the clearing of slum properties and the acquisition of land for improved building.

ZANZIBAR

The Protectorate of Zanzibar consists of two islands: Zanzibar, with an area of 1,658 square kilometres and Pemba, with an area of 984 square kilometres, lying about 50 kilometres off the east coast of Africa. In Zanzibar there is a double range of low hills running north and south, with an uninhabited rocky plain to the east and south and a fertile area in the north-west, where most of the island's main products—cloves and copra—are produced. In the interior of Pemba the low hills are covered with clove and coco-nut trees and rice is cultivated in many of the marshy valleys. The climate is hot and humid, and there are two rainy seasons.

The 1948 census showed a population of 266,702, which rose
to 299 111 in 1958. There is a seasonal exodus of labour from the towns to country districts for clove-picking.

There are three administrative districts subdivided into mudirias: four in Pemba and five in Zanzibar town. A few local councils have been established.

The economy of the Protectorate rests on the cultivation and export of cloves and coco-nuts. Staple food crops grown on the island are cassava, rice and bananas, but a considerable amount of food has to be imported.

The revised development programme ending in 1959 sets as its aim the provision of primary education for all boys in urban areas and for 50 per cent. of those in rural areas. A four-year secondary course leads to the Oversea School Certificate. Technical training is provided at the Mombasa Institute of Moslem Education, and in Zanzibar town there is a Trade School for boys and a domestic science training centre for girls attending local schools. Government scholarships are awarded for higher education, at Makerere College in Uganda and in the universities of Great Britain. Evening classes are held for adults.

There is an advisory committee on education on which all races are represented. Teaching is carried out in Swahili in most primary schools, and thereafter in English, Gujarati being used in the Indian schools and Arabic in the Arab schools.

There is no serious housing shortage in the Protectorate. New rules on housing have recently been made to allow of stricter control in urban areas, and town planning schemes have been drawn up.

Health

The Medical Department of the Protectorate is administered by the Director of Medical Services, who is a member of the Executive and Legislative Councils. The health budget for 1957 was £276 844 (US $775 163), this being about 10 per cent. of the total budget and about £1 (US $2.80) per capita.

At the end of 1957 public health personnel comprised 19 doctors, three dentists, 11 nurses of senior training, 115 staff nurses, 12 laboratory assistants, seven dispensers and 18 health inspectors.

Doctors receive their training in the United Kingdom, in India or in Uganda. A three-year course for nurses, with an additional year for midwives, is provided at the government hospital in Zanzibar town, and in 1957, 65 probationer nurses were under training. A training scheme for rural health workers has been started with the assistance of a WHO tutor. Training of entomological assistants has also started, under the direction of a WHO malariologist and entomologist.

Apart from the keeping of hospital and dispensary statistics and the compulsory notification of certain infectious diseases, there is no reporting of morbidity. It is thought that a good deal of minor notifiable disease remains unreported, as there are no medical practitioners outside the towns. The rural dispensaries notify cases from time to time.

In 1957 there were 10 hospitals in the Protectorate, including one mental hospital, one for tuberculosis, one for infectious diseases, and two leprosaria. There were 22 dispensaries in Zanzibar and Pemba; of these three have emergency beds, and one has a rural maternity centre attached. During 1957 two new dispensaries were erected in rural areas.

Tuberculosis is treated in three general hospitals in the Protectorate, as well as in the special tuberculosis hospital. In 1957, there were 277 admissions of cases with tuberculosis, and 502 out-patients were seen at the chest clinic. In all, 695 contacts reported at the weekly “contact” clinic, and of these 144 were found to be negative reactors to the tuberculin test. Of the 144, 108 accepted and received BCG vaccination.

The number of admissions to the leprosaria in 1957 totalled 47; three deaths occurred, and 59 patients were discharged. The number of cases remaining in hospital at the end of the year was 156.

There are no separate venereal disease control clinics, but 3422 cases were treated as out-patients and 81 as in-patients in medical establishments in 1957.

The WHO team for the malaria eradication programme arrived in Zanzibar in 1957, and initial surveys prior to the spraying campaign were completed. Only one case of smallpox was reported during the year. Vaccination campaigns were conducted in both islands, and 61 712 people were vaccinated. During the year, 1098 schoolchildren were examined. Of these, 30 per cent. had spleen enlargement, and 11 per cent. showed evidence of anaemia. It is interesting to report that only five children were found to be suffering from yaws.

Throughout the Protectorate there is room for improvement in rural sanitation, and it is hoped that the situation may be improved when the rural health workers have completed their training and are dispersed throughout the areas concerned.
REGION OF THE AMERICAS
FIG. 7. REGION OF THE AMERICAS
Alaska is the largest peninsula of the North American Continent. It is bounded on the north by the Arctic Ocean and on the south and south-west by the Pacific Ocean. Canada lies on its eastern frontier. Its area is 1,518,775 square kilometres.

Alaska is naturally divided into three well-defined zones: the Pacific slopes, with cool summers, mild winters and a dense forest area; central Alaska with gently rolling uplands and rugged mountains, light snowfall and rainfall; and Arctic Alaska, with a season of less than 40 days in which cultivation is possible. The average annual temperature ranges from 6.6°C at Ketchikan to —12°C at Point Barrow, and the average annual rainfall ranges from 450 centimetres at Latouche to 10 centimetres at Barrow.

The population of 128,643 at the 1950 census was composed of 94,780 non-indigenous peoples, 15,882 Eskimos, 14,089 Indians, and 3892 Aleuts, the last three groups being considered the indigenous people of Alaska. The estimated population in 1956 was 209,000.

The main economic assets of Alaska are fish, minerals, timber, furs, agricultural land, and water-power.

School attendance is compulsory for all children between the ages of 7 and 16 who live within two miles of a school or school transport. Correspondence courses are provided for all pupils who live too far from the nearest school. The Indian Field Service of the Department of Interior of the United States Government maintains some one-teachers schools in the remote Aleutian Islands, besides its Wrangell Institute for Indians.

Adult education is provided by the Extension Service of the Department of Agriculture and through the Department of Mines of the University of Alaska. Several school districts and private agencies also afford opportunities for adult education.

Living conditions vary widely from the Pacific slope towns, through the smaller communities in the north, to the small settlements of the Eskimos, Indians and the Aleuts. The variations depend on the situation of these indigenous groups today rather than on their racial backgrounds. Racial discrimination does not exist, and the principal objective of the Alaskan Native Service is to integrate the three indigenous groups, which together form 26 per cent. of the population, into the social, economic and political life of the territory. Wherever possible, as in the native schools, the direction and operation is placed in their hands.

The housing situation was critical at the end of the war, with an influx of settlers adding to the military congestion already obtaining, and building costs rose to unprecedented heights. However, by June 1953 the Federal Housing Administration had provided almost 6000 new houses and the Alaskan Housing Authority had approved US $17 million in loans for another 1300 houses, which were either completed or under construction. By mid-1954 there was no longer a housing problem in Anchorage, Fairbanks and Kodiak, although in the territory as a whole some need for single-family housing remained.

The social security benefits cover all workers in commerce and industry.

Health

The responsibility for health and medical services rests with the Alaska Department of Health, under the direction of a Commissioner of Health, who is advised by a Board of Health. The Department has five main sections in addition to its central administration: sanitation and engineering; maternal and child health services; mental health; nursing; and preventive medical services. Three regional offices carry out this work through district health departments, each with a district health officer, and local health units.

The total expenditure of the Health Department for the fiscal year 1953/54 was US $1,608,000, or 6.4 per cent. of the total budget. In the preceding fiscal year, 1952/53, it was 6.8 per cent. of the total budget. The 1956/57 health budget of the territory of Alaska was increased to US $2,190,489—i.e., by more than half a million dollars over that of 1954.

The vital statistics of Alaska show that in 1955 the birth rate was 35.2, a steady increase over the two previous years, while the death rate was 5.8. The infant mortality rate for the same year was 37.8.

In 1957 the medical and health personnel in the territory were as follows: 52 physicians; 14 dentists; 196 graduate nurses; 49 public health nurses; two veterinarians; and nine sanitary engineers. The following personnel were employed in the national health services: 46 physicians; 10 public health nurses; 189 other graduate nurses; three graduate engineers; 14 dentists; 25 dental hygienists; two veterinarians; 32 laboratory personnel; four nutritionists; two social workers; and one statistician, all full-time; at the provincial level there were six physicians; 39 public health nurses; seven other graduate nurses; 11 sanitarians; 16 laboratory personnel; four health educators; seven social workers; and one statistician.

There are no local health units independent of the territorial of Federal Governments. Local communities contribute sums of money to the Department of Health, the amount being based upon the ability to pay.

There is no medical school in Alaska, and students therefore usually undertake their medical training in the United States of America. The same applies to the nursing and technical personnel, although some midwives receive training locally from the Health Department.

In 1957 Alaska possessed 29 hospitals, with 996 beds; 28 general hospitals, with 748 beds, and one tuberculosis hospital. In addition there were 30 local
health centres serving a total of about 200,000 people. The services provided by the Department of Health include medical care facilities, preventive services, maternal and child health and crippled children’s services, mental health, health education, sanitation and medical social services, public health laboratories, and marine units.

Supplemental funds and specialized personnel are contributed by the United States Public Health Service, which also operates an Arctic Health Research Centre in Anchorage, through which it conducts studies and investigations concerning health problems in low temperature areas.

Among the communicable diseases, the case rates per 100,000 population for tuberculosis were reported to be 488 in 1954, 457 in 1955, and 471 in 1956. Those for acute poliomyelitis were 49 in 1954 and 163 in 1955, while those for syphilis were 15 in 1954, 10.5 in 1955, and 12 in 1956.

Vaccination against smallpox, and immunization against diphtheria, pertussis, tetanus and typhoid are given in all health centres and by all visiting public health nurses.

A recent noteworthy development in the mental health services of Alaska was the Mental Health Act of 1957, which placed responsibility for the care and treatment of Alaska’s mentally ill directly upon the territorial administration. Furthermore, plans for a mental health hospital in Anchorage are on the drawing-board, and the building is scheduled for completion some time in 1963.

In 1953-54, 661 child welfare conferences were held in 121 organized communities. Travelling nurses conducted 32 midwives’ classes during the same period, and orthopaedic clinics were held at Mount Edgecumbe, Anchorage, Fairbanks, Juneau and Ketchikan. Twenty-six public health nursing stations were maintained throughout Alaska; 14 of them were in rural and isolated areas, which are visited by public health nurses. Twelve stations were maintained in communities of 1000 or more. The 26 stations were staffed by 41 public health nurses, of whom 11 were maintained under contracts with the Alaska Native Service.

A central public health laboratory exists at Juneau, with regional laboratories at Ketchikan, Anchorage and Fairbanks.

The Alaska Cancer Society co-operates with the Health Department in sending physicians to the United States to attend short courses in cancer diagnosis and treatment.

Nutrition presents problems in certain areas, particularly where food habits are in a stage of transition. Nutrition education is provided throughout the territory and studies are being made on the utilization of certain plants and animals for food.

Forty piped water supply systems serve 76,000 persons in urban areas, and 340 systems supply 59,000 persons in rural areas, mostly by means of public taps or fountains or by private supplies. About 70,000 of the 77,300 urban population are served by 20 connected sewage-disposal systems and 71,000 of 81,000 rural population by latrines.

Many of the communities have established health committees for public participation in the health programme.

**AMERICAN VIRGIN ISLANDS**

The American Virgin Islands are situated about 64 kilometres east of Puerto Rico and 2240 kilometres south-east of New York. They consist of the islands of St Thomas, St John and St Croix, and about 50 uninhabited islands and cays—a total area of 344 square kilometres. The climate is semi-tropical; temperatures range from about 20° C to 32° C, and the daily range of temperature is small.

At the 1950 census, the population numbered 26,665, of whom 18,561 were Negroes. In 1956 the population was estimated at 30,051.

The economy of the islands of St Thomas and St John is almost entirely dependent on the tourist trade; that of St Croix is primarily agricultural, and sugar-cane is the main crop. Cattle-raising on St Croix has been extended since 1955 as a result of the clearing of 21,185 acres (8573 hectares).

The Virgin Islands Corporation, in co-operation with the Soil Conservation Service of the US Department of Agriculture, has increased the agricultural development of the islands by building dams on each of the three main islands.

Education is compulsory for children from 5½ to 15 years of age. There is a Board of Education of seven members. A programme to improve teacher training was started in 1953-54 with an enrolment of about 80 teachers. Two modern high schools, the first of their kind in the Virgin Islands, were opened early in 1955. During the school year 1956-57, approximately 6000 children attended the public schools and 2390 were enrolled in private and parochial schools. A vocational rehabilitation programme was started in early 1957.

**Health**

The Department of Health (reorganized in 1958) comprises three divisions: hospital and medical services, public health services, and veterinary medicine.
The reported vital statistics for 1954, 1955 and 1956 were as follows: birth rate, 30.3, 30.8 and 32.3; death rate, 10.4, 10.7 and 11.9; infant mortality rate, 38.7, 48.2 and 68.0.

The public health services in 1956 were staffed by 21 doctors, 14 public health nurses, 51 other graduate nurses, 88 auxiliaries, 20 graduate midwives, one graduate engineer, 12 sanitation personnel, three dentists, five dental hygienists, 13 laboratory personnel, one health educator, one nutritionist, two social workers, one statistician, and 205 clerical and other personnel—all full-time, with the exception of four doctors, one dentist and one dental hygienist who were working on a part-time basis.

There are three general hospitals with 188 beds, providing maternity, paediatric, tuberculosis and psychiatric services. There is also a home for the aged with 150 beds. The Hansen’s Disease Home has been closed, all inmates having been declared cured or arrested cases and released from the institution.

The principal communicable diseases reported in 1957 were trichuriasis, syphilis and ascariasis. No cases of poliomyelitis were reported in 1956 or 1957.

There are four maternal and child health centres, within reach of the whole population. In 1956, 802 expectant mothers received pre-natal care: 2646 pre-natal and 752 post-natal visits were recorded; 5678 visits were made to children in their homes, and 9923 children visited clinics.

The islands have three water-supply systems serving 2500 inhabitants; about 10 000 people are served by public taps or fountains. Three sewerage systems provide connected service to 8850 persons; 1500 have private septic tanks; 10 000 have latrines; and the remainder have neither septic tanks nor latrines.

ARGENTINA

Argentina occupies the eastern part of the southern area of South America, extending from Bolivia to Cape Horn. The mountainous Cordilleras form its western boundary with Chile, and its long eastern coastline faces the Atlantic. In a country covering such an extensive latitude there are great varieties of climate: mountain, dry-tropical, humid-temperate, semi-arid, and even sub-polar. Of the total area (2 788 412 square kilometres) about 41 per cent. is pasture-land, 32 per cent. woodland (in the northern plains), and 11 per cent. cultivated land.

The estimated population at mid-1953 was 18 379 000 (Buenos Aires, the capital, having nearly three million inhabitants); in 1956 it was estimated at 19 485 869, with an urban population of about 61 per cent. of the whole. The people are mainly of European descent.

Argentina is an important meat-exporting country, and its principal source of income is from cattle-raising. In recent decades cereal production has steadily increased and now provides one of the chief exports.

In 1956, the Ministry of Social Welfare and Public Health set up five general departments, of which the first three deal with general medical and health services, control of communicable diseases, and environmental sanitation. The fourth department co-ordinates the health work of the various government departments with that of other institutions and agencies. The fifth is a technical department, dealing with problems related to the manufacture and sale of drugs and other medicinal products.

Five advisory central councils were constituted in 1953 to deal with general health matters; health education campaigns; maternal and child health; planning and co-ordination; and preventive medicine.

Vital statistics were as follows between 1953 and 1956:

<table>
<thead>
<tr>
<th></th>
<th>1953</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>25.0</td>
<td>24.1</td>
<td>24.0</td>
<td>23.8</td>
</tr>
<tr>
<td>Death rate</td>
<td>8.8</td>
<td>8.2</td>
<td>8.6</td>
<td>8.2</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>63.6</td>
<td>60.1</td>
<td>62.0</td>
<td>58.5</td>
</tr>
</tbody>
</table>

At the end of 1956 there were altogether 689 hospitals in Argentina, of which 591 provided general services, 66 were reserved for tuberculosis patients, and 25 were psychiatric hospitals. The total bed capacity was 110 071, distributed as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>52 931</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>3 885</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>7 855</td>
</tr>
<tr>
<td>Infectious diseases</td>
<td>3 098</td>
</tr>
<tr>
<td>Other general services</td>
<td>5 278</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>13 125</td>
</tr>
<tr>
<td>Mental diseases</td>
<td>22 003</td>
</tr>
<tr>
<td>Other</td>
<td>1 896</td>
</tr>
</tbody>
</table>

In accordance with the programme of decentralization initiated in 1950, when the regional health departments expanded the work of the hospitals, health
centres and health units, it is planned eventually to provide 10 beds for every 1000 inhabitants.

In 1954, there were 21 973 doctors in Argentina, or one doctor for every 840 inhabitants. By the end of 1956, there were 25 500 doctors, and other health personnel included 10 083 dentists, 10 273 graduate nurses, 16 527 other nurses, 3 560 graduate midwives and 2 038 auxiliary midwives. Of these, the provincial health services and those of the municipality of Buenos Aires employed on a part-time basis 7 660 physicians, 11 346 public health nurses, and 744 dentists.

The budget for the national public health services in 1953 was 667.6 million pesos (US $47 685 714 1), being 37 pesos (US $2.64 1) per capita and representing 4.2 per cent. of the total national budget.

The campaign against Aëdes aegypti, which has been in operation for some years, was continued, although no new cases of yellow fever have been reported since 1948. Vaccinations are given to the inhabitants of the jungle regions in the north-east and north-west of the country. In the north-east in 1952, Aëdes aegypti was found in 1060 houses out of a total of 11 752 inspected; as a result, 14 475 vaccinations were given in this area. Studies showed that Aëdes aesculaparios and Psorophora ferox were present, both of which are liable to transmit yellow fever virus. Much valuable work in vector research has been carried out by the Institute of Entomology attached to the Malbrán Institute.

Improved standards of living and the consequent improvements in hygiene have reduced the prevalence of typhus to such an extent that it is no longer considered a public health problem in the country; the few cases reported in recent years were all imported.

No human cases of bubonic plague were reported during the period under review. An epizootic outbreak in the province of Buenos Aires was brought under control immediately with the help of special legislation and control measures, which included DDT spraying, destruction of rats, and construction of rat-proof buildings.

Tuberculosis is a comparatively serious problem in Argentina; in 1956, 18 307 cases were notified, giving a rate of 93.9 per 100 000 population. As mentioned already, there are 66 hospitals for the care of tuberculosis patients, and preventive measures include a BCG vaccination programme, in which the Ministries of Education and National Defence co-operate with the Ministry of Social Welfare and Public Health. BCG vaccine production plants have been set up in Buenos Aires and in Jujuy, and the Government is training personnel to carry out mass BCG vaccination campaigns.

In 1956, poliomyelitis gave cause for concern, since 6496 cases were reported during the year. Special studies of the disease have been made at the Malbrán Institute, where a pilot scheme for the production of gamma globulin has been introduced.

A special division of the Ministry of Social Welfare and Public Health is in charge of measures for the control of yellow fever, and Public Health is in charge of measures for the control of the control of zoonoses, by training personnel, conducting and co-ordinating research, and disseminating information. Within the country, this work is carried out under the joint auspices of the Ministry of Social Welfare and the Ministry of Agriculture and Cattle-Raising. The Malbrán Institute also co-operates by undertaking epidemiological and endemo-geographical studies.

There are six medical schools in Argentina, which provide a six-year medical course leading to the degree of physician; some 1800 students graduate from these schools each year. On graduation, physicians who intend to take up general practice serve one additional year of hospital internship, while those who select public health as a career must serve two or three additional years of specialization. The medical schools, as indeed the other faculties of the universities, are government-owned and charge no tuition fees. Candidates for admission must be in possession of the bachillerato, or secondary school certificate.

A special division of the Ministry of Social Welfare and Public Health is responsible for environmental sanitation, and since 1953 sanitation teams have been organized to assist the municipal authorities in this field. In 1956 it was estimated that the dwellings of some 8 710 000 people in urban areas (44.7 per cent. of the total population) were connected to water-supply systems, and nearly six million people (30.3 per cent. of the population) were served by sewage-disposal systems, all in urban areas. A further 68.1 per cent. had private septic tanks or privies.

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1 Exchange rate prevailing on 30 June 1954
BAHAMA ISLANDS

The Bahamas are an archipelago of islands, cays and rocks, separated from Florida to the west by the Straits of Florida, and from Cuba to the south by the Old Bahama and Nicholas Channels. The territory has an area of 11,406 square kilometres and comprises nearly 700 islands and over 2000 cays and rocks.

At the 1953 census the population was 84,841; in mid-1956 it was estimated at 116,530, and at the end of 1957, at 130,698.

The chief products are vegetables, fruit, timber, salt and fish, but the territory's economic prosperity continues to depend almost entirely on the tourist trade.

Attendance at government schools is free and compulsory from 6 to 14 years of age.

Health

The medical and health service is administered by a Board of Health with the Chief Medical Officer as adviser. In 1954, 8.9 per cent. of the total budget was allocated to health, an expenditure of £3 (US $8.40) per head. The proposed budget for 1958 amounted to £459,750 (US $1,287,300).

Births and deaths are compulsorily registrable, and a number of infectious diseases are notifiable. Statistical returns for the territory as a whole cannot be considered accurate, for many cases in the Out Islands are not reported. Morbidity is estimated roughly by the incidence of admissions to hospitals. The vital statistics for the years 1954-57 were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
<th>1957</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>41.7</td>
<td>34.8</td>
<td>39.6</td>
<td>41.81</td>
</tr>
<tr>
<td>Death rate</td>
<td>11.5</td>
<td>11.3</td>
<td>10.8</td>
<td>9.6</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>57.8</td>
<td>81.9</td>
<td>52.3</td>
<td>40.3</td>
</tr>
</tbody>
</table>

Of the 460 medically certified deaths in 1957, 32 were due to pneumonia, 36 to diseases of early infancy, and 14 to tuberculosis. The number of reported cases of tuberculosis in 1955 was 82; in 1956, 109; and in 1957, 117; those of syphilis and its sequelae in the same period were 43, 21 and 19. Nine known cases of leprosy are recorded in the islands, and all of them are segregated.

Medical care is provided in four hospitals, with a total of 640 beds, including 30 for maternity cases, 20 for infectious diseases, 60 for tuberculosis, and 200 for mental patients.

Medical and health personnel in the territory in 1957 included: 33 doctors, seven dentists, 88 graduate nurses, 15 other nurses, 10 midwives, 12 auxiliary midwives, and two veterinarians.

At the same time the personnel employed in the health services of the Bahamas consisted of 22 doctors, 14 public health nurses, 32 other graduate nurses, five engineers, two sanitarians and 17 other sanitary. Two doctors, 12 midwives and 13 laboratory staff were on part-time service.

There are 25 health centres (23 in rural areas), which carry out maternal and child health work. In the two urban health centres, 3812 women received pre-natal care and 10,295 children were attended during 1957.

A school medical service was set up in 1957, and the establishment of this vital service was probably the most significant advance of the year. Between September, when it commenced, and the end of 1957, 3190 pupils from 11 schools in New Providence and 1018 pupils from 10 schools in the Out Islands were examined. There is close cooperation with the Education Department and the Bahamas Branch of the British Red Cross.

BARBADOS

Barbados is an island in the Lesser Antilles of the Caribbean, about 500 kilometres north of the coast of Venezuela. It has an area of 431 square kilometres and a population in 1956 of 223,000, of whom 93 per cent. are of African and 7 per cent. of European descent. The population has increased considerably since the 1946 census, when it was 192,800.

The economy depends principally on the manufacture of sugar and molasses. There are also three rum distilleries, two iron works, two ice factories, one bay rum factory and six bottling factories.

A five-year plan of development and taxation for the years 1952-57 provides for the construction of a deep-water harbours rehabilitation of the fishing industry, improvement of the strain,
of sugar-cane, and development of irrigation for agriculture. The plan proposes a capital expenditure of BWI $16 500 000 (US $9 705 884) of which BWI $6 000 000 (US $3 529 412) is to be raised by loans, by recourse to the balance of funds available—including Colonial Development and Welfare funds—and by increased taxation amounting to BWI $1 500 000 (US $882 353).

The adverse balance of trade in 1953 showed that the territory's imports of machinery, rice, flour, animal foods and cotton piece-goods exceeded by more than BWI $7 000 000 (US $4 117 647) its exports of sugar, molasses and rum. There is no compulsory education, but it was estimated in 1954 that 98 per cent. of the population of school age were enrolled in schools and that attendances averaged 75 per cent. Since the war the Housing Board has accomplished much in accommodating the growing needs of the inhabitants. Loans amounting to BWI $2 559 316 (US $1 505 480) granted to 6705 workers in the sugar industry, for building or repairing homes, have been provided from labour welfare funds. There is also an aided self-help housing scheme for the erection of permanent homes in urban and rural areas. A pilot scheme for 15 three-room houses on land leased for 99 years was completed in 1954. By the end of that year, 376 new stone houses had been built and leased to poor families, and 737 families had been assisted to remove from unsuitable areas in the city to properly prepared sites.

Overpopulation and under-employment are the main social problems in Barbados. Only during the farming season is there full employment, but unfortunately this does not last more than five months of the year. After the harvest, a comparatively small proportion of the workers remain in regular employment; many obtain part-time work, while the others occupy themselves with their own holdings. Since the war the United States of America has accepted increasing numbers of Barbadians for agricultural work; by the end of 1954 there were 1003 such workers in the United States.

Health

The central authority for health is the Director of Medical Services, who is responsible to the General Board of Health. On his staff are a senior medical officer of health, a bacteriologist and pathologist, a port medical officer and several part-time medical officers. The local health services are composed of 11 Boards of Commissioners of Health, appointed by each parish from the Vestry, or parish administration. Six public health inspectors supervise health work in the parishes in co-operation with the local Vestries, which also appoint their own health inspectors, the number varying with the size of the parish. Parochial medical officers employed in each of the 11 parishes are responsible for the provision of medical care to the needy and to the occupants of the parochial almshouses.

Under the new Public Health Bill of 1954, which is closely linked with the Local Government Bill but has not yet come into effect, the island is divided into three areas: the city of Bridgetown, the northern district and the southern district. Responsibility for health work will rest with the three Local Government Area Committees. In the meantime, the Director of Medical Services, with the Senior Medical Officer of Health, supervises the work of the parishes through the six public health inspectors appointed to the General Board of Health.

In 1954/55 the health budget amounted to BWI $1 662 000 (US $977 647), or 11.2 per cent. of the total territorial budget, and BWI $7.3 per capita (US $4.29).

The birth rate in 1956 was 31.0, the death rate was 10.6, and the infant mortality rate was 96.7, all three rates showing reductions from the 1953 rates, which were 33.1, 13.6 and 138.6 respectively.

Medical and health personnel in the territory's public health services in 1957 included: 48 physicians (of whom 18 were part-time), four dentists (part-time), 15 public health nurses, 92 sanitarians, two veterinarians, nine laboratory staff, and one nutritionist.

There are four hospitals in Barbados, all responsible to the Department of Medical Services: the General Hospital, with 416 beds and an out-patient attendance in 1956 of 98 741; the Mental Hospital, with 791 beds; the Leprosy Hospital, with 17 patients; and the Maternity Hospital, with 20 beds. There are also 11 parochial almshouses (one in each parish) with a total of some 1300 beds. Three health centres—at Enmore, Speightstown and Six Crossroads—are responsible for all public health work undertaken in their respective areas. The health centres have already taken over the following duties in whole or in part: venereal disease control, tuberculosis control (including ambulatory treatment), maternal and child health services, health education, school health (dental services), immunizations, control of infectious diseases, and sanitation (supervision only).

A new quarantine station has been erected at Needham's Point, within easy access of the Port of Bridgetown. At the latter and at Seawell Airport quarantine measures are supervised by the health officer, one public health inspector and two visiting airport officers.

In 1956, diseases of the circulatory system were the principal cause of death, followed by diseases of early infancy, diseases of the heart, and diseases of the nervous system. An *Aedes aegypti* eradication campaign was started in 1954; a BCG vaccination programme was started in 1956, and a mass venereal disease control campaign has been planned. Diseases of nutrition were chiefly associated with vitamin B complex deficiency.

In 1956, free dental care was given to 6983 children; 612 children were treated by an ophthalmic surgeon;
825 infants were registered at the infant welfare centres, with 2215 attendances at regular clinic sessions; 1130 expectant mothers registered at the pre-natal clinics, and there were 5406 attendances at the regular clinic sessions. Public health nurses paid 819 visits to the homes of patients.

In 1956 also, the Baby Welfare League, the St Lawrence Child Health Centre, the St Philip Baby Welfare Centre, the Christchurch Baby Welfare League and the Children's Goodwill League started clinic services and gave food supplements and meals to needy children. The Barbados Nurses' Association—a private organization—operated a nurses' employment bureau and administered a government grant of BWI $4108 (US $2416) under the supervision of the Director of Medical Services. They continue to employ three district nurses, who visit some schools and give treatment for minor ailments, as well as advice in the homes.

Since there is no medical school in the territory, qualification is normally taken in the United Kingdom. Locally, training is provided for pharmacists in a three-year apprenticeship; nurses are trained in a four-year course, which leads to local certification; midwives have a training course of 12-18 months, depending on whether the candidate has or has not completed the nursing course; and health inspectors are trained in a one-year course.

Two nurses from the Barbados General Hospital have been awarded fellowships at the University of Colorado to do post-graduate training in tuberculosis and paediatric nursing.

The Government has started a programme for the improvement of rural sanitation. Pre-cast concrete latrine units have been supplied to local health authorities at 50 per cent. of cost (i.e., BWI $4.00 (US $2.35) per unit), which has been met from local funds.

BERMUDA

Bermuda, a group of islands about 1100 kilometres south-east of New York, is an important naval and air-base. Its area is about 53 square kilometres with an estimated population in 1956 of 41 624. The main economic asset is the tourist trade, which compensates for an adverse balance of trade. Agriculture being practically the only other activity, tenant farms occupy some 80 per cent. of the land under cultivation, although farming on the whole faces gradual reduction due to ever-increasing building development.

Education is compulsory and free for all children between the ages of 7 and 13, although primary education is available for children from 5 to 15 years of age. In 1955 there were 39 primary, 13 secondary and six vocational schools.

A housing shortage still exists, in spite of many projects carried out by the Housing Commission.

Health

The Medical Department is responsible for the public health and sanitation services provided by the Government, as well as for the administration of two hospitals.

The health services budget in 1957 was distributed as follows: £5000 (US $14 000) for control of communicable diseases (including tuberculosis and venereal diseases); £25 000 (US $70 000) for local health services, maternal and child health, dental health and nutrition; and £225 000 (US $630 000) for hospitals and laboratory services.

The birth rate was 27.7 in 1954, 25.8 in 1955, and 28.1 in 1956. The death rate for the same years was 7.7, 8.2, and 8.1 respectively, and the infant mortality rate was 37.8, 38.0, and 37.6.

The general hospital — the King Edward VII Memorial Hospital — is privately run but is partially subsidized by the Government. It includes departments for maternity, paediatrics, and infectious diseases, and has a total of 162 beds. The two hospitals administered by the Medical Department are a small isolation unit (separate from the general hospital), and a mental hospital with 164 beds.

In 1957, medical and health personnel in the territory included: 31 physicians, 18 dentists, 110 graduate nurses and four other nurses, 13 graduate midwives and seven auxiliary midwives, four veterinarians and one sanitary engineer. Of these, the following were employed in the health services: seven physicians, seven public health nurses, 92 other graduate nurses, one graduate midwife, one sanitary engineer, and two dentists.

The principal causes of death in 1956 were heart diseases, vascular lesions affecting the nervous system, cancer, and diseases of early infancy.

No cases of quarantinable diseases were notified in 1956. Routine smallpox vaccination is, however, carried out, and 750 primary vaccinations were given during that year. There are six known cases of leprosy (of whom one is segregated), but no new cases have been diagnosed since 1947, when a case was imported. Amoebic and bacillary dysentery are practically unknown, and diarrhoea is only occasionally reported among infants.
Tuberculosis control is carried out at a special clinic, and there is also a mobile unit for this purpose. The Tuberculosis Association, with a grant from the Government, undertakes mass x-ray examinations periodically; in the course of the third survey, in 1954, only 15 new cases were found. Furthermore, tuberculin-testing among schoolchildren under 13 years of age in 1956 revealed less than 5 per cent. positive reactors.

Treatment of venereal diseases has been compulsory since 1943. In 1956, out of 6022 serological tests for syphilis, 1067 were found to be positive.

Maternal and child health care is provided in nine centres, three in urban and six in rural areas. In 1956, pre-natal care was given to 450 pregnant women, and post-natal care was provided for 350 mothers: 5963 children visited infant and child welfare clinics during the year, and 1426 visits were paid to children in their homes.

The school medical service carries out regular examination of schoolchildren. Among other findings, this service has estimated that six per cent. of the school population is poorly nourished. Free milk distribution has proved effective in the more severe cases. General nutrition studies suggest that malnutrition, where found among adults, is due to alcoholism.

Water supply presents some difficulties, mainly because of the lack of sufficient piping facilities and the brackishness of some wells. With regard to sewage disposal, the city of Hamilton and the naval and air bases have partial sewerage systems, but elsewhere all premises drain to individual disposal cesspits.

**BOLIVIA**

The Republic of Bolivia is one of the two landlocked countries of South America, extending for 1 098 580 square kilometres through the vast lowlands which comprise three-fifths of the country, and the high plateau region between the two Andean ranges of the Pacific area which makes up the remaining two-fifths. Although the lowlands encompass some very fertile grazing land, three-quarters of the population live in the elevated plateau region. With its average altitude of about 3000 metres, this plateau is one of the highest inhabited areas of the world.

At the 1950 census, the population was 2 704 165, of whom 33.5 per cent. were urban and lived mainly in the principal cities of La Paz, the capital (300 000 inhabitants), Cochabamba, Potosí, Santa Cruz, Sucre, Tarija and Oruro. The estimated population in 1956 was 3 235 251.

Two-thirds of the population depend on agriculture, and about 2 per cent. are engaged in tin mining. Tin, of which Bolivian production amounts to about 15 per cent. of the world output, together with lead, antimony ores, wolfram, cocoa, hides and rubber are the main exports. Wheat, flour, sugar, iron and steel products, machinery and textiles are imported. In 1952, three large mining groups, responsible for about 60 per cent. of the total mineral output, were nationalized.

Health

The Ministry of Hygiene and Public Health is in charge of most of the health activities of the country, with the exception of social security, which is dealt with by the Ministry of Labour and Social Welfare, and industrial health, which is the responsibility of the Ministry of Mines. At the national level, immediately under the Minister, there is a Director-General of Health in charge of the Health Department, which includes divisions for technical matters such as communicable diseases, nutrition, vital and health statistics, maternal and child health, school health, dental health, and pharmaceutical products.
Budgetary difficulties have proved a considerable hindrance to the orderly development of Bolivia's health services. In 1954 only 4.8 per cent. of the total budget could be devoted to health services, although the health authorities estimate that 9 or 10 per cent. would be required each year to cover adequately the most important health needs. The amount allocated to health represented a per capita expenditure of US $0.20 in 1954 and US $0.39 in 1956.

In 1957 there were in Bolivia 38 general hospitals, with a total of 4654 beds, six maternity hospitals (230 beds), two paediatric hospitals (140 beds), three tuberculosis hospitals (329 beds), and one mental hospital (290 beds). There were also 30 health centres which provided 247 beds for in-patient accommodation. Many of these hospitals are newly built and were opened during the period under review; one of them (with 280 beds) belongs to the Social Security Service. Assistance in the provision of medical care is also given by the Inter-American Cooperative Public Health Service, which maintains independently 13 health centres (six in chief towns of departments and seven in smaller towns) and five mobile rural health units.

Medical and health personnel in Bolivia in 1957 included: 387 physicians, 17 dentists, 225 qualified nurses and 401 other nurses, 32 qualified midwives, and three sanitary engineers, all employed either full-time or part-time in the national health services at central, district or provincial level.

Social security measures have progressed in recent years, since the creation by law in 1949 of the National Social Security Fund under the Ministry of Labour and Social Welfare. Originally this Fund covered sickness and maternity benefits only for workers in private concerns in the city of La Paz, but benefits were later extended also to employees of the public services. In 1954 the total number of insured persons and beneficiaries was 150,000.

In 1953, the vital statistics for the country were reported as follows: birth rate, 37.6; death rate, 14.5; and infant mortality rate, 106.1.

Of the quarantinable diseases, smallpox remains a persistent problem, with 624 cases in 1954, 372 in 1955, and 481 in 1956; in the last-mentioned year, 117 903 and 481 in 1956; in the last-mentioned year, 117 903 and 481 in 1956; and 481 in 1956. The recent increase in accommodation for tuberculosis patients in special hospitals (two new hospitals were opened in 1954) will undoubtedly be of assistance in solving the problem, and preventive measures being taken include BCG vaccination, which was given to 2400 children in 1956. Cases of syphilis reported during the period numbered 381 in 1954, 468 in 1955, and 306 in 1956. Treatment is provided at all health centres and dispensaries.

There has been considerable progress in the extension of maternal and child health services in recent years; a special section of the Health Department is in charge of this work, and great emphasis is being placed on education of mothers in the care of their infants as one means of reducing the high infant mortality. Maternal and child health care is provided in 34 centres, of which 13 are in urban and 21 in rural areas. In 1956, pre-natal clinics recorded 16,957 attendances, the number of pregnant women receiving care being 5092. In the same year, 226,584 infants and children visited child welfare clinics, and 23,715 children were visited in their homes.

Most of the activities in environmental sanitation are carried out by the Sanitary Engineering Division of the Inter-American Cooperative Public Health Service, which has been instrumental particularly in the construction of water-supply systems. In 1956, 135 water-supply systems, all in urban areas,
provided piped water to 642,000 of the urban population—a percentage of 59.1. In the same year, sewage-disposal systems served 16.2 per cent. of the population, 8.5 per cent. of them in rural areas. Housing is not a serious problem in Bolivia; it is estimated that between 80 and 90 per cent. of the population live in satisfactory housing conditions. There is a State housing scheme, operated through the social security funds, whereby low-cost houses are built for people of limited means.

BRAZIL

Brazil, the largest State in South America, has a coastline of 7365 kilometres on the Atlantic Ocean and an area of 8,513,844 square kilometres. It is a country of great rivers and includes most of the Amazon basin and its tributaries, and in the south includes much of the Paraná and Paraguay valleys. The northern States of Amazonas and Para are mainly low fertile plains, the central Matto Grosso is principally plateau land, and the eastern and southern States are traversed by a succession of mountain ranges interspersed with fertile valleys. The climate is mainly dry-tropical, although there are also wet-tropical and semi-arid regions.

At the 1950 census, Brazil had a population of 51,944,397, of whom 61.7 per cent. were white, 26.5 per cent. were mulatto, and 11.0 per cent. were Negro; there were also 329,082 Asians (0.6 per cent.) and 45,429 Indians. Rio de Janeiro, the capital, had a population of some 2.3 million; 36.2 per cent. of the total population lived in urban areas.

The county is divided into 21 states, five territories, and the Federal District, and is properly called the United States of Brazil, since each state has its own distinct administrative, legislative and judicial authorities, and its own constitution and laws.

In 1950, agriculture accounted for 71 per cent. of the productive output; the total cultivated area in 1952 was 18,800,000 hectares, of which 2,823,000 were for coffee. Brazil is an important producer of coffee, castor beans, cocoa, sugar and tobacco. The output of rubber in 1952 was 26,900 metric tons, and livestock production has much increased.

Mineral and forest wealth is also important. High-grade quartz crystal, industrial diamonds, iron ore, chrome and manganese ore, monazite sand, and some coal are produced. Cotton-weaving has become the most important manufacturing industry.

There is a large potential capacity for electric power production, although in 1951 the 2 million kilowatts produced were probably not more than one-seventh of the potential. The Volta Redonda plant, begun in 1948 with the aid of the Export-Import Bank, is expected to supply Brazil with 59 per cent. of its steel needs.

Primary education begins at the age of six and lasts for five years, followed by four years of post-primary education at the Ginásio before entry to the Colegio, or secondary school, which provides three further years of study in either classics or science. At the time of the 1950 census it was estimated that 49.6 per cent. of the population over 15 years of age were literate.

At the time of the 1950 census, it was estimated that 49.6 per cent. of the total population over 15 years of age were literate.

In 1955 there were altogether 2352 hospitals in Brazil with a total bed capacity of 216,260; their services were distributed as follows: 1792 general hospitals, 110 for tuberculosis, 40 for leprosy, 53 for paediatrics, 154 maternity, and 203 for other specialties.

The medical and health personnel in the country in 1954 included 23,195 physicians, 15,532 dentists, 16,563 nurses, 16,731 nursing aides, 1455 health visitors and 2989 sanitary engineers. Of these, 3725 doctors, 770 dentists, 1422 nurses and all the health visitors and sanitary engineers were employed in the health services.

Vital statistics, which are available only for the Federal District and seven state capitals, were as follows in the years 1954, 1955 and 1956: birth rate, 31.7, 30.7, and 30.1; death rate, 11.6, 11.6, and 11.9; infant mortality rate, 93.1, 98.9, and 100.3. Health
statistics are in general also available only for these areas, and figures quoted in the following paragraphs should therefore be taken as referring only to the Federal District and seven state capitals unless otherwise stated.

The principal causes of death in 1956 were: diseases of the heart (12,708 cases); gastritis, enteritis, etc. (9,421); malignant neoplasms (6,385); certain diseases of early infancy (5,761); and influenza and pneumonia (5,016).

Smallpox is a problem of some importance, as illustrated by the number of cases reported in the areas for which statistics are available: 1035 in 1954, 2,580 in 1955, and 2,385 in 1956. A large-scale vaccination and revaccination programme is under way, and during 1956, 1,292,250 doses of lymph were distributed by the Ministry of Health; 816,908 vaccinations were performed during that year in the Federal District alone. The campaign against yellow fever, which has been in operation for many years, was continued during the period under review, when reported cases numbered 12 in 1954, 22 in 1955, and 16 in 1956. The campaign includes control (with the object of eradication) of Aedes aegypti; vaccination of those portions of the population exposed to the risk of jungle yellow fever (1,267,216 vaccinations were performed in 1956); a viscerotome service (with 1,425 units throughout the country), and epidemiological studies. A few cases of plague have been reported (six in 1954, 27 in 1955, and four in 1956), all in rural areas, and control measures are being taken in endemic or potentially endemic zones, covering 160 municipal areas in seven states as well as the Federal District.

The programme of tuberculosis control covers almost the whole country, and the incidence reported in the areas for which statistics are available show the gravity of the disease: 184.6 per 100,000 in 1954, 120.8 in 1955, and 171.7 in 1956. In the Federal District alone there are 87 tuberculosis control clinics and 14 mobile units; in 1956, 2,452,170 BCG vaccinations were performed. For the whole country there were, in 1955, 110 hospitals reserved for tuberculosis patients, with a total bed capacity of 22,801; by 1957, the bed capacity had risen to 23,969.

Leprosy is endemic in Brazil, and in 1956 there were 63,143 known cases (a rate of 105.5 per 100,000), of whom 23,034 were segregated (mainly in leprosaria, but 803 of them at home), and the remainder were under supervision and treatment at dispensaries. The control programme includes early discovery and treatment of cases, epidemiological studies, health education of the public in the present-day concept of the leprosy problem, and various forms of social assistance to leprosy patients.

There appears to be an increase in the prevalence of poliomyelitis, as 561 cases were reported in 1954, 368 in 1955, and 698 in 1956, the majority occurring in children under five years of age. Vaccination has been initiated, and in Rio de Janeiro, Sao Paulo and one or two other state capitals, rehabilitation units have been set up as part of the hospital services. Voluntary organizations are also assisting in the rehabilitation of poliomyelitis patients.

Malaria is an extremely complex problem in Brazil, and many cases still occur each year; the reported rate per 100,000 inhabitants was 426.0 in 1954 and 656.8 in 1955. The Government is receiving international assistance in its control effort, which it proposes to convert into a nation-wide eradication programme as soon as possible.

Yaws is widespread, and it was estimated in 1956 that there were some 600,000 cases in the country. An eradication programme is in progress with international assistance, and in 1956, 143,106 cases and 127,745 contacts were treated in a house-to-house campaign. The plan of eradication is based on the principle of coverage of more than 95 per cent. of the population in affected areas, and includes training of qualified personnel and emphasis on health education to obtain full participation of the people.

Much emphasis is placed on the maternal and child health services, and every effort is being made to extend these in order to provide adequate care for the whole country. In 1956 there were 344 special maternal and child health centres in the country, and statistics received from 13 states showed that care was given to 95,635 expectant and nursing mothers and infants under two years of age, as well as to 48,555 children of pre-school age.

There are 23 medical schools in Brazil, of which nine are national institutions; two are maintained by the State of Sao Paulo, nine are privately owned, and the remainder are run by religious organizations.

In 1954 there were 980 water-supply systems in the country, serving over 10 million people, or 16.8 per cent. of the population. There were also 459 sewage-disposal systems, which served 5,745,000 people, a percentage of 9.6.
BRITISH GUIANA

British Guiana lies on the north coast of South America, with Venezuela to the west, Brazil to the south and Surinam to the east. Geographically, the territory is divided into three regions: a coastal region, about 50 kilometres in width, which is the agricultural area; an intermediate area of slightly higher land, about 160 kilometres wide, which contains the chief mineral and forest reserves of the country; and a hinterland of small mountain ranges and savannahs. Although about 80 per cent. of the land is well forested, only about one-fifth of this area is at present easily accessible for lumbering.

The area of British Guiana is 215,000 square kilometres and at the end of 1955 the estimated population was 473,670, not including American Indians. According to 1954 estimates the population is made up as follows: 221,400 East Indians, 169,800 of African descent, 52,700 mixed, 19,000 American Indians, 8600 Portuguese, 4160 other Europeans, and 3450 Chinese.

For administrative purposes (including health administration) the territory is divided into five districts.

The principal crops of British Guiana are sugar-cane, rice and coco-nuts. There are large mineral deposits; the country is a major source of bauxite and produces considerable quantities of gold and diamonds. The forests are its most important natural resource. Imports include machinery, textiles, flour and fish, while the chief exports are cane sugar, bauxite, rice, timber and gold.

In 1954, a two-year development plan was launched, based upon the recommendations of the International Bank for Reconstruction and Development. It is estimated that this plan will cost BWI $44,000,000 (US $25,882,353); it will be financed partly by territorial funds derived from loans, accumulated revenue and surplus balance, and partly from funds made available under the Colonial Development and Welfare Act of 1945.

Drainage and irrigation projects are expected to reclaim much coastal land for agriculture. In 1953-54 the Government initiated a programme for the purchase of machinery for hire to farmers.

The Department of Education administers primary education as well as supervising the administration of training, technical and secondary schools. The entire staff of the Department of Education is local or West Indian. Primary education is free and open to all children from 6 to 14 years.

The Government has earmarked for housing schemes some BWI $2,000,000 (US $1,176,471), of which about one-third is from Colonial Development and Welfare grants. Houses are to be built both by contract and by self-help. In 1954 the central housing and planning authority programme completed 275 houses, 80 self-help projects and 447 houses under contract. On the sugar estates land lots have been mapped out for building and approved by the Central Board of Welfare. The use of wood in construction is being replaced by more permanent materials.

In 1954, BWI $18,750 (US $11,029) were provided by the Government for the development of youth groups. There are six district social welfare officers whose duties are to promote the recreational and social activities of the villagers as well as to encourage cottage and village industry. There are 21 village community centres organized by community councils. Women's groups have been developed in rural areas, and in 1954 there were 34 women's institutes.

Health

The Ministry of Health deals with all policies affecting the health of the community. The Central Board of Health administers all health matters under a Director of Medical Services and a Medical Department. Public health work is carried out by the Town Councils of Georgetown and New Amsterdam, and by local authorities in the rural areas.

The health budget in 1957 was BWI $5,311,462 (US $3,124,389), which represents 11.7 per cent. of the total budget and a per capita health expenditure of BWI $10.56 (US $6.10).

Vital statistics for the years 1954-57 were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth Rate</th>
<th>Death Rate</th>
<th>Infant Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>42.8</td>
<td>43.2</td>
<td>42.3</td>
</tr>
<tr>
<td>1955</td>
<td>42.3</td>
<td>44.5</td>
<td>44.1</td>
</tr>
<tr>
<td>1956</td>
<td>11.9</td>
<td>12.2</td>
<td>11.5</td>
</tr>
<tr>
<td>1957</td>
<td>73.9</td>
<td>70.4</td>
<td>68.8</td>
</tr>
</tbody>
</table>

Medical and health personnel in the territory in 1957 included: 122 physicians, 31 dentists, 787 graduate nurses, 694 graduate midwives and 10 veterinarians. In the same year the national, provincial and local health services employed 89 physicians, 63 public health nurses, 454 other graduate nurses, 262 graduate midwives, 91 sanitarians, four dentists, 10 veterinarians, 40 laboratory personnel, and three social workers on a full time basis. The senior medical staff is usually qualified in the United Kingdom, and the Public Hospital in Georgetown is approved by London and other universities and medical schools as a pre-registration hospital for six interns. Several young men and women applied in 1957 and were accepted for nursing training at their own expense in the United Kingdom. The Royal Institute of Health in London holds examinations in the territory for public health inspectors and health visitors, the training being given in the public hospitals of Georgetown and Berbice. Nurses, midwives, dispensers, chemists and druggists are also trained in the public hospitals in these two cities.

The number of hospitals in 1957 was 22, with a total bed capacity of 3186. There were 19 general hospitals, which included provision for paediatric and maternity patients and cases of infectious diseases; they provided a total of 1687 beds, of which 76 were reserved for paediatrics, 91 for maternity and 51 for infectious diseases. There were also three specialized hospitals — one for tuberculosis (262 beds), one for
mental disorders (832 beds), and one for leprosy (405 beds). In 1953, there were 64 maternal and child health clinics, and four dispensaries with 26 beds for light cases and for out-patients; by 1957, maternal and child health services were provided in 103 centres. In 1952 there was one mobile unit; by 1957, nine such units were operating.

Under the Development Scheme, approval was given for a 40-bed government hospital to be built in the Corentyne, three cottage hospitals in various districts, and a Mobile Dispensary Service in the Lower Demerara Valley.

The following table shows the principal communicable diseases recorded in 1956 and 1957, and their rates per 100 000 population:

<table>
<thead>
<tr>
<th>Disease</th>
<th>1956</th>
<th>1957</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syphilis</td>
<td>1180.0</td>
<td>524.0</td>
</tr>
<tr>
<td>Whooping-cough</td>
<td>104.7</td>
<td>111.07</td>
</tr>
<tr>
<td>Typhoid fever</td>
<td>103.0</td>
<td>72.81</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>39.5</td>
<td>38.20</td>
</tr>
<tr>
<td>Leprosy</td>
<td>23.3</td>
<td>24.07</td>
</tr>
<tr>
<td>Yaws</td>
<td>12.1</td>
<td>2.18</td>
</tr>
<tr>
<td>Malaria</td>
<td>8.7</td>
<td>0.80</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>8.5</td>
<td>4.58</td>
</tr>
<tr>
<td>Meningococcal infections</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>Acute poliomyelitis</td>
<td>0.8</td>
<td>19.81</td>
</tr>
<tr>
<td>Infectious encephalitis</td>
<td>0.4</td>
<td>*</td>
</tr>
</tbody>
</table>

* No information available

A BCG vaccination campaign, with assistance from WHO and UNICEF, began in March 1954; a follow-up programme is now in progress. A malaria control programme, begun in 1947, has continued. The number of malaria cases in 1947 was 15,490, compared with 4 in 1957.

Systematic lectures are now being given in health education to elementary school-teachers at the Government Teachers’ Training College. In tuberculosis, the British Guiana Society for the Prevention and Care of Tuberculosis does similar educational work.

In school medical examinations, the most frequent defects found are dental caries, helminthic infestation, scabies and signs of malnutrition. Children in need of extra nourishment are referred to the Education Committee for school meals. A UNICEF School Feeding Scheme has been in operation for several years; over 20 per cent. of schoolchildren receive a free snack meal throughout the territory, including the interior. The good results of this scheme are demonstrated by the general physical and mental improvement of the children during the past few years.

In 1954 a water-supply programme was initiated, and 209 artesian wells have been constructed by the Government in the coastal region, with service mains providing water to some 300,000 inhabitants of rural areas.

BRITISH HONDURAS

British Honduras is in the Caribbean, its boundaries adjoining Guatemala and the peninsula of Yucatan. It has an area of 22,963 square kilometres. The greater part is covered by forest; 72 per cent. is high rain-forest, 15.5 per cent. pine forest and dry savannah, 5.5 per cent. wet savannah and mangrove swamp, and the remaining 7 per cent. is cultivated. The wiry grass of the dry savannah is very poor pastureage for cattle. The northern part of the territory and the southern coastal plain are nearly flat, and are swampy near the sea. The climate is generally hot and damp, but not unhealthy, with temperatures ranging from 15° C to 27° C, tempered by the prevailing sea breeze.

The population at the 1946 census was 59,220, and was estimated in mid-1956 at 81,779. In 1946 the capital, Belize, had 21,886 inhabitants, and there were five other towns with populations varying between 1300 and 3450.

The economy depends largely on forest products, which accounted for 77.8 per cent. of all exports in 1955. Agricultural development is limited; with a few exceptions, notably citrus fruit growing, cultivation is for subsistence. A third five-year development plan came into operation in 1955, providing for, among other things, expenditure on forestry, agriculture, fisheries and transport.

School attendance is compulsory between the ages of 6 and 14, and there are 122 primary, nine secondary schools and one teacher-training school. A number of scholarships are provided by the Government. The Extra-Mural Department of the University College of the West Indies maintains a resident tutor in the territory, who organizes adult education classes, study groups and lectures.

There is a shortage of housing in all towns and villages. In Belize, there is a lack of suitable ground, and the Government is carrying out a reclamation programme to provide more building space, and is also undertaking a housing and slum clearance scheme. There is a regular movement of workers from one area to another, following seasonal employment in logging, chicle collection, harvesting and milling sugar, and harvesting and processing the citrus crop.

Health

The medical and health services are administered by the Director of Medical Services, with a senior staff consisting of a medical officer of health, a surgeon and 10 medical officers. In 1954, expenditure on health accounted for 7.6 per cent. of the total budget, and represented an expenditure per head of BH $5.4 (US $3.78).
Vital statistics were as follows for the years 1954-56:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth rate</th>
<th>Death rate</th>
<th>Infant mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>42.0</td>
<td>11.4</td>
<td>93.5</td>
</tr>
<tr>
<td>1955</td>
<td>43.4</td>
<td>10.8</td>
<td>99.3</td>
</tr>
<tr>
<td>1956</td>
<td>45.5</td>
<td>10.0</td>
<td>69.0</td>
</tr>
</tbody>
</table>

There are nine hospitals, with a total of 479 beds, including one hospital reserved for tuberculosis patients (55 beds), and one mental hospital (100 beds).

In 1957 there were in the territory 21 physicians, seven dentists, 80 graduate nurses, 30 other nurses, 34 graduate midwives, 60 auxiliary midwives and one veterinarian. The national health service employed on a full-time basis 13 physicians, eight public health nurses, 75 other graduate nurses, 24 auxiliaries, one graduate midwife, 11 sanitariums, four laboratory staff, one health educator, one nutritionist and one social worker. Two dentists were employed part-time.

There has on the whole been a decline in the reported incidence of communicable diseases during the period under review, with the exception of measles. Malaria, the principal disease, had a reported case rate of 367 per 100 000 population in 1956 compared with 1613 in 1954. Whooping-cough dropped from a rate of 898 in 1954 to 120 in 1956; 2226 children were vaccinated during the latter year. Measles, on the other hand, increased from a rate of 7 in 1954 to 81 in 1956.

Syphilis is still a problem, with a rate of 148 in 1956—although this had fallen from 239 in 1954. Progress has been made in tuberculosis control, with a decline in incidence from 143 in 1954 to 46 in 1956. In the latter year 3332 BCG vaccinations were performed. There is only one known case of leprosy in the territory.

Maternal and child health services are provided at 20 centres, seven in urban and 13 in rural areas, covering the entire population. In 1956, these centres recorded 9709 pre-natal visits by 2209 expectant mothers, 3000 post-natal visits, and a total of 9060 infants and children receiving care either by visits to them in their homes (910 such visits were made during the year) or by attendance at clinic sessions, of which 53 228 were recorded.

There is no medical school in the territory, but nurses, midwives and junior dispensers are trained in the hospital at Belize. Higher training in pharmacy is obtained in the United Kingdom.

Approximately one-third of the population is served by the two water-supply systems of the territory, both in urban areas. There is no sewage-disposal system.

**CANADA**

Canada occupies most of the northern part of the North American continent. Its geography is dominated by the mountain ranges running north and south of the western side of the continent and by the pre-Cambrian Shield on the east. Between them lies the vast northern extension of the North American plain. There are six main regions determined by geographical conditions: the Appalachian Acadian region, the Canadian Shield, the lowlands of the St Lawrence and the Great Lakes, the interior plains, the Rocky Mountain region and the Arctic Archipelago. The climate in the east and centre presents greater extremes than similar latitudes in Europe, cold continental conditions being predominant. The south-western part of the Prairies and the Southern part of the Pacific Slope are milder. In the north, the climate is sub-arctic.

The population at the census of 1951 was 14 009 429, and at the 1956 census, 16 049 288. Ottawa, the capital, had a population of 202 000 in 1951, and there are 10 cities of over 100 000 inhabitants.

Canada is a federation of 10 provinces and two territories (Northwest and Yukon). Each of the 10 provinces has a separate legislature and administration, and is divided into counties, which may be municipalities or may contain them, according to their size.

The manufacturing industries now predominate in Canada, but agriculture continues nevertheless to take an important place; arable land is one of the great natural resources, and Canada is one of the chief food-exporting countries. Nova Scotia, British Columbia, Ontario, Quebec, Alberta and Yukon Territory are the principal mining districts, producing gold, copper, lead, nickel, zinc, asbestos, iron ore and uranium.

Each provincial government is responsible for its own educational system. Primary and secondary schools are publicly controlled and primary education is universal and compulsory. Illiteracy is negligible. There are seven provincial and 21 independent universities in Canada, 154 colleges and professional schools and 49 senior colleges. About 70 000 full-time students are following courses of university standard.

Canals, lakes and rivers provide more than 3200 kilometres of navigable inland waterways. There are two extensive railway lines—the Canadian National Railway and the Canadian Pacific Railway. There are nearly one million kilometres of main roads. Civil aviation, which is controlled by a branch of the Department of Transport, has a large continental service that is now extending rapidly to the north and west.

The Canadian Unemployment Act came into force in 1941, and as now amended it covers all employees under contract of service.

**Health**

Constitutional responsibility for health in Canada rests primarily at the provincial and local levels. At the national level, the Health Branch of the
Department of National Health and Welfare is responsible for implementing federal health provisions, working with and through provincial, municipal and voluntary health organizations throughout the country, and also for co-operating in international health. This Branch comprises three directorates — health services, Indian health services, and food and drugs. The Health Services Directorate includes divisions for blindness supervision, maternal and child health, civil aviation medicine, civil services health, dental health, epidemiology, hospital design, industrial health, laboratory of hygiene, mental health, narcotic control, nutrition, public health engineering and quarantine, health insurance studies, immigration, and sick mariners' medical services. These divisions have been divided into three broad groups, each under the direction of a Principal Medical Officer. The Indian Health Services provide preventive services and medical and hospital care for Indians and Eskimos, and in 1955 a division of Northern Health Services was added to provide for the rapidly developing Northwest Territory. In 1954 this service operated 18 hospitals, 33 nursing stations and about 65 health centres for the 145,000 Indians and 10,000 Eskimos of Canada.

At the provincial level the organization of the health services in Saskatchewan may be taken as an example. The Provincial Department of Public Health is headed by a Minister of Health with a Deputy Minister, advised by a Health Services Planning Commission and five branches: the Regional Health Service Branch, the Medical and Hospital Service Branch, the Psychiatric Service Branch, the Research and Statistics Branch and the Administrative Service Branch. The Regional Health Service Branch with its divisions of child health, communicable disease control, dental health, nursing services, nutrition, sanitation, and venereal diseases control, supervises services for eight different health regions. The Medical and Hospitals Service Branch covers hospital administration and standards, medical services, municipal medical care, rehabilitation, air ambulance services, medical care in the Northern Administrative District, and the Saskatchewan Hospital service plan. The Psychiatric Services Branch controls psychiatric hospitals and community psychiatric services. The Research and Statistics Branch has three Divisions: Vital Statistics, Research and Statistics, and the Public Health Library. The Administrative Service Branch includes records, administration, organization and methods, personnel and training, and the usual supplies services. The provincial laboratories and health education constitute two independent Divisions.

The division of responsibility at different levels of government and between public and private agencies has demonstrated the need for an effective co-ordinating body for planning. This role is carried out by the Dominion Council of Health, which includes in its membership the administrative head of each provincial health department. Its chairman is the Deputy Minister of National Health and Welfare. The Council meets twice a year and acts as an agency for promoting joint planning between the Federal Government and the provinces, and between individual provinces. It also advises the Minister. The development of health planning in Canada has been helped by two federal provincial projects — the National Health Survey of 1948 and the Canadian Sickness Survey of 1950-51. Under the former, with the assistance of a grant, each province carried out studies of its health services and its needs for the future. Under the Sickness Survey an attempt was made to estimate the incidence and prevalence of illness, accidents and permanent disabilities of all kinds, the amount of medical, nursing and other health care received, and the volume of family expenditure for the various types of health service.

The executive planning of health services in Canada is primarily a provincial responsibility. The larger municipalities usually provide basic public health services, participate in the costs of hospital care; and supply medical services to the indigent. A rapid development of similar services in rural areas has taken place through the organization of health units with a full-time staff. These serve rural areas or groups of municipalities.

At the local level the basic public health services, such as environmental sanitation, communicable disease control, maternal, infant and school health services, public health nursing, health education and vital statistics, are provided mainly through local health units or departments. These are directed by full-time medical officers of health assisted by nursing, sanitary and auxiliary staff. At the end of 1954 there were 158 local health units or districts and 30 urban health departments serving about 11.5 million people — more than 75 per cent. of Canada's total population.

By 1957 there were 221 local health units or districts (including urban health departments) serving nearly 14 million people out of 15.5 million in all provinces except Newfoundland, Prince Edward Island, and the two territories — for which data were not available. There has been a substantial advance in preventive work notably in maternal and child health, nutrition, and the whole range of communicable disease. Special emphasis has been laid recently on problems
of chronic illness and the rehabilitation of disabled persons.

In 1945 the Federal Government made a general offer of grants-in-aid to the provinces for health insurance and included a broad post-war reconstruction programme. This offer was abandoned owing to lack of agreement over tax powers, and in 1948 the Federal Government established the National Health Programme to assist the provinces in building up health facilities and training personnel. Under the different grants of this National Health Programme, about C $160 million (US $160 million) have been spent on increased services by provinces, more than 14 500 health personnel have been trained and employed, and at least 65 000 hospital beds have been provided. New legislation was adopted in 1957 under which the Federal Government will share with the provinces substantial protection against the costs of hospital care for the great majority of the population. All these provincial schemes with certain amendments will be eligible for the proposed federal grant-in-aid, provided that they are available to all residents of the province.

A broad range of public and private plans has been developed in the different provinces, offering medical care on a pre-payment or insurance basis to the general population. Newfoundland has had a scheme since 1934 which now covers half its population. Similar schemes have been developed under public auspices in the three western provinces of Saskatchewan, Alberta and British Columbia. Since 1947, Saskatchewan has had a comprehensive hospital insurance scheme providing virtually complete in-patient care. It is financed by personal premium contributions or taxes and general revenues, including part of the proceeds of a sales tax. A similar programme was introduced in British Columbia in 1949; it is now financed by general provincial revenues and statutory provincial and municipal hospital grants. In 1950, Alberta extended its assistance to the municipal hospital plans which have been in operation there for many years. This scheme now provides substantial protection against the costs of hospital care for the great majority of the population. All these provincial schemes with certain amendments will be eligible for the proposed federal grant-in-aid, provided that they are available to all residents of the province.

In 1957, it was estimated that there were 17 400 doctors in Canada. The medical and health personnel employed in the national, provincial and local health services, including those employed in hospitals operated by Federal Government departments (such as those for Indians, veterans, and the military), were as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>total</th>
<th>Medical and health services personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>3 027</td>
<td></td>
</tr>
<tr>
<td>Dentists</td>
<td>396</td>
<td></td>
</tr>
<tr>
<td>Public health nurses</td>
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<td></td>
</tr>
<tr>
<td>Other graduate nurses</td>
<td>3 605</td>
<td></td>
</tr>
<tr>
<td>Auxiliary nursing staff</td>
<td>4 995</td>
<td></td>
</tr>
<tr>
<td>Graduate midwives</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Graduate engineers</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Sanitarians</td>
<td>1 032</td>
<td></td>
</tr>
<tr>
<td>Other sanitary staff</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Veterinarians</td>
<td>275</td>
<td></td>
</tr>
<tr>
<td>Laboratory personnel</td>
<td>1 487</td>
<td></td>
</tr>
<tr>
<td>Nutritionists</td>
<td>204</td>
<td></td>
</tr>
<tr>
<td>Health educators</td>
<td>25</td>
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</tr>
<tr>
<td>Social workers</td>
<td>157</td>
<td></td>
</tr>
<tr>
<td>Statisticians</td>
<td>32</td>
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<tr>
<td>Dental hygienists</td>
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<td></td>
</tr>
<tr>
<td>Clerical personnel</td>
<td>3 421</td>
<td></td>
</tr>
<tr>
<td>Other personnel **</td>
<td>16 653</td>
<td></td>
</tr>
<tr>
<td>** Total</td>
<td>37 337</td>
<td></td>
</tr>
</tbody>
</table>

* Excl. of the prov. of Quebec

** Incl. pharma., physiotherapists, occupational therapists, x-ray technicians, etc., and for some prov. may include certain categories of physicians, nurses, etc.
There has been a rapid expansion of hospitals since the end of the war. In 1955, there were altogether 1256 hospitals, with 169 020 beds, including 1043 general hospitals (95 412 beds), 55 maternity hospitals (1233 beds), 12 communicable disease hospitals (1002 beds), 9 paediatric hospitals (1653 beds), 63 tuberculosis sanatoria (14 962 beds) and 74 mental hospitals (54 758 beds). The development of home care programmes (described later) is aimed at reducing the present demand for hospital beds.

Vital statistics for the years 1954, 1955 and 1956 are as follows: birth rate, 28.5, 28.2 and 28.0; death rate, 8.2 for each year; infant mortality rate, 32.0, 31.0 and 32.0.

The main causes of death and their rates per 100 000 population in 1956 were: diseases of the heart (273.8), malignant neoplasms (129.9), vascular lesions affecting the central nervous system (90.0), accidents (57.5), certain diseases of early infancy (46.8), influenza and pneumonia (35.4), congenital malformations (17.6) and arteriosclerosis (14.6).

The Federal Venereal Disease Control Grant has encouraged planning and uniformity throughout the provinces. Each province has a control division, and all offer free diagnosis and treatment at public clinics or under private physicians. The latter are reimbursed by provincial agencies on a fee for service basis. Case-finding and contact-tracing are carried out co-operatively by provincial and local agencies. The incidence of venereal disease has been reduced during the last few years by improved treatment and control procedures.

In tuberculosis the death rate has been reduced greatly in recent years (0.9 per cent. of the total deaths in 1956) and the number of new cases annually is beginning to decline. (The reported case rates per 100 000 population were 68.6 in 1954 and 58.4 in 1956.) The case-finding and rehabilitation services are provided jointly by voluntary tuberculosis associations and the provincial health departments. Chest x-ray examinations on admission to hospital have been widely developed and BCG vaccination programmes are conducted in some provinces. Free treatment of pulmonary tuberculosis is provided in Newfoundland, New Brunswick, Nova Scotia, Manitoba, Saskatchewan and Alberta. Financial help for provincial programmes is provided through a Federal Tuberculosis Control Grant. Increasing attention is now being given to the rehabilitation of the ex-patient and all provinces have special programmes.

So far as poliomyelitis is concerned, under the Salk vaccination scheme the federal and provincial governments agreed to share the cost of the vaccine. Provincial and local authorities are vaccinating the most susceptible age-groups free of charge as rapidly as supplies become available. Apart from this preventive work, several provinces provide free treatment and rehabilitation. During 1955, about 800 000 children received two or more doses of the vaccine. Although the general incidence of the disease was low in 1955, the attack rates of paralytic poliomyelitis were significantly lower among the vaccinated children. The reported case rates per 100 000 population were 15.7 in 1954 and 3.8 in 1956.

Concerning other communicable diseases, the reported case rate for measles in 1956 was 348.1, for tuberculosis 58.4, for scarlet fever 56.2, and for whooping-cough 53.0. No cases of smallpox occurred in the period under review.

Mental illness is still one of the foremost health problems in Canada. The number of patients in mental institutions increases each year, and by the end of 1954 had reached 68 157. At the present time the provincial and federal governments are laying emphasis on extensive diagnostic services, active treatment in mental hospitals, and rehabilitation. Preventive and short-term therapy services are being expanded, through the development of community clinics and psychiatric units in general hospitals. Most of the cost is borne by the provincial governments, but federal financial assistance is provided through a special mental health grant, and joint planning is a function of the Federal-Provincial Advisory Committee on Mental Health.

In the maternal and child health programmes special attention has recently been given to the needs of premature infants, and pre-natal care services are being extended.

A national conference on the rehabilitation of the physically handicapped was held under federal auspices in 1951. This marked the beginning of national co-operative planning for disabled persons, since before that a number of voluntary and government agencies had dealt with the rehabilitation of special groups. On the recommendation of this conference, a National Co-ordinator of Civilian Rehabilitation was appointed and a special branch was set up within the Federal Department of Labour. Agreements for co-ordination have now been signed with all provinces but one, and programmes have already been started in most of the provinces. Vocational training of the disabled has also been provided with joint grant agreement. Furthermore, a large medical rehabilitation grant was added to the National Health Programme to assist in equipment and employment, and in training qualified personnel.
Cancer is the second most common cause of death in Canada today. Educational work by voluntary societies and the development of clinics have greatly improved the outlook in recent years, and most provinces have drawn up a special programme for diagnosis and treatment. There are quasi-voluntary cancer agencies in Ontario, Manitoba and British Columbia which provide diagnostic and treatment services. Saskatchewan and Alberta have comprehensive programmes of free services administered by the provincial agencies. Other provinces pay the cost of limited services. The National Cancer Institute, a voluntary agency, co-ordinates and supports an extensive research programme. The Federal Cancer Control Service shares financial assistance for these services on a matching basis with the provinces. Voluntary agencies are leading the campaigns against important non-communicable diseases such as arthritis and rheumatism, cerebral palsy, and multiple sclerosis. They support clinical services, rehabilitation and research.

It is generally recognized that the aging of Canada's population will have an increasing influence on the scope of the health services. In 1955, 7.7 per cent. of the population were 65 years or over. Plans for the elderly — such as public assistance, housing, employment, recreation and medical care — are being provided in a number of ways. All levels of Government and various non-governmental organizations have undertaken some responsibility for the needs of the old. There are also programmes for the care and rehabilitation of the chronic sick and a great deal of medical research into the subject is now being undertaken. Provision is also made by a number of agencies for boarding and nursing attention. Comprehensive programmes for the aged poor are in operation in four provinces, the costs being met largely by their governments. In addition, special facilities for the chronic sick have been established in all provinces. In many areas chronic and convalescent hospitals are attached to general hospitals and have rehabilitation services.

A new type of service for the old — hospital home care — has been set up in several centres. In one instance the home nursing service is provided by the public health nurses. The Victorian Order of Nurses, which is the main agency in Canada for bedside nursing in the home, is giving a greatly increased proportion of its services to elderly patients and is using rehabilitation measures. Similarly, the home-maker's services are now being provided at a number of centres. Some provinces are developing a co-ordinated system by which older persons no longer requiring medical care can be discharged to their homes and kept under regular observation.

The general planning of government research policy is a function of the Privy Council Committee on Scientific and Industrial Research. Medical research activities are co-ordinated by an informal committee, composed of representatives of the various federal research agencies concerned, which reviews applications for grants and exchanges information on general research policy.

With regard to public water supply, general statistics on Canadian waterworks offer the following information on municipal systems:

<table>
<thead>
<tr>
<th>Number of systems</th>
<th>1 646</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground supplies</td>
<td>443</td>
</tr>
<tr>
<td>Surface supplies</td>
<td>1 204</td>
</tr>
<tr>
<td>Filtration plants</td>
<td>247</td>
</tr>
<tr>
<td>Chlorinated supplies</td>
<td>571</td>
</tr>
<tr>
<td>Population served</td>
<td>9 764 000</td>
</tr>
<tr>
<td>Percentage of total population</td>
<td>65.1</td>
</tr>
</tbody>
</table>

These figures do not include private supplies, federally owned systems and the municipal systems in the Yukon and Northwest Territories.

For sewage disposal, there are 866 systems serving a population of approximately 8 318 000, representing 55.5 per cent. of the total population. There are 533 sewage treatment plants and 315 partial treatment plants.

Both federal and provincial governments have been concerned with the pollution of rivers in Canada. A recent investigation of pollution of the North Saskatchewan River led to the removal of much of the toxic industrial waste, and also to a more adequate treatment of municipal wastes in many instances. The condition of the Ottawa River, which receives waste products from municipalities on both sides of the river as well as from various industries, has also been a subject of investigation, and some improvement has been achieved. Under the auspices of the International Joint Commission, a special study has been made recently of boundary water pollution in the St Clair and Detroit River areas. This study was principally concerned with the effect of industrial waste discharge on municipal water supplies. The Division of Public Health Engineering of the Department of National Health and Welfare co-operates with the provinces in the study of many of these problems, and long-term plans have also been worked out to ensure adequate disposal systems for municipal and industrial waste in various parts of the country.
CHILE

Chile lies between the Andes in the east and the shores of the South Pacific in the west, and extends from the borders of Bolivia and Peru to Cape Horn. Its total length reaches 4480 kilometres, whereas the average width of the country is only 160 kilometres. The total area is 741,767 square kilometres. The Andes run along the eastern frontier at a general elevation of from 1500 to 4500 metres, with numerous peaks rising much higher. The climate is arid in the north, changing to Mediterranean and west-maritime southwards.

The population was estimated at 6,589,000 in 1956, with a density of 8 per square kilometre. The capital, Santiago, has a population of 1,057,000; the other cities with more than 50,000 inhabitants are Valparaíso, Concepción, Temuco, Viña del Mar, Chillán, Talca, Antofagasta, and Talcuhuano. The principal ethnic groups are the Spanish settlers and their descendants; the indigenous Araucanian Indians, Fuegians and Changos; the Mestizos; and European immigrants.

The arid zone of the north produces Chile’s greatest wealth: copper (36.8 per cent. of the world’s reserves), gold, silver, nitrate, borate, phosphate, rock salt, sulphur and guano; coal is produced in the south. Exports of these minerals more than pay for the import of industrial machinery, chemical products and vehicles. In farming, wheat is the most important crop, with potatoes next, although soil erosion is a serious hindrance to progress. However, more food is exported than imported.

Education is free and compulsory for all children between the ages of 7 and 15. Professional instruction is given in the State University of Chile, the Catholic University at Santiago, the University of Concepción, the Catholic University of Valparaíso, and the Universidad Técnica Federico Santa María at Valparaíso; secondary instruction is given in the National Institute of Santiago and in the liceos and colleges in the capitals of the provinces and in some departments. The percentage of illiteracy is 26 for the country as a whole, ranging from 14.5 in the urban areas to 40 in the more rural ones.

A social security scheme provides sickness, maternity, old-age, invalidity and survivors’ benefits.

Health

The National Health Service, established in 1952, according to the law is “in charge of health protection by means of public health measures, social assistance and preventive and curative medical care”. In practice, it is responsible for public health work for the whole population and comprehensive medical care for the indigent and for beneficiaries of social insurance schemes. Its central administration is entrusted to a Director-General, assisted by an Advisory Board composed of representatives of the Faculty of Medicine of the University of Chile (the State University), the Colegio Médico de Chile, Parliament, the associations of employers, trade unions, and the Social Insurance Service. The Director-General delegates executive authority to two assistant directors, one responsible for the co-ordination of policy and standards through eight technical departments at Headquarters, and the other in charge of co-ordination of field operations throughout the country, which, for this purpose, has been divided into 15 health zones. The eight technical departments at Headquarters deal respectively with: medical care, epidemiology, maternal and child health and health education, environmental sanitation, dental health, laboratories, pharmaceutical services, and general technical services.

In each of the health zones there is a chief medical officer assisted by a Zone Technical Board and by an Advisory Committee, the latter composed of representatives of the community. In each zone there is at least one regional hospital and a network of smaller hospitals. The health centres are the executive units at the heart of this organization, and they are in charge of all medical care and public health services for the population of a given geographical area, usually coincident with the area of the administrative district, or political subdivision of the country.

In 1957 there were 224 hospitals in Chile, with a total bed capacity of 33,358. Of these, 168 were general hospitals (17,468 beds), six were for paediatrics (1,535 beds), one was for gynaecology and obstetrics (381 beds), 16 were reserved for tuberculosis patients (4,272 beds), and three were for mental patients (3,521 beds). There were also 30 other hospitals providing a total of 6,181 beds.

In the same year, the medical and health personnel employed in the national health services included 169 physicians working on a full-time basis in administration, and a further 3,721 working in the field on either a part-time or a full-time basis, 1,069 public health nurses, 8,038 auxiliary nurses, 569 graduate midwives, 44 sanitary engineers, 816 sanitarians, 19 dentists, 39 veterinarians, 49 laboratory personnel, 27 health educators, 230 dietitians, 596 social welfare workers, and 629 statisticians.

The National Health Service budget in 1956 was 27,000,000 Chilean pesos (US $43,902,439), representing 2 per cent. of the national income and 16 per cent. of the national budget. Considering as beneficiaries only the 75 per cent. of the population receiving medical care, the expenditure per capita was 6,000 pesos (US $9.75) during the year. Roughly 76 per cent. of the money comes from the national budget, 12 per cent. from the social insurance fund, and 12 per cent. from interest on investments and hospital services paid directly by the patients themselves.

As mentioned above, the national health service is responsible for providing comprehensive medical care for beneficiaries of social insurance schemes. The
Workers’ Social Insurance Fund covers, among others, all manual workers, their wives, and their children up to the age of 15; on the whole, this represents between 70 and 75 per cent. of the population. There is also a Servicio Médico Nacional de Empleados (preventive medicine and limited medical care for civil servants and “white-collar” workers), and separate medical services for special groups, such as the military forces, the police force, prisoners, and railway employees working along the railway track. There is, furthermore, an Accidents Insurance Fund with its own medical services. Through all these services about 90 per cent. of the population are covered to a greater or lesser extent, leaving only a very small group which finances its own medical care.

Vital statistics for the years 1954, 1955 and 1956 were as follows: birth rate, 28.5, 28.2, and 28.0; death rate, 13.2, 13.4, and 12.7; and infant mortality rate, 115.6, 119.2, and 109.1.

The study of mortality in Chile shows great changes in the past ten years. In 1948 the leading causes of death were diseases of the respiratory organs, followed by tuberculosis, infections of the digestive tract, diseases of the circulatory system, children’s diseases of the first year of life, nervous diseases, accidents and cancer. In the period under review, the 10 major causes of mortality were: diseases of the respiratory system, excluding tuberculosis (20 per cent.), cardiovascular diseases (14 per cent.), infant diseases (13 per cent.), gastro-intestinal diseases (11 per cent.), senility and ill-defined causes (8 per cent), malignancy and tumours (7 per cent.), diseases of the nervous system (6 per cent.), tuberculosis, all forms (5 per cent.), and infectious diseases, excluding tuberculosis (2.5 per cent.).

Of the infectious diseases, typhoid fever, whooping-cough and diphtheria are the most important, with a more or less stationary morbidity but receding mortality. Poliomyelitis shows a tendency to increase, with more serious outbreaks at two-year intervals; in 1954 there were 589 cases, in 1955 there were 416, and in 1956 there were 719, the majority of cases occurring in children under five years of age. No cases of smallpox were reported between 1954 and 1956, but in the latter year 124 593 primary and 658 595 secondary vaccinations were given; both glycerinated and dried vaccine is produced in the country.

Apart from the institutional facilities for the treatment of tuberculosis already mentioned, there are three mobile units for the control of this disease. A BCG vaccination programme has been in operation for some years, and preliminary statistical data available at the end of 1957 show that during the period of the campaign 929 481 persons were tuberculin-tested; of these 861 270 completed their examinations. Negative reactors numbered 461 154, of whom 460 024 were BCG-vaccinated.

There are 69 centres which provide maternal and child health services, and they recorded a total of 433 429 pre-natal visits in 1956, as well as 2 241 653 attendances at infant and child welfare clinics.

One of the difficulties confronting the national Government in its health work is the displacement of inhabitants from the rural areas to the large urban areas, causing constant disruption of its programmes of control, immunization, education and personnel training. In 1875 the urban and rural populations were 27 per cent. and 73 per cent. respectively, but by 1952 this situation was reversed to 60 per cent. in the urban areas and only 40 per cent. in the rural.

There are four medical schools in the country, to which students are admitted if they possess a bachillerato, or secondary school certificate, with special mention in biology, and pass a written entrance examination. Three of the schools provide the full seven-year curriculum leading to the degree of Médico Cirujano (Physician and Surgeon), but only the State-owned University of Chile is empowered to hold the national examinations and deliver the final degree. The fourth school has only recently been established.

In 1956 there were 285 water-supply systems in the country, serving 46.4 per cent. of the population, of whom 4.7 per cent. lived in rural areas. Ninety sewage-disposal systems were provided for over two million people, or some 32 per cent. of the population, 2.8 per cent. of them living in rural areas.

COLOMBIA

Colombia is the fourth largest country in South America and has the third largest population. It has coastlines upon both the Caribbean and the Pacific. Three-fifths of the country is almost uninhabited lowland lying east of the Eastern Cordillera. The great majority of the population (98.7 per cent.) is concentrated in the remaining, mostly mountainous, land, living chiefly in the narrow valleys or isolated basins, each with its distinctive soil and climate and pattern of life.

The estimated population in mid-1956 was 12 939 140, with a density of 11.4 per square kilometre. In 1951, 38 per cent. of the total population were urban. Some 45 per cent. of the working population are employed in industry, transport and
commerce. About 30 per cent of the people are of European descent, 40 per cent are Indian, 15 per cent mulatto, and 5 per cent. African. The capital, Bogotá (census population in 1951, 648 324), lies 2650 metres above sea-level.

Very little of the country is under cultivation, but much of the soil is fertile and is coming into use as roads improve. The staple crops are rice, maize, wheat, barley, beans, potatoes, cassava, plantains, sugar and panela, cocoa and tobacco. Cotton is grown on a small scale in most parts of the country. Coffee accounts for 83.3 per cent. of the total export income, while petroleum accounts for 10.5 per cent.; the export of bananas is growing steadily. Cattle-breeding is a long-standing industry in Colombia and one that is rapidly increasing the production of meat, hides and milk. Exports of finished leather are expanding. Important mineral exports are gold, silver, platinum and emeralds. There are large reserves of coal, iron, salt and other minerals. Growth of industry has been rapid and national production now meets nearly all domestic needs in textiles, footwear, cement, building materials, beverages, certain industrial chemicals, glass, tyres, pharmaceuticals, foodstuffs and tobacco.

Primary education is free and is not compulsory. Besides the National University in Bogotá, there are 27 higher educational institutions, of which 13 are in the capital. It was estimated in 1951 that 37 per cent. of the population over 7 years of age were illiterate.

Vessels entering Colombian ports in 1955 had a net registered tonnage of 9 076 887. Owing to the mountainous character of the country the construction of arterial railways and roads is difficult. There are 17 different railway lines, with a total length of 3013 kilometres. The total length of motor roads in 1955 was 26 458 kilometres. There is a large civil aviation service.

Health

The Ministry of Public Health is composed of the Minister of the standing Cabinet, a Secretariat-General with administrative and legal sections, and a Section for Evaluation and Statistical Co-ordination. There are two main Divisions— one for Public Health and the other for Public Assistance. The Public Health Division has seven sections dealing with rural public health and medical care, epidemiology and communicable diseases, tuberculosis, leprosy, environmental health, maternal and child health, and port health. The Public Assistance Division has two sections, covering hospital and public establishments, and institutions of public utility. Directly attached to the Secretariat-General are also six sections in charge of professional practice, inter-American co-operative public health services, and the Carlos Finlay and Samper Martinez Institutes, as well as the Cancer and Nutrition Institutes.

The medical and para-medical personnel in the country in 1957 consisted of the following: 4500 physicians, 1500 dentists, 430 trained nurses (30 of whom are public health nurse-midwives), 5800 auxiliary nurses, 300 auxiliary midwives, 300 veterinarians and 30 sanitary engineers. The total number of hospitals was 502, with 40 153 beds; of these, 467 were general hospitals (31 327 beds), 16 were mental hospitals (5911 beds), and 16 were tuberculosis hospitals (2777 beds).

Local health services were provided in 657 municipalities and included environmental sanitation, control of communicable diseases, maternal and child health, medical care, statistics, laboratory service, and health education.

Important communicable diseases notified in 1956 included malaria (69 714 cases) typhoid and paratyphoid fever (12 864 cases), tuberculosis (11 048 cases), syphilis (3167 cases), smallpox (2572 cases), diphtheria (1278 cases), yaws (1154 cases), leprosy (789 cases), typhus (louse-borne, 77 cases; flea-borne, 672 cases), poliomyelitis (108 cases), rabies (18 cases) and yellow fever (16 cases).

A large-scale malaria eradication programme is under way. There were, in 1956, 50 tuberculosis clinics and seven mobile units in charge of tuberculosis control work; 391 726 x-ray examinations were carried out, 7218 cases were diagnosed, and 1138930 persons received BCG vaccination. The estimated number of leprosy cases was 20 000; there were 9658 known cases, of whom 6288 were segregated. The number of persons vaccinated for the first time against smallpox reached 1 487 020, and those revaccinated numbered 1 223 559. The estimated number of cases of yaws was 40 000; 17 250 cases and 42 780 contacts were treated. In the control of yellow fever 167 viscerotome centres participated, and 140 292 persons were vaccinated. Approximately 188 000 children were vaccinated against whooping-cough and diphtheria.

In 1956 there were 714 maternal and child health centres, including general health centres with maternal and child health programmes; 125 616 pregnant women received ante-natal care, and 17 805 post-natal visits were recorded. Furthermore, 197 707 infants and children were attended; 256 316 visits of children to the centres, and 76 255 visits to children in their homes were recorded during the year.

Of a total urban population of 4 415 257 in 1956, some 2 827 000 were living in dwellings connected with a water-supply system, and a further 160 000 were served by other public or private supplies. Of a total rural population of 6 873 921, about 531 000 were served by private supplies.

Of the same urban population, 2 285 000 were served by a sewage-disposal system, 8491 had cesspits, and 875 000 had latrines. Of the rural population 220 000 had cesspits, and 596 000 had latrines.
COSTA RICA

Costa Rica is the most southerly State of Central America. It lies across the Isthmus of Panama and is bounded by Nicaragua and Panama and by the Caribbean Sea and the Pacific. The coastal lowlands on the shores of the Pacific and the Caribbean are tropical, but the interior plateau, at a height of about 1200 metres, has a temperate climate. In most parts the soil is very fertile. The area is estimated at 50,900 square kilometres.

At the last census, in 1950, the population was 800,875, with an average density of 15 per square kilometre. The city of San José, the capital, had 86,909 inhabitants, and 66.5 per cent. of the population lived in rural areas. The country’s population in 1956 was estimated at 987,778.

Costa Rica is a republic, with a President and a single chamber or Constitutional Congress. Members of the Cabinet comprise the two Vice-Presidents, and the Ministers for Foreign Affairs, Economy and Finance, Public Works, Agriculture and Industries, Interior, Education, Public Security, and Health.

The economy of the country is primarily agricultural. The principal agricultural products and exports are coffee (with an average crop of 20,000 metric tons), bananas and cocoa. Maize, sugar and potatoes are also widely grown. Soil erosion is serious. There is also some dairy-farming and cattle-raising. Industry is still on a small scale. The principal imports in 1952 were chemicals, food, machinery, textiles and petroleum.

Elementary instruction is compulsory and free. There is a university in San José.

Two railway systems with a total length of about 800 kilometres connect the capital with the ports on the Caribbean and the Pacific. There are about 560 kilometres of motor roads.

Health

The Minister of Public Health is advised by a Technical Health Council and an Administrative Council, and the Ministry, in addition to the usual administrative services, has two main departments: health, and medical care and social welfare. The technical sections in the Department of Health have recently been grouped into three main divisions: preventive medicine, maternal and child health, and environmental sanitation. The Department of Medical Care and Social Welfare is responsible for hospitals, sanatoria, dispensaries and social welfare institutions.

In 1957, the medical and health personnel of the country included 379 physicians, 113 dentists, 618 graduate nurses, 549 graduate midwives, 16 veterinarians, and 12 sanitary engineers. In the same year there were 43 hospitals, with a total bed capacity of 5276; 18 general hospitals (3769 beds), 19 maternity homes (282 beds), three mental hospitals (855 beds), one tuberculosis hospital (191), one for leprosy (177), and a pyretherapy unit.

The following table shows the vital statistics during the years 1954-56:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>52.6</td>
<td>51.4</td>
<td>52.1</td>
</tr>
<tr>
<td>Death rate</td>
<td>10.6</td>
<td>10.5</td>
<td>9.6</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>79.3</td>
<td>82.0</td>
<td>71.6</td>
</tr>
</tbody>
</table>

The principal causes of death in 1956 were: gastro-enteritis (1221 cases); certain diseases of early infancy (1001); malignant neoplasms (747); diseases of the heart (665), and influenza and pneumonia (554).

Malaria is an important public health problem in Costa Rica; the incidence reported was 149.6 (per 100,000) in 1954, 114.6 in 1955, and 139.6 in 1956. Plans were made to convert the malaria control programme into one of eradication, total-coverage DDT spraying to begin in 1957 in the affected area, which covers some 31,500 square kilometres and has a population of 451,000. No cases of yellow fever occurred between 1954 and 1956, although 1951, 1952 and 1953 had been epidemic years; vaccination is concentrated on foci of epidemics when cases occur, and no vaccinations were therefore carried out during this period. No cases of smallpox were reported, but 13,046 vaccinations against this disease were performed in 1956.

There were 252 known cases of leprosy in the country in 1956, of whom 166 were segregated in a leprosy settlement, which has accommodation for 177 patients. The remainder received out-patient care at two special treatment centres. A total of 21,915 serological tests for syphilis were made in 1956, revealing 3215 positive cases.

The incidence of tuberculosis remained fairly stable during the period, being 70.6 (per 100,000) in 1954, 71.6 in 1955, and 70.9 in 1956. There were altogether 496 beds for tuberculosis patients in health establishments in 1956, of which 191 were in a special tuberculosis hospital, and there was one mobile unit for tuberculosis control. Of 47,702 x-ray examinations carried out in 1956, 700 cases were found; 14,056 BCG vaccinations were performed in the same year.

Poliomyelitis gave cause for concern during the period under review, and reached epidemic proportions in 1954, when 1081 cases were reported; in 1955 there were 45 cases, and in 1956, 170, the majority occurring in children under five years of age. Vaccination of vulnerable groups of the population began in 1956. There is a special rehabilitation centre in the country.

Maternal and child health services are provided in 67 centres, and in 1956 pre-natal care was received by 20,290 women; 436,268 infants and children were seen; of this number, 338,714 attended well-baby clinics.

Piped water supplies are provided through 60 systems in urban areas, and there are eight sewage-disposal systems, also in urban areas.
CUBA

Cuba is the largest and most populous of the West Indian islands. It is long and narrow—about 1170 kilometres in length and with an average width of some 50 kilometres. The physical features of the island are very varied, ranging from high mountains, as in Oriente Province, to flat or rolling plains such as those of Camagüey Province. Because Cuba lies in the trade-wind belt, the climate is humid, warm and equable.

The population according to the 1953 census was 5,829,029, with a density of 51 per square kilometre. The annual rate of increase in 1953 was 2.07 per cent. The estimated population in mid-1957 was 6,392,964, of whom about three-quarters were white and the remainder were coloured or mulatto. Havana, the capital, has a population of 789,765; other cities with more than 100,000 inhabitants are: Holguin (226,779), Camagüey (191,379), Santiago de Cuba (166,384), Santa Clara (142,176), and Cienfuegos (99,530).

The country is divided into six provinces, each with an elected Governor, and the provinces are subdivided into 126 municipalities, each with an elected mayor. In accordance with the Constitution, they have complete autonomy in local government.

The economy of Cuba is predominantly agricultural and the chief products are sugar, tobacco, sweet potatoes, bananas, rice, coffee and maize. In 1953, about 24,000 square kilometres were under cultivation, of which about 60 per cent. were devoted to sugar-cane. Pineapples and citrus fruit are being grown to an increasing extent, while the cultivation of bananas is decreasing. Cuba has an important export trade in sugar and tobacco and, to a lesser degree, in iron, copper, chromium and other minerals.

Education is free and compulsory between the ages of 7 and 14. In 1950 there were 761,469 pupils. According to the 1953 census, 22 per cent. of the population over 10 years of age were illiterate.

Health

Under the Minister of Health and Social Welfare, a Technical Under-Secretary and an Administrative Under-Secretary are in charge of eight directorates-general: health; social welfare; child guidance; the National Council for Tuberculosis; prevention of leprosy, syphilis and skin diseases; the Finlay Institute; the National Corporation for Public Welfare; and the National Institute of Health.

The Directorate-General of Health is responsible for matters relating to: sanitation of ports and airports; supervision and control of the practice of medicine and auxiliary professions (such as dentistry, veterinary medicine, midwifery, nursing, and laboratory techniques); control over the importation and sale of drugs; control of food and drink; health statistics and epidemiology; control of venereal disease; disinfection and environmental sanitation.

At the local level, each of the 126 municipal districts has a district health service which acts as a health centre and is under the direct responsibility of the Directorate-General of Health.

The Directorate-General of Social Welfare is in charge of 46 hospitals, a dispensary, 13 blood banks, and a dental health service. Hospitals have been built in the town of Palma Soriano and in Antilla, where there were previously none, and in the towns of Cárdenas and Guanajay new hospital buildings have been opened and are now functioning. New buildings have been completed and are shortly to be opened for the hospitals of Matanzas, Cienfuegos, Santiago, Camagüey, Manzanillo, Victoria de las Tunas, and Gibara, as well as for the Mercedes Hospital, the Radium Institute, and the National Hospital in the city of Havana. The 13 blood banks are attached to the different hospitals which come under this Directorate-General. The crèches, hospitals and homes previously subsidized by this Directorate have been transferred to the National Corporation for Public Welfare. Complete data are not available on the total number of hospitals in the island.

In 1956 the health personnel of Cuba included: 6421 doctors, 2100 dentists, 2876 graduate nurses, 1885 graduate midwives and 700 veterinarians. The public health services were staffed by 1458 doctors, nine public health nurses and 888 other graduate nurses, 108 male nurses, eight graduate midwives, 15 graduate engineers, 2023 sanitarians, 90 dentists, 54 veterinarians, 283 laboratory personnel, 19 health educators, 14 dietitians, 25 social workers and 60 statisticians.

The death rates for all ages in 1954, 1955 and 1956 were 5.9, 6.1, and 5.8 respectively.

The chief communicable diseases in 1956, with their reported case rates per 100,000 population, were: syphilis (61.9); tuberculosis (31.0); typhoid fever (16.5); malaria (2.1); diphtheria (2.7), and measles (2.0).

The National Council for Tuberculosis directs laboratories and collects information for tuberculosis control, which is carried out through 28 dispensaries, five sanatoria and two preventoria. The 28 tuberculosis control dispensaries are distributed as follows in the provinces: Pinar del Rio, two; Havana, nine; Matanzas, three; Las Villas, six; Camagüey, two; Oriente, six. Altogether 10,377 persons were examined in these dispensaries in 1956, while another 12,439 were examined by mobile units; 1333 x-ray examinations were made, and 45,769 persons were vaccinated in the course of a BCG campaign.

The Directorate-General for the Prevention of Leprosy, Syphilis and Skin Diseases operates one dispensary in the Province of Pinar del Rio, three
in the Province of Havana, one in the Province of Matanzas, one in the Province of Las Villas, one in Camagüey, and three in Oriente. It is estimated that there are between 6500 and 7000 cases of leprosy in Cuba, of whom 4204 are under treatment, 731 of them segregated in two leprosy settlements.

Fifty-six cases of poliomyelitis were recorded in 1956, of which 41 occurred in children under five years of age.

There are eight maternal and child health centres, which are run by the Maternal and Child Health and School Health Service, in the cities of Pinar del Rio, Havana, Matanzas, Cárdenas, Santa Clara, Cienfuegos, Camagüey, and Santiago. They provide pre-natal and post-natal care of mothers and also hold infant welfare clinics.

The School Health Service, which is attached to the Department of Maternal and Child Health, is responsible for the health care of schoolchildren, teachers and other staff of educational establishments (each of whom has a health card), and for vaccinating them against smallpox, typhoid fever, tuberculosis (with BCG), and poliomyelitis.

The Directorate-General for Child Guidance has established a Section for Protection and Correction, which includes a rehabilitation institute for boys and another for girls. The Rehabilitation Institute for Boys—at Torrens—has two centres, one for arts and crafts and one for agriculture. The former includes facilities for teaching elocution and music and various workshops where the children learn shoe-making, mechanics, pottery, weaving, tailoring, etc. Provision is also made for sports and games. On the agricultural side, instruction is given in crop cultivation and livestock raising. The Institute has a number of special departments: a general hospital, a section for diagnosis and classification of disability, two centres for basic education, and a social welfare service. The Rehabilitation Institute for Girls—at Aldecoa—has departments for diagnosis and classification of disability, medical and dental care, and social welfare. Facilities exist for basic education, and tuition in music and elocution, needlework and domestic science, and sports and physical training.

The National Institute of Health includes three large groups of specialized laboratories: one group for bacteriology, haematology, parasitology and serology; a second group for bromatology, hydrology, drugs, biochemistry, and miscellaneous subjects; and a third group consists of biological laboratories for the preparation and control of biological products for official use—such as smallpox vaccine (both glycerinated and freeze-dried), typhoid vaccine, diphtheria toxoid, etc.

There is one medical school in Cuba—the Faculty of Medicine of the University of Havana. Admission is open to men and women who hold a secondary school certificate and who pass the entrance examination. The course is of seven years' duration, and leads to the degree of doctor of Medicine. About 80 new doctors graduate each year.

The Sanitary Engineering and Housing Section is responsible for the supervision and control of drinking-water, and of all matters connected with engineering and building works, including the approval or rejection of plans for the construction of private houses, public establishments, industries, factories, workshops, water-supply systems, and others.

DOMINICAN REPUBLIC

The Dominican Republic shares the island of Santo Domingo (formerly Hispaniola) with the Republic of Haiti, occupying the eastern two-thirds of the island. Its area is 48 442 square kilometres, mostly mountainous and heavily forested. The valleys north of the central mountain mass are very fertile and contain two-thirds of the population. The south is less fertile.

The climate is tropical in the lowlands and semi-tropical to temperate in the highlands. The 1950 census showed the population to be 2 135 872, with an annual rate of increase of 2.45 per cent. and a density of 44.1 per square kilometre. Although the first settlers were Spanish, the census revealed that most of the inhabitants were of mixed European, African and Indian blood; there were 601 000 whites, 245 000 Negros, and 1 289 000 mixed. The estimated population of the Dominican Republic is mid-1957 was 2 703 565.

Most of the population is engaged in agriculture. Women were enfranchised in 1942, and since then they have taken seats as members of both the Chamber and the Senate and have also held political, judicial, diplomatic and other public posts.

Ciudad Trujillo, the capital, had a population of 181 533 at the 1950 census, and in mid-1957 the number of inhabitants was estimated at 294 945. According to a census of buildings and dwellings taken in 1955, 74 per cent. of the population are rural, and 26 per cent. are urban.

The cultivation of sugar-cane is the most important element in the country's predominantly agricultural economy; 753 546 metric tons of sugar were produced in 1956. The central sugar refinery of Rio Haina is the largest in the world. Coffee production has increased considerably and is the second most important export commodity; the third most important is cocoa.

Primary education is free and compulsory for children between 7 and 14 years of age. It was estimated in 1956 that 40.1 per cent. of the population over the age of 15 were illiterate. A
Health

In the Office of the Secretary of State for Health and Social Welfare there are, in addition to the usual administrative and legal sections, three departments headed by Under-Secretaries of State: one for curative medicine, one for preventive medicine, and one for social welfare. The first of these is responsible for the medical and nursing staff of the dispensaries and hospitals through which medical care is provided. The second comprises divisions of epidemiology, tuberculosis, sanitary engineering, malaria control, nutrition, organization of laboratories, health education, health statistics, and provincial and local health services. The third department directs the social services (homes for the aged, assistance to the needy and social welfare), the child health and welfare services (nurseries, crèches, orphanages, training institutes for minors), and the nutritional services for adults and children.

Between 1952 and 1957, the national health administration did much to develop and organize the services of local health centres, to improve facilities for the training of doctors, medical students and nurses—in short, to extend and improve all types of public health service.

The total budget for the national, provincial and local health services in 1957 was US $13 305 387, or about 9 per cent. of the total national budget. This figure includes the budget of the Dominican Social Security Fund. The sum invested in hospital construction (US $4 306 606.40 in 1957) is not included in the budget of the Secretariat, as it is derived from additional funds which also cover the cost of equipping the new hospitals.

In 1957 there were altogether 66 hospitals and sanatoria in the country. Of these, 49 were general hospitals with a total of 5214 beds; two were paediatric hospitals; nine were maternity homes; two were special hospitals for the treatment of tuberculosis (586 beds), and one was a psychiatric hospital with 220 beds. The total number of beds in government hospitals is at present 7264. A further six general hospitals with a total of 1250 beds, a psychiatric hospital with 1000 beds, and a leprosy hospital and settlement with 250 beds are under construction.

There were 1403 physicians in the country in 1957—a ratio of 1: 1926 population—as well as 411 dentists, 316 graduate nurses, 460 assistant nurses, 52 graduate midwives, 16 veterinarians, three sanitary engineers, and 271 auxiliary health personnel.

In the same year, 18 physicians were employed in the national service (medical staff in the Office of the Secretary of State for Health and Social Welfare), 37 in the provincial preventive medical service, and 49 in the local preventive medical service. A further 512 physicians were serving in hospitals and other State institutions for medical care. The health services also employed 20 public health nurses, 296 graduate nurses, 460 assistant nurses, 52 graduate midwives, three sanitary engineers, 271 auxiliary health personnel, 52 dentists, three veterinarians, 82 laboratory technicians, two health educators, eight dietitians and four statisticians.

As far as communicable diseases are concerned, the incidence of typhoid fever has decreased by 50 per cent. during the past four years. There is some leprosy in the country, although it is not widespread. Malaria, which was the most serious health problem, has decreased to a very considerable extent in recent years as a result of the control programme, which has now given place to a programme of eradication. There has been a very marked drop in deaths from tuberculosis in the past few years, and a nation-wide campaign of mass BCG vaccination is to be undertaken in the near future in order to strengthen the existing control programme. In the experimental and demonstration area of San Cristóbal—which is representative of the country as a whole—the morbidity rate for early syphilis (primary and secondary) was 14.3 per 100 000 inhabitants in 1956. The distribution of yaws in the country presents a somewhat uncommon picture of residual foci limited to certain localities in rural areas; for this reason the prevalence of this disease cannot be estimated on the basis of figures obtained in the areas already surveyed, where it has been found to be low. A programme of eradication is at present being undertaken, and it is hoped that the disease will have completely disappeared by the end of 1959.

In 1956 there were 15 reported cases of paralytic poliomyelitis, of which 13 occurred in children under five years of age.

In addition to the maternity homes and paediatric hospitals, the following centres provide services for maternal and child health and welfare: 28 establishments which give advice on infant nutrition and diet...
(these have an annual attendance of some 5000 infants under one year of age); three nurseries with accommodation for 500 pre-school children; two créches with cots for 150 infants, and three training institutes or reformatories, for minors, with accommodation for 410 children. In 1957, 60 supplementary feeding centres distributed 10,511,900 bottles of milk and 1,348,600 loaves of bread to 24,803 persons of limited means—mainly pregnant women and needy mothers of large families.

There are orphanages for minors of both sexes, with accommodation for 500 children, and six homes for the aged, with 573 beds. Pensions are also paid in cases of invalidity, extreme poverty and senility.

About 60 per cent. of the population are provided with piped water supplied through 51 urban networks, which also serve certain neighbouring rural areas. There are seven exclusively rural networks, and 325 rural water-supply systems maintained by the State. These services cover an urban population of 600,418 and a rural population of 1,005,769. In rural areas, 916,527 people draw their water from public fountains.

There are four sewage-disposal systems, all in urban areas, which serve some 400,000 inhabitants. The rest of the population uses septic pits and individual latrines.

The Dominican Republic has a Faculty of Medicine, founded at the end of the 16th century, which is affiliated to the University of Santo Domingo. The medical course lasts six years and leads to the degree of Doctor en Medicina; students must hold a secondary school certificate with specialization in physics and biology. In 1957 the teaching staff of the Faculty numbered 41, and 944 students of both sexes were enrolled. Of a group of 150 students who began the course at the same date, there were 66 candidates for the degree. The University is a State institution.

ECUADOR

Ecuador lies across the Andes at their narrowest point, with Colombia to the north and Peru to the south. It is largely mountainous and is watered by the Upper Amazon and by smaller rivers on the Pacific coast.

The climate is dry-tropical in the west, wet-tropical in the Amazon region or "Oriente", and mountain-dry in between. The Humboldt current makes it cooler than might be expected.

The population was estimated to be 3,944,382 on 1 July 1957 as compared with the figure of 3,202,757 recorded in the first national census of 1950. Mestizos comprise 41 per cent. of the inhabitants, Indians 39 per cent., whites 10 per cent., and mulattos, Negroes and others the remainder. Quito is the capital, with a population of 209,932.

The economy is mainly agricultural, with cocoa and bananas forming the principal crops and exports. Coffee, rice, wild rubber, mangrove bark for tanning, alligator skins, kapok, gold and silver are also exported and the cultivation of cotton, tobacco and sugar is increasing. Salt production is a government monopoly.

At the time of the 1950 census, 43.7 per cent. of the population over 10 years of age were illiterate.

Primary education is free and compulsory for all children between 6 and 12 years of age.

Social security covered 107,000 in 1951 for sickness, maternity benefits, old age, invalidity and survivors' pensions.

Health

The Directorate-General of Health is part of the Ministry of Social Security and Health. It has technical divisions for international health; health statistics; epidemiology and control of communicable diseases; sanitary engineering; the national campaigns against tuberculosis, plague, typhus, yellow fever, yaws, rabies, venereal diseases and malaria; and maternal and child care. There is an inspectorate; and the Department co-operates with the Ecuadorian leagues against tuberculosis, cancer and leprosy.

The MCH division has its headquarters at Guayaquil, with a sub-office in Quito and consultative committees in both towns. Its work is divided into school health, nursing, health centres, social service and health education. Guayaquil and Quito each have two health centres, and there is one in each of the following towns: Cuenca, Portoviejo, Loja, Esmeraldas, Ambato, Sangolqui, Cayambe and Latacunga.

In 1957 the Republic had 1325 practising physicians, 351 dentists, 194 graduate nurses, 183 graduate midwives and 32 veterinarians. Of these, the following were employed by the national, provincial or local health services: 94 physicians, 75 graduate nurses; six graduate midwives; one graduate engineer; 23 dentists, all part-time; 14 laboratory technicians; four health educators; 10 dietitians; five social workers; and 23 statisticians.

There are 77 hospitals in the country, including 53 general, four paediatric, three maternity, five infectious diseases, nine tuberculosis, and two mental hospitals.

In 1956, the birth rate in Quito was 46.0, the death rate was 15.0, and the infant death rate was 108.1. During the same year the principal infectious
diseases reported, with their case rates per 100,000 population were: tuberculosis, 116.4; typhoid fever, 41.6; smallpox, 17.7; malaria, 17.2; diphtheria, 14.2; typhus, 5.3; and plague, 2.2.

During 1956, 68,754 inhabitants received first smallpox vaccinations, and 220,270 were re-vaccinated; 16,691 people were vaccinated against yellow fever, almost all in jungle areas; 4,541 cases of yaws were estimated to exist, of which 541 were treated. Tuberculosis control work was carried out by 18 clinics, 21 dispensaries, 19 health inquiry centres and two mobile units; in all 145,005 inhabitants were examined by x-ray and 3,874 cases of tuberculosis were discovered; 70,145 persons were vaccinated with BCG during the year.

There are three medical schools in Ecuador, all government-owned, which confer a degree after a seven-year course. Admission is open to students of both sexes with a secondary school certificate. Approximately 200 students graduate each year.

**EL SALVADOR**

El Salvador lies on the Pacific coast of Central America, bounded by Guatemala, Honduras and Nicaragua. It is very mountainous, and contains many volcanic peaks, some still active. The lowlands along the coast are generally very hot, but the plateau and hills inland are cooler. There is a wet season from May to October and a dry season from November to April. The area is estimated to be 21,393 square kilometres, 71 per cent. of which is under cultivation.

The population at the 1950 census was 1,855,917; with a density of 110 per square kilometre. In mid-1957 the population was estimated to be 2,350,201, 36.5 per cent. of whom were urban. The capital, San Salvador, had in 1955 a population of 195,000. Women gained full suffrage in 1950.

The economy of the country is predominantly agricultural, and heavily dependent on the coffee crop, which furnishes about 87 per cent. of the total exports. The area under coffee in 1953 was about 1300 square kilometres mostly owned by Salvadorans. Other export crops are cotton, rice and maize. Gold and silver are also exported. The forests have mahogany, cedar, walnut, and balsam trees. El Salvador is the world's principal source of balsam. In 1956 a dam was completed which was designed to double the country's production of electricity—from 31,000 to 62,000 kilowatts—and a second dam has been added to the system.

According to the 1950 census, 57.8 per cent. of the population over 10 were illiterate. Some headway is being made in reducing this percentage, and in 1954 there were seven centres for adult education. Primary school education (of six years' duration) is provided free of charge, and is compulsory for children from 7 to 12 years of age. Secondary education lasts for five years.

The University of El Salvador, founded in 1847, is an administratively autonomous institution financed almost entirely by the Government.

A new social security law came into force in January 1954 under which employers pay 50 per cent. of the contributions for insurance, and the employees and the State pay 25 per cent. each.

**Health**

The General Health Directorate, under the authority of the Ministry of Public Health and Social Assistance, is responsible for all public health services in the country.

The central office has eight divisions: epidemiology, including malaria and venereal disease control; laboratories; sanitary engineering; tuberculosis; local services; maternal and child health; health education; and a demonstration area providing for the training of personnel and field investigation work.

For local health administration, the Republic is divided into seven regions, which have between them 15 health or sanitary centres and 20 health units. There is one mobile unit. During 1956-57 these institutions rendered a total of 141,684 consultations in maternal and child health.

The budget of the Ministry of Public Health and Social Assistance for 1957 was 18,339,823 colones (US $7,335,929); about 50 per cent. of this sum was spent on hospital and medical care services, the rest being devoted to preventive and social welfare services.

In 1957 there were 23 hospitals in the country, with a total of 5,039 beds; 2,345 of these were in general hospitals, 506 for paediatrics, 487 for maternity, 1,318 for tuberculosis, and 383 for mental illness.

In 1957, there were in the country 325 doctors, 117 dentists, 401 graduate nurses, 1,183 assistant nurses, 12 veterinarians, and seven sanitary engineers. The following personnel were employed in the public health services: 111 doctors (of whom 29 were engaged full-time), 144 public health nurses, three graduate engineers, 127 sanitarians, 41 dentists (of whom 16 were engaged full-time), 39 laboratory personnel, 12 health educators, two dietitians, and three statisticians.

The following table shows the vital statistics for the years 1954-56:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>48.1</td>
<td>47.9</td>
<td>47.0</td>
</tr>
<tr>
<td>Death rate</td>
<td>15.0</td>
<td>14.2</td>
<td>12.4</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>82.4</td>
<td>76.7</td>
<td>70.3</td>
</tr>
</tbody>
</table>
During the same period the principal causes of death and number of deaths were as follows:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastro-enteritis</td>
<td>5486</td>
<td>4888</td>
<td>3465</td>
</tr>
<tr>
<td>Accidents</td>
<td>1617</td>
<td>1717</td>
<td>1970</td>
</tr>
<tr>
<td>Malaria</td>
<td>852</td>
<td>955</td>
<td>642</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>476</td>
<td>456</td>
<td>361</td>
</tr>
<tr>
<td>Cancer</td>
<td>486</td>
<td>426</td>
<td>439</td>
</tr>
<tr>
<td>Cardiovascular diseases</td>
<td>636</td>
<td>507</td>
<td>496</td>
</tr>
</tbody>
</table>

In 1956, nine ambulatory clinics examined some 90,700 people for tuberculosis, and 1533 cases were diagnosed. BCG vaccinations were given to 7169.

About 18 doctors graduate annually from the medical faculty of the University of El Salvador, where annual admissions average about 40. In 1957, there were 251 medical students, including 28 women, in the University. Admission requirements include the possession of the higher secondary school certificate, an entrance examination, and a certificate of good health.

In 1956 there were 260 water-supply systems for the 730,000 inhabitants of urban areas, although these systems were not complete. About 300,000 of the urban population were served by a connected system, 370,000 by public taps, and 60,000 by private fountains. Of the 1,270,000 people living in rural areas, public taps served some 100,000. In 1956/57 the Government spent about 1,000,000 colones (US $400,000) and 500,000 colones (US $200,000) respectively for new waterworks in urban and rural areas.

Sewage-disposal systems (25 incomplete urban systems) served some 660,000 urban inhabitants in 1956; in rural areas 200,000 of the total 1,270,000 population had latrines.

**FRENCH DEPARTMENTS IN AMERICA**

On 1 January 1947 Martinique, Guadeloupe and French Guiana became French departments, completely integrated with metropolitan France and enjoying the same status as the ninety continental European departments.

Martinique and Guadeloupe are in the Lesser Antilles; although in the tropics, their climate is tempered by the trade winds, which blow regularly all the year round. The temperature remains comparatively stable with an average of 26° C; annual rainfall is from 2 to 3 metres according to the region.

French Guiana lies on the north coast of the South American continent, bordering on Surinam to the north and on Brazil to the south. It is covered by vast forests of the Amazon type and has a very humid typically equatorial climate with annual rainfall varying between about 3 and 6 metres according to the area. However, the northern trade winds keep the temperature between 25° C and 32° C according to the region and the time of year.

Martinique (with an area of 1080 square kilometres) and Guadeloupe (1780 square kilometres) are overcrowded territories; the former has over 240,000 inhabitants, with a density of 222 per square kilometre, while the latter has over 230,000 inhabitants, or 129 per square kilometre. Their production is mainly agricultural. Sugar-cane, bananas and pineapples are the chief crops, and the economy of Martinique and Guadeloupe is closely linked to the industries processing these products (including sugar refining, rum distilling and pineapple canning), and the export trade derived from them, of which 90 per cent. is absorbed by France. In return, more than 80 per cent. of the imports come from other French departments. There are no mineral deposits, and industrial development is very difficult and has been carried out only to a very limited extent. On this account, overpopulation raises extremely delicate economic and social problems. There is a trend towards emigration to France, but not on a sufficient scale to provide even a partial solution to the problem.

French Guiana on the other hand is very sparsely populated, with approximately 29,500 inhabitants in an area of 91,000 square kilometres. Cayenne, the chief town, has 15,000 inhabitants, or more than half the total population of the department. More than 80,000 square kilometres are covered by Amazon forests with many different species of vegetation, which are very difficult to exploit since living conditions there are almost impossible. Only in a comparatively narrow strip between the forest and the marshy coastal area is cultivation practicable. The most important productions are gold, timber, rosewood essence, and rum. The possibility of working the bauxite deposits which exist is at present under consideration.

**Health**

The health organization in these departments is the same as in any other French department, but the relative importance of the different health services varies according to conditions and local needs in a tropical climate.

The hospital situation has improved very much in recent years. In Martinique, the number of hospital beds rose from 1580 in 1952 to more than 2000 in 1957, and during the same period the number of beds in hospices rose from 360 to 900. At Le Carbet sanatorium the number of beds for tuberculosis patients increased from 90 to 170, and a thoracic surgery unit has been established. The bed capacity of Colson psychiatric hospital has risen from 200 to 400 as a result of extension of the hospital buildings. Several maternal and child health centres with accommodation for deliveries were opened in 1956, and others are under construction.

1 Comprising Martinique, Guadeloupe and French Guiana

2 See under France (European Region).
In Guadeloupe, the number of hospital beds increased from 1060 in 1952 to some 1300 in 1957, and the number of beds in hospices rose from 150 to 250. A modern leprosy settlement with 80 beds was opened at the beginning of 1958 to replace the old leprosarium on the Ile de la Désirade. A tuberculosis sanatorium with 200 beds is to be built soon, and the mental diseases hospital, which has accommodation for 400 patients, is being renovated and extended. Several maternal and child health centres were opened in 1956 and 1957, and others are being built.

Guiana has a total hospital bed capacity of 690, of which 210 are in hospices, and it has recently been decided to build a new hospital in Cayenne to replace the two existing hospitals, which are in a bad state of repair and inconveniently planned for modern needs. In every important locality there is a health centre with a full-time physician in attendance, so that curative and preventive services are available to the whole population, including the tribes of the interior.

In all three departments programmes of malaria control have been carried out systematically. Malaria was entirely eradicated from Martinique by 1952, and from Guadeloupe by 1955. In Guiana, cases of malaria are now limited to the villages of the Amazon forest, where preventive measures are still difficult to carry out among the tribes, and to imported cases among seasonal workers coming from neighbouring countries.

Guatemala lies across Central America, immediately south of Mexico, and is divided by the Cordilleras into two unequal drainage areas, of which the Atlantic is much the larger. The Pacific slope, however, is very well watered and fertile between 300 and 1500 metres and is the most densely settled part of the country. The Atlantic slope is sparsely populated and has little of commercial importance, though there is timber, chicle, some coffee and bananas. The area of the country is 108,889 square kilometres.

The climate is warm and healthy, suffering little from the humid and hot periods which prevail generally in Central America. The rainy season usually lasts from May until October.

At the 1950 census, there were 2,790,868 inhabitants, with a density of 29 per square kilometre, and in mid-1956 the population was estimated at 3,348,347. About 54 per cent. are pure Indian from some twenty different language stocks; about 38 per cent. are ladino, or mixed Indian and Spanish stock, and the remainder are European. The annual rate of increase in the total population was 1.16 per cent. between censuses.

Twenty-five per cent. of the population are urban, living mainly in Guatemala City (the capital) and in Quezaltenango, while the remaining 75 per cent. are distributed in small towns and communities.

Yellow fever has completely disappeared, and the control of *Aedes aegypti* is undertaken at the same time as *Anopheles* control programmes.

There is still a fairly large number of cases of leprosy; excellent results have been obtained from systematic case-finding in dispensaries and early treatment. Many cases which were previously unknown have been detected at an early stage by this means, which probably explains the comparatively high number of known cases.

Tuberculosis is still very widespread, but systematic case-finding and the use of modern methods of treatment are gradually bringing the incidence of this disease into line with the average rates in other French departments.

Yaws has been reduced to a few cases each year, and other infectious diseases do not present any particular problems.

The most difficult diseases to control, as in most tropical areas, are intestinal parasitic infestations, which are extremely widespread and are one of the chief causes of infant and child morbidity.

Progress has been made in environmental sanitation since 1947. A large-scale programme of construction of water-supply systems has already been completed, and work is in progress on their extension to all the communes of these departments.

Large sewage-disposal schemes are being carried out at Fort-de-France in Martinique, Pointe-à-Pitre in Guadeloupe, and Cayenne in Guiana; those of Fort-de-France and Cayenne are almost completed.

### GUATEMALA

In local government, each department or province has a Governor appointed by the President; mayors of municipalities, with their councils, are elected directly by the people.

The economy of Guatemala is based upon agriculture, coffee being the principal crop. Bananas come next in importance. Sugar, rice, maize, beans and wheat are also produced, but mainly for home consumption. Guatemala is an important producer of chicle gum, citronella and lemon grass oils. Large deposits of petroleum are also known to exist.

An illiteracy rate of 70.3 per cent. was shown in the 1950 census. Primary education (six years) is provided free of charge, and is compulsory for children from the age of 7 to 12 years.

The University of San Carlos, founded in 1678 and commonly known as the University of Guatemala, is the sole university in the country. In 1910 it was reorganized to include faculties of medicine, economics, law, engineering, social work, and other subjects.

The main railway system is the United States-owned International Railways of Central America. There are 6900 kilometres of highways (mostly unpaved), and two asphalted highways, one from Guatemala City to San José on the Pacific coast, and the other to the tourist centre of Antigua, about 40 kilometres from the capital. Work is in progress on the Pan American Highway from Mexico southward, and the Atlantic...
Highway is under construction connecting the capital with Puerto Barrios on the Atlantic coast. A government-owned airline is the sole means of transportation to some of the remote inland areas.

Health

The Ministry of Public Health and Social Assistance includes two directorates-general, public health and social assistance, each headed by a director-general.

The Directorate-General of Public Health has services in the City of Guatemala and in the departments, including 29 health units and 12 sanitary offices, which are under the supervision of the units.

The local health units in the 21 departmental capitals are each staffed with a doctor, a nurse, a sanitary inspector and a laboratory technician. The services rendered by these units consist of immunizations, control of communicable diseases, sanitary inspection and health education. In most of the units laboratory service is limited to microscopical examinations and parasitological investigations, with the exception of five units where serological examinations are also carried out. There are health units also in the ports of Ayutla-Ocos, Champerico, Livingston and San José. There are sanitary offices in six of the smaller towns, each with a nurse to perform routine immunizations and to treat simple ailments. There are also five mobile units, each with a doctor, a nurse and one auxiliary worker, extending services to villages and other remote areas.

The municipal health service of Guatemala City maintains health centres which provide maternal and child health care and other preventive services. They also give medical care to the needy sick.

The birth rate was 51.5 in 1954 and 48.8 in 1955; for the same years the death rate was 18.4 and 20.6, and the infant mortality rate was 87.9 and 101.4 respectively.

In 1957 there were in the country 542 doctors, 130 dentists, and 543 graduate nurses. Of these, 17 doctors, 30 dentists and 33 graduate nurses were employed by the government health services on a full-time basis.

The country has 43 hospitals, with a total of 7874 beds distributed among 31 general hospitals, two maternity hospitals, four tuberculosis hospitals, one mental hospital, and five other hospitals.

The principal disease is malaria, which had a case rate per 100,000 of 929.6 in 1954, 737.0 in 1955, and 591.9 in 1956. Whooping-cough is also serious, with an incidence of 167.3 in 1956; and the case rate for tuberculosis was 66.4 for the same year. The morbidity rate reported for syphilis has declined steadily from 52.8 in 1954 to 30.7 in 1956. Syphilis cases are common in the coastal areas of the Atlantic, particularly in the port of Puerto Barrios. Typhoid fever morbidity rates reported for the three years 1954, 1955 and 1956 were 16.2, 22.0, and 15.0 respectively.

The main health programmes initiated in recent years have concerned the training of nurses and the development of rural health services. In the first of these projects some religions establishments (such as that in Quezaltenango) have contributed materially. The Franklin D. Roosevelt Hospital in Guatemala City also has an ambitious programme of expansion in this regard, as in social case work, but unfortunately these projects have been retarded by lack of funds.

The Institute of Nutrition of Central America and Panama (INCAP), which is well staffed and has modern facilities, has for some ten years been carrying out special studies in protein deficiency. The Guatemalan Institute of Development has had some notable successes in recent years in assisting the Indian population to cultivate other food crops, in addition to corn and beans.

About 25 new doctors graduate annually from the Medical School of the University of San Carlos. Admission to this school is based upon the secondary school certificate (bachillerato), and the full course is of eight years’ duration, leading to the degree of Licenciado en Ciencias Médicas (Licentiate in Medical Science). This degree entitles the holder to practise in Guatemala, no further examinations being required. Graduates frequently do post-graduate work in United States institutions and hospitals. In 1956 this school had a teaching staff of 65, and an enrolment of 623 male and 14 female students, with an entering class of 120.

Haiti

Haiti has an area of 27,750 square kilometres and occupies the western third of the island of Santo Domingo, formerly Hispaniola, the largest island of the Caribbean after Cuba. About two-thirds of the country consist of rugged mountains descending steeply to the sea along most of the coast. Inland there are deep troughs between the ranges which form river valleys and interior plains. The climate is tropical, with little difference between summer and winter. The temperature in Port-au-Prince, the capital, rarely exceeds 35°C, but the humidity is high, especially in the autumn.

According to the 1950 census, the population was 3,097,304, with a density of 112 per square kilometre. The estimated population in 1957 was 3,383,762. The population is mainly Negro, with many mulattos descended from the first French
settlers, and about 2000 white settlers. French is the official language.

Agriculture is the mainstay of the country's economy, and employs 1,453,900, or 87.8 per cent. of the total population. Industry employs 85,400, and commerce 62,000.

Haiti has a wide variety of export commodities; the most important is coffee, followed by sisal, rice, sugar, molasses and rum. The cultivation of essential oils, horse-breeding and cattle-raising are being encouraged. Lumbering is dying out, particularly as far as mahogany is concerned, and mineral resources still remain undeveloped.

At the 1950 census, 89.4 per cent. of the population over 10 years of age were illiterate. Women are eligible for all public offices from the age of 30 and may vote in municipal elections.

Primary education is free, and is compulsory in urban areas. Children enter primary school at the age of 6 or 7, and follow either a five-, eight-, or 10-year course. Primary education in rural schools is of six years’ duration. The lycée, or secondary school, is open to pupils who have completed six years of primary education, and provides a further course of six years. The teaching of English has been compulsory in all schools since 1942.

There are also national schools of agriculture, pharmacy, obstetrics, and ethnology, and a polytechnic which is affiliated to the new University of Haiti. Higher education is provided, free, at the Faculty of Medicine, the Faculty of Law, and the Faculty of Dentistry; there are also four law schools in the provinces.

**Health**

The Central Administration of the Public Health Service is at the seat of the Government in Port-au-Prince and is in the charge of a Secretary of State for Public Health, appointed by the President of the Republic. He is assisted by a Director-General, who co-ordinates the activities of the three main divisions: public assistance; public health, and rural medicine. Each of these divisions is headed by a physician with the status of Assistant Director-General.

The Assistant Director-General of the Division of Public Assistance is in charge of the organization and maintenance of the urban hospitals of the country; these consist of 11 general hospitals and six special hospitals, including three university units, with a total of 2137 beds. They are staffed by: 138 physicians, 240 nurses (including midwives), 55 laboratory technicians, 16 x-ray technicians, eight pharmacists, 16 anaesthetists and 135 auxiliary workers.

The Assistant Director-General of the Division of Public Health is responsible for covering: epidemiology; biostatistics; international quarantine; school health and school dental services; environmental sanitation and sanitary engineering; control of pharmacies, drugs and narcotics; tuberculosis control; health visitor services; and the national public health laboratory. This Division is also in charge of three international co-operative units—the rural domiciliary health unit, the national malaria eradication unit, and the Aëdes aegypti eradication unit—and of nine urban health centres, five in Port-au-Prince and one each in Pétion-Ville, La Croix-des-Bouquets, Le Cap-Haitien, and Les Cayes. The staff of this division consists of 48 physicians, 20 dentists, eight pharmacists, three sanitary engineers, 43 public health nurses, 30 hospital nurses and midwives, 27 laboratory technicians, 66 auxiliaries, 120 sanitary police officers, and 34 health inspectors.

The Assistant Director-General of the Division of Rural Medicine supervises the organization and maintenance of establishments providing services in both curative medicine and public health in the rural areas. These establishments comprise seven large rural health units (each with 20 hospital beds in addition to their public health services), three health centres, 36 rural dispensaries and 125 rural clinics. The division is staffed by: eight qualified physicians working on the administrative staff; 43 resident physicians; six dentists; 10 nurses; 28 health officers and inspectors, and 207 auxiliaries.

The national health services budget at the present time is Gourdes 18,998,414.51 (US $3,799,683).

The principal diseases in Haiti are malaria, intestinal parasitic infestations, gastro-enteritis (in children), tuberculosis, typhoid, syphilis and tropical ulcers. The incidence of yaws, which was more than 60 per cent. in 1930, has decreased to less than 0.25 per cent. at the present time as the result of an eradication campaign undertaken with the assistance of WHO; in 1957, during the course of a house-to-house campaign, 6992 cases of yaws and 38,945 contacts were treated. During the same year, 300,008 persons received smallpox vaccination with vaccine donated by Member governments of WHO. Tuberculosis control activities in 1956 included BCG vaccination of 12,522 persons at eight clinic centres.

Medical education in Haiti is of five years’ duration, excluding the pre-medical year. The fifth year of the course is devoted to internship, after which students receive the university degree of doctor of medicine. A licence to practise medicine, is, however, only granted after a further two years’ work in a rural area or three years’ specialization in one of the university hospitals of Haiti. The Faculty of Medicine and Pharmacy of the University of Haiti, which is a State school founded in 1830, has at present a teaching staff of 42 and a student body of 265. Furthermore, a Faculty of Dentistry provides a four-year course leading to the degree of dental surgeon. There are also three schools of nursing, one in Port-au-Prince, one in Le Cap-Haitien and one in Les Cayes.

The extension of water-supply systems in urban areas is a matter which requires urgent attention. In rural areas there is no public water-distribution system.
HAWAI'I

Hawaii consists of a chain of islands and islets in the North Pacific, of volcanic formation, generally mountainous and rugged, and often covered in the interior with forest and vegetation. The area is 16,635 square kilometres. Seven of the islands are inhabited.

The territory of Hawaii is an incorporated organized territory of the United States of America, and all persons born or naturalized in the Territory are United States citizens. The estimated civilian population on 1 July 1956 was 523,359. Social customs follow those of the mainland United States, and English has for some time been the main language.

The territory is divided for administrative purposes into five counties—Hawaii, Maui, Kauai, Honolulu, Kalawao—and the city of Honolulu.

Agriculture is of major importance, although less than 10 per cent. of the total area is reasonably suitable for agricultural use; more than half the arable land is devoted to sugar-cane, which is the main crop. The next most important items in the territory's economy are pineapples and coffee, followed by the tourist trade and the fishing industry.

Education is free and compulsory from 6 to 16 years of age, and the public school system comprises three categories: kindergarten; grades from one to twelve inclusive; and special. The total enrollment in the schools of the territory was 106,464 in 1953 and 113,544 in 1954. The University of Hawaii includes five colleges: Arts and Sciences, Applied Science, Teachers, Agriculture, and Business Administration.

Health

The President of the Board of Health is the Chief Executive Health Officer. The Department of Health has six divisions: local health services; hospitals and medical care; preventive medicine; dental health; sanitation; and leprosy. There are several other units in the Department, including health education and health statistics. Sections in the Division of Local Health Services supervise the health services in the counties and in the city of Honolulu.

The total expenditure on health for the year 1957 was US $4,613,101, including US $1,275,580 spent on local health services.

The Bureau of Health Statistics maintains a registration system for births, deaths, foetal deaths, marriages and divorces; the vital statistics for the years 1954, 1955 and 1956 were: birth rate, 33.6, 32.5, 32.7; death rate, 6.1, 6.2 and 5.9; and infant mortality rate, 22.4, 20.6 and 22.4.

In 1957, 5,016 beds were available in the 32 government hospitals, which include 19 general hospitals (1,510 beds) one paediatric hospital (112 beds), one maternity hospital (115 beds), four for tuberculosis (1,234 beds) and one mental hospital (1,074 beds).

In 1956 there were 130 health centres, both general and specifically for maternal and child health; 98 of them were in rural areas.

Medical and health personnel in Hawaii in 1957 included: 548 physicians, 397 dentists, 1,861 graduate nurses, 1,585 other nurses, 10 midwives, 28 veterinarians and 19 sanitary engineers. The following were employed full-time in the health service during the year:

<table>
<thead>
<tr>
<th>Provincial (State)</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>10</td>
</tr>
<tr>
<td>Public health nurses</td>
<td>7</td>
</tr>
<tr>
<td>Other graduate nurses</td>
<td>—</td>
</tr>
<tr>
<td>Graduate engineers</td>
<td>4</td>
</tr>
<tr>
<td>Sanitarians</td>
<td>4</td>
</tr>
<tr>
<td>Other sanitation personnel</td>
<td>2</td>
</tr>
<tr>
<td>Dentists</td>
<td>1</td>
</tr>
<tr>
<td>Dental hygienists</td>
<td>—</td>
</tr>
<tr>
<td>Veterinarians</td>
<td>1</td>
</tr>
<tr>
<td>Laboratory personnel</td>
<td>1</td>
</tr>
<tr>
<td>Health educators</td>
<td>4</td>
</tr>
<tr>
<td>Nutritionists</td>
<td>2</td>
</tr>
<tr>
<td>Social workers</td>
<td>3</td>
</tr>
<tr>
<td>Statisticians</td>
<td>3</td>
</tr>
</tbody>
</table>

Of the 3,085 deaths registered in 1956, the chief causes were diseases of the heart (33.7 per cent.), cancer and other malignant neoplasms (16.5 per cent.), vascular lesions affecting the central nervous system (8.8 per cent.) and diseases of early infancy (8.2 per cent.).

Measles is the most common communicable disease in the territory; 6,759 cases were reported in 1955 and 5,848 cases in 1956. Tuberculosis is also a problem, the reported morbidity rate in 1956 being 110.1. In 1956 there were 34 centres and three mobile units engaged in case-finding work. In the period under review no cases of plague or smallpox were reported. In 1956 the total number of known cases of leprosy was 459, and all the infectious cases were isolated; the non-infectious cases (133) were treated on an outpatient basis.

Practically the whole of the population is provided with water-supply systems; 18 connected systems supply 344,900 people in urban areas, and 89 similar systems supply 88,100 rural inhabitants, the remainder of whom are served by private supplies. About half the population is served by a sewerage system, the remainder being served by private septic tanks and latrines.
HONDURAS

The Republic of Honduras is in Central America, lying between 13° and 16° north and 83° and 89° west, and bordered by Guatemala, Nicaragua and El Salvador. The Caribbean coast is about 650 kilometres long and there is an outlet of about 120 kilometres on the Pacific. The country is traversed by the Cordilleras and is mountainous but with well-watered fertile valleys and wooded tablelands. The area is 112,088 square kilometres. The climate is tropical in the coastal belts and temperate and healthy in the hills.

The population at the 1950 census was 1,368,605 (with 72,385 in the capital, Tegucigalpa), and on 1 July 1955 it was estimated at 1,659,934. Approximately 69 per cent. of the population are rural.

The family systems, customs and cultural background are Latin American, but the indigenous population adheres to its tribal traditions. According to a 1953 estimate, 63 per cent. of the population over ten years of age were illiterate.

The economy is agricultural, the chief products and exports being bananas, coco-nuts, coffee and rice, in that order. There is an abundance of hard and soft woods, and mahogany and pine are exported. Production is mainly in the hands of private enterprise, but most small farmers are tenants on government-owned land.

Education is free and is compulsory from 8 to 15 years of age. In 1953 the country had 24 elementary schools, 2,216 primary schools, three secondary schools and six teacher-training schools. The National University at Tegucigalpa has faculties of law, medicine, pharmacy, economics and engineering, and in 1953 had 843 students.

Travelling and transport are mostly by motor bus and lorries, but over a large part of the country the aeroplane is now the normal means of transport for passengers and freight. There are 15 local airports and one international airport. Honduras is connected with the highway system of Guatemala, Nicaragua and El Salvador by the Pan American Highway; in 1952 there were about 1980 kilometres of roads. In the north coastal region there are 1330 kilometres of railway.

Health

The Department of Public Health and Sanitation forms part of the Ministry of Health and Welfare, and its divisions include: communicable diseases, maternal and child health, tuberculosis, hospitals, environmental sanitation, health education, nutrition, epidemiology and school health, and laboratories. Health units at the airport of Toncontín and at the ports of Ampala, Puerto Cortes, La Ceiba and Tela are also part of the National Health Service, as are health centres at Choluteca and San Pedro Sula.

The vital statistics for the years 1954 and 1955 are reported as follows: birth rate, 41.9 and 43.1; death rate, 11.2 and 11.4; infant mortality rate, 60.0 and 54.9.

In 1957 there were 18 general hospitals, with 3067 beds, one maternity hospital, with 16 beds, and two tuberculosis hospitals, with 448 beds.

The medical and health personnel in the country in 1957 included: 365 doctors, 63 dentists, 103 graduate nurses, 417 other nurses, and seven graduate midwives.

The National Health Service employed on a full-time basis four doctors, three public health nurses, six other graduate nurses, three health educators, two sanitary engineers, one sanitarian, one laboratory technician, one dietitian, and one statistician. Furthermore, 171 doctors, five dentists, two public health nurses, 58 other graduate nurses, 417 auxiliary nurses, seven graduate midwives, one sanitarian, one health educator and 28 laboratory technicians were employed full-time in provincial and local health services.

Malaria, helminthic infestations, gastro-enteritis and other infectious diseases of the digestive system, whooping-cough, measles and tuberculosis appear to be the most important communicable diseases.

Efforts are at present being directed to combat tuberculosis and to strengthen local health services. These latter are already provided to some extent in each of the 17 departments of the country. In some departments (Francisco Morazán, Atlántida) half the population is covered, whereas in others the percentage is much smaller. The services are under the supervision of doctors on a part-time basis, and are staffed by sanitarians, laboratory personnel, and nurses where available.

JAMAICA

Jamaica—the most southerly of the Greater Antilles—lies about 1600 kilometres north of the Panama Canal. With its dependencies—the Turks and Caicos Islands, the Cayman Islands, the Morant Cays and the Pedro Cays—the total area is 12,113 square kilometres. There is a great diversity of climate; the temperature ranges from between 26° C and 30° C on the coast to less than 5° C in the mountains. The population in 1957 was estimated at 1,594,800; the great majority are Negroes, with mixed East Indian, European, Chinese and Syrian groups following in order of size.

The economy is principally agricultural; the chief crops are sugar-cane, bananas, tobacco, coffee, pimento, citrus, rice and maize. Bauxite and gypsum are mined.

The Industrial Development and Agricultural Development Corporations were established in 1952. The first of these takes part in new industries and encourages local investment by over-
seas investors. High priority is given to the production of rice. In 1954, also, the International Bank for Reconstruction and Development submitted an economic plan for the territory involving an investment of £80 000 000 (US $224 000 000) within the next ten years; the present development programme is based on this plan.

Primary education is provided free and is compulsory, generally from the ages of 6 to 13. The secondary school course lasts for five or six years, and pupils are prepared for the School Certificate and Higher School Certificate examinations of the Cambridge Syndicate, although some schools make use of the Oxford and Cambridge Joint Board Examinations and the School Examinations of London University, or the United Kingdom Certificate of Education for overseas pupils.

The number of schools (and pupils) in 1954 were: primary, 698 (218 000); secondary, 27 (8110); vocational, seven (2100); teacher-training, four (336); and higher education, one (384).

The University College of the West Indies is in Jamaica.

Adult education is carried out by the Jamaica Social Welfare Commission, the Lands Department, the Bureau of Health Education, and the Sugar Industry Welfare Board. Existing library facilities are the Institute of Jamaica, the West India Reference Library, and the Science Library.

Health

Medical and public health services are headed by a Chief Medical Officer, with three Principal Medical Officers, in charge respectively of health administration and of the medical section, including hospitals and personnel. The public health section has divisions, with specialist officers in charge, for tuberculosis, venereal diseases and yaws, quarantine, health education, malaria, maternal and child welfare, industrial health, and epidemiology. A Central Board of Health directs the work of local boards of health. Each of the 14 parishes has its own local board of health, which includes a public health department with a medical officer, sanitary inspectors, and public health and district nurses. The health departments in the parishes attend to environmental sanitation, latrine construction, mosquito control, inspection of water supplies and food, and personal hygiene.

In 1953/54, the allotment for public health was £196 000 (US $548 800) out of a total budget of £1 273 000 (US $3 564 400). In the following year, public health received £320 000 (US $896 000) out of a total of £1 653 000 (US $4 628 400).

Jamaica has 434 doctors, 92 dentists, 2125 graduate nurses, 1034 graduate midwives, and two sanitary engineers. Medical and health personnel employed by the public health services are as follows: 172 doctors, 106 public health nurses, 954 other graduate nurses, 26 graduate midwives, one graduate engineer, 99 sanitarians, 16 dentists, one dental hygienist, 143 laboratory personnel and four health educators. A further 198 sanitarians and some 238 auxiliary midwives are employed by the local health services.

The University College of the West Indies provides a six-year course for medical students; the qualifying examination is that of the University of London.

Nurses are trained at the Kingston Public Hospital and the University College Hospital in courses lasting at least three years; reciprocal recognition is granted by the General Nursing Council for England and Wales. Public health nurses must have general and midwifery qualifications and must also have had training leading to the Health Visitors Certificate of the Royal Institute of Health (England), or comparable training. Both the nursing and the public health nursing training are recognized as being of metropolitan standard.

Health visitors and sanitary inspectors are trained at the West Indies School of Public Health in Jamaica, which serves the whole region. There are two types of training for sanitary inspectors, one leading to the certificate of the Royal Institute of Health and the other to a local certificate.

There are 50 hospitals, including 26 government hospitals with out-patient departments, 134 dispensaries and health centres, 202 maternity and child welfare centres, 15 tuberculosis control units (13 in hospitals or dispensaries), 10 venereal disease control units (seven in hospitals and dispensaries), one leprosarium and one mental institution. The total bed capacity of all hospitals is 6959, of which 2289 beds are in the 21 general hospitals. During 1954, outpatient facilities were increased by seven dispensaries, three health centres and two dental clinics. There are 24 private hospitals and nursing homes.

Vital statistics for the years 1954-57 were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth rate</th>
<th>Death rate</th>
<th>Infant mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>35.5</td>
<td>10.7</td>
<td>67.1</td>
</tr>
<tr>
<td>1955</td>
<td>36.3</td>
<td>9.9</td>
<td>60.3</td>
</tr>
<tr>
<td>1956</td>
<td>37.3</td>
<td>9.5</td>
<td>54.2</td>
</tr>
<tr>
<td>1957</td>
<td>38.1</td>
<td>9.08</td>
<td>54.04</td>
</tr>
</tbody>
</table>

The morbidity rates per 100 000 population for certain communicable diseases in 1954, 1955, 1956 and 1957 were reported as follows: malaria, 288.3, 217.7, 235.0, and 265.8; whooping-cough, 142.2, 18.5, 80.6, and 16.5; tuberculosis, 47.9, 45.3, 38.7, and 43.9; and typhoid fever, 26.8, 29.7, 48.8, and 27.8.

In 1954 the main public health problems were malaria, pulmonary tuberculosis and yaws. The diet of the Jamaican peasant is known to be deficient in protein.
LEEWARD ISLANDS

The Leeward Islands lie in the Caribbean Sea, north of the Windward Islands and south-east of Puerto Rico. They consist of four separate islands or groups of islands—Antigua (with Barbuda and Redonda), St Christopher (St Kitts)-Nevis-Anguilla, Montserrat, and the British Virgin Islands. Until 1956 they formed a federation, with a federal executive council and a general legislative council, but under the Leeward Islands Act (1956) the federation was abolished and the federal executive and legislative councils were dissolved; the islands are now separate territories, with their own institutions and administrative machinery, although they unite for certain common purposes, such as the Windward Islands and Leeward Islands Supreme Court and Court of Appeal. The normal residence of the Governor is in Antigua. Each of the islands or groups of islands has its own administrator, with an executive council and a legislative council.

Antigua

Antigua has an area of 443 square kilometres; the population in 1957 was estimated at 54,800. The capital, St Johns, has a population of some 11,000. It is organized, as are the smaller towns and villages, according to the British local government pattern, with community councils encouraged in the smaller localities, as well as self-help projects from time to time.

The economy is almost entirely agricultural, and sugar and cotton are the two principal industries and the main export crops. The seasonal incidence of work in the cotton and sugar plantations causes both under-employment and unemployment on the island. Flour and grain, petroleum products, timber, clothing and fish are the principal imports. As a result, the trade balance in the last ten years has usually been negative, excess of imports over exports amounting in 1954 to BWI $4,682,000 (US $2,754,118). Such deficits are made good by the United Kingdom, which in that year granted £699,000 (US $1,957,200) under the Colonial Development and Welfare Act.

Pupils between the ages of 5 and 16 are admitted to all 36 of the government primary schools, where attendance is compulsory (although this requirement was relaxed in 1954 owing to overcrowding in two schools). Six government secondary schools (with 1273 pupils) charge low fees, but a number of free scholarships are available. Post-secondary education is provided by the Antigua Extra-Mural Department of the University College of the West Indies in Jamaica, and there is one private teacher-training college with 10 students (1954) on the island.

Adult education is organized by the Extra-Mural Department of the University College of the West Indies, as well as by the General Improvement Organization and the Antigua Trades and Labour Union. Community councils, clubs and library services co-operate in this work.

The housing shortage was relieved in 1954 by the Hurricane Re-housing Programme, under which 1348 new houses were built, and by the Slum Clearing project, which settled 151 families in new homes.

Health

The Health Department of Antigua has three main divisions: administration, hospitals, and district services. In 1957 its budget was BWI $970,855 (US $571,091), of which BWI $496,824 (US $292,249) were for hospitals. In the same year, the health staff numbered 326, including 12 physicians (five of whom were full-time), nine public health nurses, 24 other graduate nurses, nine graduate midwives assisted by 20 auxiliary midwives, 17 sanitarians, one veterinarian, three laboratory workers, two dentists, three x-ray technicians and five pharmacists.

In 1957 there were four hospitals in Antigua, including one general, one mental, one cottage hospital, and one leprosarium, as well as nine dispensaries, three maternal and child health centres, and three venereal disease control centres. The public health centres assist in the distribution of food supplements, as well as supplying public health nurses to advise and help families through home visits. In addition, there are 28 nursing districts in Antigua and one in Barbuda; the district nurses assist in midwifery and treat minor cases. A school dental service also exists but its development has been hampered by shortage of staff.

The birth rate in 1956 was 35.9, and the death rate was 9.3. The infant mortality rate was 50.1, the neonatal death rate was 19, and the foetal death rate was 26.1.

The chief causes of death in 1956 were: diseases of early infancy (56); arteriosclerosis (52); vascular lesions affecting the central nervous system (46); influenza and pneumonia (39); and gastritis and enteritis (37). Among the principal diseases during the period under review, syphilis showed a steady decline—although its incidence still remains high—from 430 cases in 1954 to 279 cases in 1955 and 234 in 1956. The number of reported cases of yaws has also decreased from 70 in 1954 to 46 in 1955 and 27 in 1956. There were estimated to be 50 cases of leprosy in Antigua in 1956, of whom 32 were segregated. The number of reported cases of tuberculosis remained constant, at 19, 18 and 19 respectively during 1954, 1955 and 1956.

There being no medical school, qualification is usually obtained in the United Kingdom or in Jamaica. Nurses are also frequently trained in the United Kingdom, although in recent years more have been trained locally in the general hospitals; the training follows the syllabus of the General Nursing Council for England and Wales. The midwifery course
follows the syllabus of the Central Midwives Board of England.

In 1954 there were on the staff of the Sanitary Service of Antigua 16 health inspectors who had received senior training at the West Indies School of Public Health in Jamaica.

The sanitary service provides, inspects and clears latrines.

In 1956 steps were being taken to provide the island with a piped inter-connected water-supply system, which will serve the entire population, with the exception of some 2000 people in outlying farms and houses.

**St Christopher (St Kitts)-Nevis-Anguilla**

The three islands of St Christopher (St Kitts)-Nevis-Anguilla have a total land area of 396 square kilometres. The population in 1954 was estimated at 52,830, and in 1957 at 57,531.

The economy is almost entirely agricultural; sugar and cotton are the main export crops. St Kitts and Anguilla export salt.

Development grants are administered by the Federal Government from Colonial Development and Welfare funds.

Primary education is free between the ages of 5 and 15 and compulsory up to 13. Low fees are charged at government secondary schools, and scholarships are provided for free secondary education. Post-secondary education is provided by the Antigua Extra-Mural Department of the University College of the West Indies in Jamaica.

The seasonal incidence of work in cotton- and sugar-growing (the two chief industries), is associated with both under-employment and unemployment.

Community organization is based on the British local government pattern; community councils are encouraged in the villages, and they undertake self-help projects from time to time.

**Health**

There are three main divisions in the Health Department: administration, hospitals, and district services.

- The budget for medical and health services in 1957 was BWI $877,989 (US $516,464), of which the sum of BWI $490,738 (US $288,669) was allocated for hospitals. The health services are staffed by 132 personnel, including 11 physicians, 23 public health nurses, 34 other graduate nurses, 17 graduate midwives, 17 sanitarians and public health inspectors, two dentists, one veterinarian, and 20 clerical and other personnel.

- There are in the territory four hospitals, two urban and 22 rural maternal and child health centres (serving some 11,400 inhabitants), 22 dispensaries, eight venereal disease control centres, and one leprosy settlement with 18 patients.

- In 1956 the birth rate was 44.1, the death rate was 11.0, and the infant mortality rate was 52.1. The death rate has gradually decreased in recent years; the infant mortality rate has fallen considerably since 1953, when it was 84.5.

- The principal causes of death during the period under review were gastro-enteritis, avitaminosis, tuberculosis, syphilis, and dysentery. Among the most serious public health problems are tuberculosis and malnutrition. A BCG vaccination campaign was carried out in 1953 and 1954, and two tuberculosis control centres have been established.

- Medical qualification is usually obtained in Jamaica or in the United Kingdom. Nurses are trained at the general hospitals, but senior training is normally taken in the United Kingdom. General nursing training follows the syllabus of the General Nursing Council for England and Wales, and the midwifery course follows the syllabus of the Central Midwives Board of England. Dispensers are also trained at the general hospitals. Sanitary inspectors receive senior training at the West Indies School of Public Health in Jamaica.

- St Christopher-Nevis-Anguilla has no sewage-disposal system; of the 57,531 inhabitants in 1957, 4830 had private septic tanks, 27,790 had latrines, and 24,911 had neither.

**British Virgin Islands**

The British Virgin Islands have a total land area of 174 square kilometres; the estimated population in 1956 was 7760, of whom about 87 per cent. lived in urban areas.

The economy is almost entirely agricultural; sugar and cotton are the main crops. Livestock, fish and charcoal are also exported.

Up to 1954, development grants to the British Virgin Islands under the Colonial Development and Welfare Act amounted to £106,000 (US $296,800).

In 1954, the Virgin Islands had one government primary school and 15 private schools, with a total of 1886 pupils. There was also one government secondary school, with 113 pupils.

Most of the householders own, and usually build, their own homes, which are strongly made of wood, stone or concrete as protection against the frequent hurricanes. Most of the people are self-employed small farmers, fishermen or traders.

**Health**

There is a Medical Department, which provides medical, health and sanitation services. The budget for medical and health services in 1957 amounted to BWI $45,457 (US $26,739). The health personnel of the British Virgin Islands in 1956 consisted of one doctor, three graduate nurses, and nine other nurses.

Between 1954 and 1956, the birth rate has remained at about 41, and the death rate at about 11. The infant mortality rate in 1956 was 100.6.
In 1956, there was one general hospital with 35 beds, six dispensaries, and four maternal and child health centres.

Syphilis, tuberculosis, and malnutrition are among the chief health problems; of 1749 serological tests for syphilis made in 1956, 159 were positive. The number of reported cases of tuberculosis was 13 in 1954, four in 1955, and seven in 1956.

Medical qualification is usually obtained in Jamaica or in the United Kingdom. Nurses are trained at the general hospital, but senior training is normally taken in the United Kingdom. General nursing training follows the syllabus of the General Nursing Council for England and Wales, and the midwifery course follows the syllabus of the Central Midwives Board of England.

MEXICO

Mexico is in the southern part of the North American continent and has a wide seaboard on both the Atlantic and Pacific Oceans. Two great mountain ranges of North America—the Sierra Nevada and the Rocky Mountains—extend from the north into Mexico, where they converge towards the isthmus of Tehuantepec. The interior is an elevated plateau between these two ranges, with steep slopes to the two oceans. The climate varies with the altitude; the coastal lands below 900 metres are tropical; the plateau, from 900 to 2000 metres, is temperate. Above 2000 metres is the cold region, or tierra fria. The rainy season lasts from June to October. The country's area is 1,969,367 square kilometres.

At the 1950 census the population was 25,791,017, with a density of 15 per square kilometre. The annual rate of increase in 1950 was 2.69 per cent. The most recent population estimate was 31,426,190. The 1950 census showed that 42.6 per cent. of the people were urban and 57.4 per cent. rural.

Health and Social Affairs is one of the departments represented in the President's Cabinet.

Each of the 29 states has its own constitution, government, taxes and laws; and its governor and legislature are popularly elected. The President appoints the governors of the territories and the chief of the Federal District.

The total arable land is estimated at about 243,000 square kilometres, of which only about 101,250 square kilometres are arable without artificial irrigation. Some 52,650 square kilometres are under cultivation. Grazing land is estimated at 324,000 square kilometres and there are about 202,500 square kilometres of forest. The basic crop is maize, of which the production in the last few years has been brought up to the level of consumption. Agricultural exports are cotton, sugar, chickpeas, bananas, winter vegetables, coffee, sisal, linseed, fish and shrimps.

The mineral wealth is very great: silver and gold, copper, lead, zinc, mercury, iron and petroleum are the main products. Between 1938 and 1942 the properties of foreign oil companies were appropriated by the Government. Indemnification payments of US$8,600,000 were made annually from 1948 to 1954.

Six years of primary education are free to all irrespective of the age at which the pupil begins. There are 14 universities, of which the National Independent University of Mexico, with 18 faculties, is the most important as far as numbers of students are concerned. In all, 62,584 students graduated from this University between 1940 and 1950; in 1952 it had 28,864 students, of whom 4980 were women. There is also a University City.

Mexico is well supplied with communications. There are 39 ocean ports, of which Veracruz and Tampico are the most important. In 1956 there were 28,616 kilometres of roads, of which 19,414 kilometres were paved, 6770 kilometres were asphalted, and 2432 kilometres were earth roads. There were also about 24,000 kilometres of railway line, including all the main lines nationalized in 1937 and the British-owned Mexican Railway Company, bought in 1946; and 36 airports offer connexion with the principal international lines. The internal air service has 210 airports, and local services are provided by most of the larger states.

Health

The Secretary for Health and Welfare is a member of the Cabinet, responsible to the President of the Republic. Under his control are the Directorates-General for Epidemiology, Co-ordinated Services, Sanitary Engineering, Social Welfare, and Administration; and the Department of the Under-Secretary.

Directorates under the immediate supervision of the Secretary for Health and Welfare include rural medical services, nursing and social work, industrial health, maternal and child welfare, health education, rehabilitation, vital statistics, control of foods, drug control, social welfare, experimental public health studies, and health and medical assistance in the Federal District. Other services of this Department are the School of Public Health and Institute of Tropical Diseases, the National Hygiene Institute, the Hospital for Nutritional Diseases, the National Health Laboratory, the Legal Department, the Hospital of the Federation of State Employees, the General Hospital, the Juarez Hospital, the General Mental Hospital and the National Hospitals Commission.

Public health in the states is the joint responsibility of the state governments and the Federal Government. In 1953 the national health budget was 186,000,000 pesos (US $21,502,900)\(^1\). The states contributed in all another 15,000,000 pesos (US $1,734,100), and the rural communities contributed more than 7,000,000 pesos (about US $810,000) towards the co-operative rural medical services. Another source of income is through contributions from private individuals to the Public Welfare Fund. In one instance 100,000,000 pesos (US $11,560,694)

\(^1\) 1953 exchange rate
were also provided by the National Lottery for the construction of the Mexico City Medical Centre.

The vital statistics for 1953, 1954 and 1955 were: birth rate, 45.0, 46.4 and 46.4; death rate, 15.9, 13.1 and 13.7; infant mortality rate, 95.2, 80.5 and 83.3.

There are 18,058 doctors for the entire country. Of these, about 375 are graduates in public health. Graduate nurses amount to 2,247, and 127 nurses had special public health training. Other professional workers are: 2,071 certified midwives; 491 veterinarians; 42 graduate public health engineers; 1,601 dentists, and two dentists with public health training.

The following persons were employed in the public health services in 1957:

<table>
<thead>
<tr>
<th>Category</th>
<th>National</th>
<th></th>
<th>Provincial</th>
<th></th>
<th>Local</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>full-time</td>
<td></td>
<td>others</td>
<td></td>
<td>full-time</td>
<td></td>
</tr>
<tr>
<td>Doctors</td>
<td>1,006</td>
<td>405</td>
<td>429</td>
<td>303</td>
<td>76</td>
<td>4</td>
</tr>
<tr>
<td>Public health nurses</td>
<td>1,812</td>
<td></td>
<td>707</td>
<td></td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Other graduate nurses</td>
<td>1,205</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate midwives</td>
<td>51</td>
<td>4</td>
<td>45</td>
<td></td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Graduate engineers</td>
<td>18</td>
<td>4</td>
<td>15</td>
<td>9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Sanitarians</td>
<td>520</td>
<td></td>
<td>646</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Dentists</td>
<td>3</td>
<td>36</td>
<td>7</td>
<td>43</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Veterinarians</td>
<td>12</td>
<td>35</td>
<td>9</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory personnel</td>
<td>536</td>
<td>10</td>
<td>103</td>
<td>5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Health educators</td>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietitians</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social workers</td>
<td>251</td>
<td></td>
<td>20</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Statisticians</td>
<td>30</td>
<td></td>
<td>31</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Secretariat personnel</td>
<td>2,682</td>
<td></td>
<td>615</td>
<td></td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Other personnel</td>
<td>4,366</td>
<td>254</td>
<td>1,237</td>
<td>25</td>
<td>109</td>
<td></td>
</tr>
</tbody>
</table>

Total: 12,525 full-time, 754 others.

A corps of health officers has been formed, composed of 160 public health medical officers.

In 1955 there were 448 hospitals in Mexico, with a total bed capacity of 31,719. Of these, 427 hospitals were for general medicine (including maternity hospitals) and had 26,466 beds; nine for tuberculosis, with 1069 beds; six for mental diseases, with 3584 beds; and six others, with 600 beds. The number of dispensaries for medical assistance increased from 207 in 1953 to 391 in 1956.

There are 20 medical schools in Mexico, situated in the following cities: Campeche, Chihuahua, Durango, Guadalajara (2), León, Mérida, Mexico City (3), Monterrey, Morelia, Oaxaca, Pachuca, Puebla, San Luis Potosí, Tampico, Toluca, Torreón and Veracruz. Nine are owned and operated by the national Government, and the rest are privately owned and operated by other organizations. A bachillerato, or secondary school diploma, admits candidates for the six-year course leading to the degree of Doctor of Medicine and Surgery: the curriculum includes a period of internship and compulsory practice in rural areas.

The principal causes of death and number of deaths during the years 1953-55 were:

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>1953</th>
<th>1954</th>
<th>1955</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastritis, enteritis, colitis, etc.</td>
<td>75,763</td>
<td>59,257</td>
<td>67,563</td>
</tr>
<tr>
<td>Influenza and pneumonia</td>
<td>74,704</td>
<td>52,001</td>
<td>58,328</td>
</tr>
<tr>
<td>Certain diseases of early infancy</td>
<td>38,974</td>
<td>40,993</td>
<td>42,218</td>
</tr>
<tr>
<td>Malaria</td>
<td>24,596</td>
<td>19,437</td>
<td>19,639</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>22,162</td>
<td>21,565</td>
<td>22,653</td>
</tr>
<tr>
<td>Accidents</td>
<td>13,781</td>
<td>13,949</td>
<td>14,292</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>10,336</td>
<td>7,996</td>
<td>8,465</td>
</tr>
<tr>
<td>Homicide</td>
<td>10,805</td>
<td>10,954</td>
<td>10,782</td>
</tr>
<tr>
<td>Malignant tumours</td>
<td>8,028</td>
<td>8,333</td>
<td>8,686</td>
</tr>
<tr>
<td>Measles</td>
<td>8,709</td>
<td>4,020</td>
<td>9,716</td>
</tr>
<tr>
<td>Avitaminosis</td>
<td>9,470</td>
<td>7,541</td>
<td>9,037</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>8,608</td>
<td>8,052</td>
<td>7,708</td>
</tr>
<tr>
<td>Whooping-cough</td>
<td>9,015</td>
<td>9,519</td>
<td>7,462</td>
</tr>
</tbody>
</table>

It will be seen from the foregoing table that malaria is a serious problem in Mexico; it is estimated that 16,000,000 of the population are at risk, and a National Commission for Malaria Eradication has been established to direct the widespread measures being taken for the control and eventual eradication of this disease from the country. An indication of the success of these measures so far is given by the decreasing number of cases during the last few years: 50,947 in 1953; 48,521 in 1954; 41,169 in 1955, and 33,360 in 1956.
The number of primary vaccinations against smallpox given in 1956 amounted to 1,639,232, and that of re-vaccinations to 3,053,942. The local production of dried vaccine was 31,000 doses, and that of glycerinated vaccine was 12,068,630 doses.

Yellow fever vaccinations were given to 140,000 persons in 1956 as compared with 13,365 between 1950 and 1953. *Aedes aegypti* control was intensified at all the seaports, airports and frontier posts.

The number of serological tests for syphilis made in government laboratories was 594,497, of which 188,481 were positive.

In 63 tuberculosis clinics and three mobile units, 212,487 x-ray examinations were made, which included 17,647 contacts. Diagnosed cases amounted to 53,522 and 637 among the contacts. The number of BCG vaccinations reached 2,064 in 1956.

The number of leprosy cases in 1956 was estimated to be 30,000 of which 13,408 were known; 650 of these were segregated. There is one leprosy settlement with capacity for 450 patients. Twenty-four dispensaries are in operation for ambulatory care of leprosy patients.

The number of poliomyelitis cases reported in 1956 reached 602, of which 557 occurred in children under 5 years of age, 37 in the age-group 5-9 years, seven in the age-group 10-14 years, and one in the group 15 years and above.

In recent years emphasis has been laid on the programme for maternal and child health, rural social welfare, health education, environmental sanitation, rehabilitation and specific campaigns for the control of communicable diseases. In 1954 there were 49 centres for rural social welfare; these have since increased to 386, including all the federated units, which benefit 3139 rural communities with an over-all population of 3,951,019.

Special pre-natal and post-natal care is offered in 115 MCH centres; 939 general MCH centres (458 in urban and 481 in rural areas) dealt with 2,095,209 patients in 1956.

**NETHERLANDS ANTILLES**

The Netherlands Antilles are situated in the Caribbean Sea, and comprise two groups 880 kilometres apart. The Leeward group consists of the islands of Curaçao, Aruba and Bonaire, and the Windward group of St Maarten, St Eustatius and Saba. The southern part of St Maarten, however, is French territory. The total area is 989 square kilometres, and the population was estimated on 31 December 1955 at 183,795, with 172,616 living on Curaçao and Aruba—the principal islands, with areas of 443 square kilometres and 190 square kilometres respectively.

The economy is based almost entirely on the refining of oil imported from Venezuela to Curaçao and Aruba. About 40-70 per cent. of the gainfully occupied are working at the refineries or their shipping establishments. In addition to oil refining, Curaçao and Aruba rank high in shipping and trade. Bonaire and the three Windward islands are of relatively little economic importance.

**Health**

The operation of public health services has remained under the central Government, and an Inspectorate of Public Health was created in January 1953 to promote health in general and to administer public health regulations.

In 1957 there were 126 physicians, 33 dentists, 172 graduate nurses, about 400 other nurses, 29 graduate midwives, two veterinarians and seven sanitary engineers in the territory. Eight doctors, three nurses, 33 auxiliary nurses and 33 laboratory personnel serve in the central health services. The local health services of Curaçao and Aruba employ in full-time service nine physicians, eight public health nurses, one other graduate nurse, nine auxiliaries, two graduate midwives, one engineer, 17 sanitariums, 19 other sanitation personnel, and two veterinarians.

In the same year the territory had seven hospitals (with approximately 1400 beds), including four general hospitals, with about 880 beds, one tuberculosis hospital, with 60 beds, one mental and one children’s hospital, with 400 and 55 beds respectively.

The proposed budget for health services for Curaçao and Aruba for 1957 was as follows:

<table>
<thead>
<tr>
<th>Service</th>
<th>NWI Guilders *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicable diseases</td>
<td>65,000</td>
</tr>
<tr>
<td>Tuberculosis control</td>
<td>100,000</td>
</tr>
<tr>
<td>Venereal disease control</td>
<td>13,000</td>
</tr>
<tr>
<td>Industrial hygiene</td>
<td>185,000**</td>
</tr>
<tr>
<td>Local health services</td>
<td>258,000**</td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>16,900**</td>
</tr>
<tr>
<td>Dental health (schools)</td>
<td>50,000</td>
</tr>
<tr>
<td>Laboratory services</td>
<td>80,000**</td>
</tr>
<tr>
<td>Hospitals</td>
<td>589,000**</td>
</tr>
<tr>
<td>Vitamins (Schools)</td>
<td>12,000**</td>
</tr>
</tbody>
</table>

* NWI guilders 1.886 = US $1.00
** Curacao only — data for Aruba not available

The vital statistics for these two islands for the years 1954, 1955 and 1956 were reported as follows: birth rate, 32.0, 31.6, and 31.3; death rate, 4.6, 4.7, and 4.2; infant mortality rate, 21.0, 20.6, and 21.9. These
Nicaragua is in Central America, with long coast lines on both the Atlantic and the Pacific Oceans; it is bounded by Honduras on the north and Costa Rica on the south. The country is crossed by two mountain chains, separated by a depression in which there are two large lakes. The Caribbean, or Atlantic, coast is low and swampy; the Pacific coast is bold and rocky with some good harbours. The climate along the coasts is hot and often sultry but the uplands are cooler. The wet season is from May or June to November or December. The area is about 148,000 square kilometres.

The population at the 1950 census was 1,057,023, with a density of 8 per square kilometre. The annual rate of increase at that time was 2.37 per cent. In 1957 the estimated population was 1,331,322.

Managua is the capital, with a population of about 110,000. The country is divided into 16 departments and one district, or Comarca.

The country is mainly agricultural; its chief crops are coffee, cotton, sesame, sugar, rice and maize. Livestock-breeding and timber production, already considerable, are capable of great expansion. Gold and silver are mined.

Primary education is compulsory, free of charge, and consists of a six-year course.

Health

The Minister of Public Health and a Vice-Minister are responsible for the following eight main divisions in the health service: (a) administration, local health units, and venereal disease prophylaxis; (b) epidemiology and health statistics; (c) the National Institute of Hygiene; (d) the health inspectorate; (e) sanitary engineering; (f) health education; (g) tuberculosis control; and (h) insect control.

There are departmental health centres in the departments of Jinotega, Chinandega, León, Masaya, Rivas, Bluefields, Matagalpa, and Granada. Seven other departments have departmental health authorities, and health offices exist in San Juan del Sur, Puerto Cabezas, and Somotillo. Diriaamba and Corinto have departmental sanitary units.

The birth, death and infant mortality rates have been gradually falling in recent years, and statistics compiled for the years 1954-56 are as follows:

|                | 1954 | 1955 | 1956 *
|----------------|------|------|------*
| Birth rate     | 42.6 | 41.7 | 40.9 |
| Death rate     | 9.0  | 8.2  | 7.6  |
| Infant mortality rate | 70.8 | 66.9 | 63.5 |

* Provisional (incomplete)

There are three tuberculosis clinics, where 3,828 x-ray examinations were carried out in 1956, revealing 36 cases. Suspected leprosy sufferers are reported, and examined by specialists; in 1956, there were 23 known cases on the island, all segregated. Smallpox and diphtheria vaccinations are carried out, and yellow fever vaccinations (mainly for the crews of ocean-going tankers) are also given.

In 1957, there were in all 26 hospitals in Nicaragua with a total bed capacity of 2,662; 23 of the hospitals were for general medicine and included accommodation for paediatrics (192 beds), gynaecology and obstetrics (173), and infectious diseases (63); one was reserved for tuberculosis (300 beds), one for mental disorders (300 beds), and one for leprosy (68 beds).

Medical and para-medical personnel in the country in 1957 included: 464 doctors, 73 dentists, 225 graduate nurses, 182 other nurses, 15 graduate midwives, 26 veterinarians, and two sanitary engineers. Of the above personnel, the national health service employed in full-time service a physician, a public health nurse, and a laboratory technician. The part-time staff (working from 7 a.m. to 1 p.m.) were composed of 22 physicians, 105 public health nurses, one dentist, 18 laboratory personnel, 24 health educators, 10 social workers, and one statistician. In the departmental (provincial) health services, another 17 dentists and 58 laboratory personnel were also employed on a part-time basis.

The health budget for 1957 was allocated as follows:

<table>
<thead>
<tr>
<th></th>
<th>National (córdobas)</th>
<th>Departmental (córdobas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicable diseases</td>
<td>82,120</td>
<td>—</td>
</tr>
<tr>
<td>Tuberculosis control</td>
<td>380,100</td>
<td>—</td>
</tr>
<tr>
<td>Venereal disease control</td>
<td>114,200</td>
<td>—</td>
</tr>
<tr>
<td>Malaria eradication</td>
<td>1,241,900</td>
<td>—</td>
</tr>
<tr>
<td>Environmental sanitation</td>
<td>1,184,450</td>
<td>—</td>
</tr>
<tr>
<td>Mobile units</td>
<td>—</td>
<td>108,000</td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>398,840</td>
<td>—</td>
</tr>
<tr>
<td>Dental hygiene</td>
<td>—</td>
<td>49,200</td>
</tr>
<tr>
<td>Nutrition</td>
<td>370,500</td>
<td>—</td>
</tr>
<tr>
<td>Laboratory services</td>
<td>364,860</td>
<td>296,600</td>
</tr>
</tbody>
</table>

* 7 córdobas = US $1.00
Syphilis is the principal communicable disease notified in Nicaragua; in the years 1954, 1955 and 1956 the numbers of reported cases per 100 000 population were: 197.3, 171.3 and 156.8. In 1956, 37 973 serological tests were made, revealing 4527 positive cases, who received treatment.

Tuberculosis case rates per 100 000 during the three years 1954-56 were: 112.8, 77.4, and 81.6. The Ministry's Division for tuberculosis control maintains the tuberculosis hospital already mentioned, a mobile unit and an x-ray unit. Specialized staff at its disposal consist of the medical officer in charge of the Division, one medical specialist, one medical assistant, one laboratory technician, two graduate nurses, two x-ray technicians and one electrician. The social assistance centres in different parts of the country co-operate in the work of tuberculosis control.

The reported number of malaria cases per 100 000 population was 123.3 in 1954, 32.0 in 1955, and 14.3 in 1956. The incidence of typhoid fever has shown a marked decline during these years: 56.9, 23.0, and 14.3. About 2000 cases of leprosy are estimated to exist in the country; in 1956, 100 cases were known, and of these 67 were isolated in a settlement with a capacity of 68 beds. There is also one diagnosis and treatment centre for leprosy outpatients.

Maternal and child health services are provided in 24 centres. In 1956 these centres recorded 5350 pre-natal visits, during which care was given to 3209 pregnant women, and 438 post-natal visits. In the same year, 8550 infants and children were cared for by infant and child welfare clinics; 42 100 visits were paid by children to the clinics, and 959 visits were made to children in their homes.

Nicaragua has one medical school — the Medical Faculty of the National University at León. A secondary school certificate is required for admission, and the course is of eight years' duration, including one year of internship. The school was founded in 1814; in 1957 it had 45 members on the teaching staff and a student body of 439.

The water supply of Nicaragua in 1957 included 23 connected systems — 15 in urban and eight in rural areas. The urban systems served 168 206 inhabitants, and of the remainder of the town dwellers, 38 000 had private supplies, 414 used public fountains, and 172 000 were not connected to a system of any kind. In rural areas, 4360 people were served by a piped system, 82 884 had private supplies and 67 936 people were not connected to a system.

In the same year, there were six sewage-disposal systems, all in urban areas, serving a population of 62 803.

PANAMA

The country lies on the Isthmus of Panama, which connects North and South America. Its interior is rough and irregular, and there are mountain ranges in the west rising to over 3000 metres. Its area is 74 470 square kilometres, and the climate is tropical.

The population at the 1950 census was 805 285 and the estimated figure for 1957 was 911 100. According to the 1950 census, about 65 per cent. of the population are of mixed blood; 11 per cent. are white, 13 per cent. are Negro and 10 per cent are Indian.

The Republic of Panama is made up of nine provinces. The country is mainly agricultural with extremely fertile soil, although only about half is at present under cultivation. Bananas are the chief crop, but coco-nuts, cocoa, coffee and cereals are also grown to a large extent. A considerable amount of rice is raised for home consumption. A shrimping industry is increasing in importance. In 1954 the value of per capita production was reported to be US $250. All manufactured goods and about 60 per cent. of the country's food requirements are imported. Much of the industry is owned by foreign interests.

According to the 1950 census 28.3 per cent. of the population over 10 years of age were illiterate. Elementary education is compulsory and free for all children from 7 to 15 years of age.

The National University of Panama, founded in 1935, had in 1951-52 a total of 1778 students in law, science and other disciplines.

A heavy international traffic runs through the Panama Canal Zone ports of Cristóbal and Balboa.

Health

According to the reorganization plan of the Public Health Services of 1956, the Minister of Public Health is assisted by offices for liaison with inter-American and international co-operative agencies, and is in charge of the Department of Public Health, of which the principal officer is the Director-General of Public Health. Under the Director-General are the Director of Programmes for Hospitals and the Director of Preventive Programmes. Of these two Directors, the first is responsible for hospital administration, hospital nursing, the medical social welfare service and dietetic services. The second is in charge of health education, health reports and studies, sanitary engineering, health centres (including public health nursing, dental health, health inspection, and nutrition programmes), and communicable diseases (including laboratories and pharmacies, veterinary work, and tuberculosis and malaria control).
In local administration, three Regional Directors, for the Western, Central and Eastern Regions respectively, are responsible to the Director-General. The Directors of the Western and Central regions both have responsibility for regional and provincial hospitals, other regional and provincial health services, and regional and rural health centres. The Director for the Eastern Region has charge of the health services in the cities of Colón and Panama, and of the health services and sanitary engineering in other parts of his region.

The birth rates for the years 1954, 1955 and 1956 were 39.5, 39.9 and 40.6 respectively. For the same years the general death rates were 9.0, 9.3 and 9.3, and the infant mortality rates were 52.6, 53.5 and 55.7 respectively.

In 1956, there were in Panama 286 physicians, 80 dentists, 528 graduate nurses, 199 graduate midwives, 17 veterinarians and 12 sanitary engineers. The Department of Public Health employed at the national level six physicians and 307 other personnel (mostly administrative and clerical staff), and for provincial services (mainly on a part-time basis): 196 physicians, 95 public health nurses, 335 other graduate nurses and 463 auxiliary nurses, 74 graduate midwives and 29 auxiliaries, five graduate engineers, 176 sanitarians and 324 other sanitation personnel, 43 dentists, two veterinarians, 23 laboratory technicians (excluding those employed in hospitals), eight health educators, and 22 social workers.

There were 21 hospitals in the country in 1957, with a total of 3552 beds. They included 12 general hospitals, with 1880 beds (of which 172 were reserved for paediatrics, 210 for gynaecology and obstetrics, and 89 for infectious diseases), one tuberculosis hospital, with 250 beds, one psychiatric hospital, with 792 beds, and seven private hospitals, with a total of 630 beds.

The total health budget for 1957 was 9 114 187 balboas.1 This was distributed as follows:

<table>
<thead>
<tr>
<th>Service</th>
<th>National (balboas)</th>
<th>Provincial (balboas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1 447 427</td>
<td>7 666 760</td>
</tr>
<tr>
<td>Communicable diseases, including</td>
<td></td>
<td></td>
</tr>
<tr>
<td>venereal disease control</td>
<td>29 220</td>
<td>9 680</td>
</tr>
<tr>
<td>Tuberculosis control</td>
<td>2 200</td>
<td>157 100</td>
</tr>
<tr>
<td>Malaria control</td>
<td>499 782</td>
<td>—</td>
</tr>
<tr>
<td>Environmental sanitation</td>
<td>42 900</td>
<td>2 166 380</td>
</tr>
<tr>
<td>Vital and health statistics</td>
<td>7 900</td>
<td>—</td>
</tr>
<tr>
<td>Local health services, including</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCH and dental health</td>
<td>31 900</td>
<td>738 800</td>
</tr>
<tr>
<td>Nutrition</td>
<td>12 500</td>
<td>—</td>
</tr>
<tr>
<td>Laboratory services</td>
<td>56 180</td>
<td>—</td>
</tr>
<tr>
<td>Hospitals</td>
<td>18 900</td>
<td>4 533 000</td>
</tr>
<tr>
<td>Food and drug services</td>
<td>14 040</td>
<td>—</td>
</tr>
<tr>
<td>Other</td>
<td>731 905</td>
<td>61 800</td>
</tr>
</tbody>
</table>

In 1956, 144 cases of poliomyelitis were recorded of which 121 occurred in children under 5 years of age, 13 in the 5-9 age-group, three in the 10-14 group, and seven in persons over 15. Vaccinations began in August 1956.

On the basis of an estimated population figure of 886 000 in 1956, there was one physician for every 3723 inhabitants in Panama. Added to this annually are some 20 medical graduates from the country's one medical school in Panama City. This school is government-owned and was founded in 1951 as a part of the University of Panama. In 1957 it had a teaching staff of eight full-time and 42 part-time professors, and a student body of 54 males and 12 females. Students pay 112 balboas for tuition if they are permanent residents of the country and 250 balboas if they are non-residents. The requirements for entrance are a four-year pre-medical course at university level and a professional aptitude test. The medical course lasts four years and leads to the degree of Doctor of Medicine.

Apart from the cities of Panama and Colón, piped water-supply systems serve 68 241 inhabitants in urban areas and 9961 in rural areas.

For sewage disposal, 58 513 inhabitants of urban areas (not including Panama City and Colón) have private sewage pits, and 9980 have private latrines unconnected to a system. Of the rural population, 3774 have private sewage pits, and 29 412 have latrines.

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1 1 balboa = US $1.00

PANAMA CANAL ZONE

In 1903 Panama granted to the United States of America in perpetuity the use, occupation and control of a zone eight kilometres wide on each side of the Canal route and, within this zone, the exclusive right to exercise sovereign power and authority. The zone is governed by the Canal Zone Government.

The area of the zone, including land and water, is 1432 square kilometres. The water area of the zone, including the water area within the limit from the Atlantic and Pacific ends, is 713 square kilometres. The total population on 1 July 1954 was 38 953 exclusive of all uniformed army, navy and air force personnel; the 1950 census figure of 52 822 included that personnel.

Health

Medical and health services in the Panama Canal Zone are provided by the Canal Zone Government,
and at the end of 1956 the following personnel were employed in these services: 96 physicians, one engineer, four public health nurses, 207 other graduate nurses, seven dentists, six sanitarians, 88 other sanitary personnel, four veterinarians, 44 laboratory personnel and seven nutritionists. The services of four doctors and eight public health nurses are also available on a part-time basis.

A health director is in charge of the public health services, which include hospitals and clinics, and divisions of sanitation, veterinary medicine, and preventive medicine and quarantine.

There are four hospitals in the Zone, with a total of 940 beds. Two are general hospitals with 520 beds, one is a mental hospital with 300 beds, and there is one leprosarium with 120 beds.

The operating budget for the health services for the fiscal year 1957 totalled US $5,999,100, of which US $5,557,100 were allocated to hospitals and the remainder to the public health services.

The vital statistics for the years 1954-56 are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth rate</th>
<th>Death rate</th>
<th>Infant mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>31.7</td>
<td>6.8</td>
<td>23.5</td>
</tr>
<tr>
<td>1955</td>
<td>31.4</td>
<td>4.5</td>
<td>24.5</td>
</tr>
<tr>
<td>1956</td>
<td>30.4</td>
<td>4.2</td>
<td>26.5</td>
</tr>
</tbody>
</table>

Of the 155 deaths recorded in 1956, 25 were from heart disease, 18 from cancer, 18 from diseases peculiar to early infancy, 15 from vascular lesions affecting the central nervous system, 14 from accidents and six from tuberculosis.

The incidence of communicable diseases seems to have decreased during the period under review. In 1954 and 1956, the numbers of reported cases of those principally occurring were: syphilis, 55 and 34; tuberculosis, 23 and 27; measles, 61 and 25. No cases of plague, leprosy, yaws, smallpox, yellow fever or typhus were reported.

Altogether 15,202 serological tests for syphilis were carried out in 1956, revealing 1,887 positive cases; tuberculosis case-finding was carried out in two clinics, where 9,149 x-rays were made in 1956, and 28 new cases were found. In the same year 295 BCG vaccinations and 22 re-vaccinations were given. Vaccination was carried out against smallpox (2,568 primary), diphtheria, whooping-cough and tetanus (4,075 children were vaccinated).

There were 16 cases of poliomyelitis in the Canal Zone in 1956, nine of them in children under five years of age. Three iron lungs are available and there is also a rehabilitation centre for polio patients. Vaccination is carried out, and 21,640 ml of vaccine were administered in 1956.

### PARAGUAY

The Republic of Paraguay is one of the two inland countries of South America, the other being Bolivia, which borders it on the north-west; Argentina lies to the south-west, and Brazil to the east. The area of Paraguay is 406,752 square kilometres and the population at the 1950 census, including the estimated population of Guaraní jungle Indians, was 1,408,000—a density of four per square kilometre. The rural population, which forms 65.4 per cent. of the total, earns its livelihood by cattle-breeding—the principal occupation. Few of the peasants engaged in farming own their lands, large estates being the rule. Yerba maté is exported, as well as meat, quebracho tanning extract, sugar, cotton, timber and hides. Mineral wealth is abundant but only slightly exploited. Because the importation of foodstuffs is a heavy drain on the national budget, the Government is encouraging greater production of wheat, rice and groundnuts.

Education is free and compulsory, but not available in all areas, and the latest revision of the school system includes, inter alia, primary education for adults. In 1953 the National University at Asunción, the capital, enrolled about 2,043 students.

A contributory insurance plan for all workers (except civil servants) came into effect in 1951.

### Health

The General Health Directorate has a Minister of Health and Social Welfare, who is assisted by a Standing Committee for Co-ordination and a Bureau of International Health Relations. The Directorate has three main departments: (1) the Administrative Department; (2) the Department of Normative Services, comprising (a) the division of technical services, with sections for maternal and child health, epidemiology and zoonoses, venereal diseases, tuberculosis, nutrition, mental health and dentistry; (b) the division of general services, with sections for health education, health statistics, professional education, nursing and control of medical practice; and (c) the division of environmental sanitation (created in 1955), with sections for sanitary engineering, industrial hygiene, control of rodents and insect vectors, control of parasitic diseases, and food control; and (3) the Department of Executive Services, comprising (a) a division of local health services, with branches in each of the Departments of the Republic; (b) a division of social welfare; and (c) a division responsible for the health services of the capital, with sections for out-patient and hospital services, pharmacy and laboratory services.
At the end of 1956 the following personnel were employed in the health services of Paraguay:

<table>
<thead>
<tr>
<th>Position</th>
<th>Full-time</th>
<th>Part-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>72</td>
<td>145</td>
</tr>
<tr>
<td>Public health nurses</td>
<td>17</td>
<td>—</td>
</tr>
<tr>
<td>Other graduate nurses</td>
<td>79</td>
<td>—</td>
</tr>
<tr>
<td>Auxiliaries</td>
<td>146</td>
<td>432</td>
</tr>
<tr>
<td>Graduate midwives</td>
<td>163</td>
<td>—</td>
</tr>
<tr>
<td>Sanitary engineers</td>
<td>4</td>
<td>—</td>
</tr>
<tr>
<td>Sanitarians</td>
<td>22</td>
<td>—</td>
</tr>
<tr>
<td>Dentists</td>
<td>1</td>
<td>52</td>
</tr>
<tr>
<td>Dental hygienists</td>
<td>4</td>
<td>—</td>
</tr>
<tr>
<td>Veterinarians</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Health educators</td>
<td>9</td>
<td>—</td>
</tr>
</tbody>
</table>

There were 857 doctors in the country, as well as 271 dentists, 88 trained nurses and 579 other nurses. Medical care facilities are available in 130 hospitals, with a total of 3588 beds—78 general (2287 beds), 38 paediatric (301 beds), eight maternity (200 beds), two for infectious diseases (40 beds), two for tuberculosis (360 beds) and one for mental disorders (400 beds).

Communicable disease control services in 1956 included 159 435 primary vaccinations against smallpox, with 62 376 revaccinations. Attention has been given to tuberculosis, and 80 730 x-ray examinations were made in 1956, revealing 301 cases. Since 1945, a compulsory insurance plan has provided for the treatment and support of patients suffering from this disease.

In 1956, there were 1679 known cases of leprosy, 375 of them segregated; the number of cases in the country is, however, estimated at 4787 and an intensive campaign against this disease was started towards the end of 1955. One leprosy settlement can accommodate 400 patients, and there are also eight out-patient clinics.

The maternal and child health programme is expanding, and in 1956 there were 47 health centres providing maternal and child health services and serving a total population of 909 000. In the seven urban centres, 3250 women attended for pre-natal attention during 1956, and 4700 pre-natal and 1700 post-natal attendances were recorded. Two thousand visits were made to children at home and 12 000 visits were made by children to the centres. The 40 rural centres, serving a population of 759 000, provided pre-natal care for 25 006 women; 32 100 pre-natal and 32 100 post-natal attendances were recorded. A total of 56 500 children received care through 70 000 clinic visits and 1500 home visits.

In 1956 a programme of rural health was initiated, and plans were made to increase the sources of potable water, to provide adequate sewerage facilities, to maintain certain standards of sanitation in schools, and to encourage habits of personal hygiene.

**PERU**

Peru is on the Pacific coast of South America, between Ecuador and Chile. It is traversed throughout its length by the Andes, which run parallel to the coast and rise to peaks of over 7000 metres. There are three main regions: the coast, west of the Andes; the Sierra, or mountain ranges of the Andes, including the lonely and barren mountains below the region of perpetual snow; and the selva, which is the vast area of jungle stretching from the eastern foothills to the eastern frontier. Lima, the capital, is in the coastal area, which is cooled by the Humboldt Current and is not tropical. The total area is 1 249 049 square kilometres.

The estimated population in 1953 was 8 591 300, consisting of about 3 283 000 whites or mestizos, 2 847 000 Indians, 29 000 Negroes and 4200 Asians. The population of Lima was estimated at 1 005 000 in 1954; other large towns are Callao (112 400), Arequipa (106 000), Cuzco (61 500), and Trujillo (53 000).

The culture of Peru is Spanish in the urban areas; in the rural areas, particularly in the mountains, Indian customs prevail. The President is assisted by a Cabinet of 12 members, among whom is the Minister of Public Health and Social Welfare.

Since 1953 the 23 departments of the country have been divided into 139 provinces and 1350 districts; the province of Callao has some of the functions of a department. Each department is administered by a prefect and each province by a sub-prefect.

Agriculture and mining are the principal industries and employ over 70 per cent. of the population. The chief crops—in order of value—are cotton, potatoes and other vegetables, sugar-cane, fruit, maize, rice, wheat, barley, grapes and coffee. The minerals produced in 1953 were lead, zinc, copper, iron ore, petroleum, silver, gold, tungsten, bismuth and vanadium (Peru is the world's largest producer of vanadium). The islands off the Pacific coast provide guano, a valuable fertilizer, which is exported. The country is short of machinery, foodstuffs, and pharmaceutical products, and there has been a trend in recent years to produce some of these goods locally; development loans to this end were obtained in 1955 from the International Bank for Reconstruction and Development. In 1954 the per capita production was valued at US $120. Government monopolies exist for the import, local manufacture and sale of guano, tobacco, salt, matches, alcohol, explosives, and playing cards.

Primary education is compulsory and free between the ages of 7 and 14. Secondary education has also been free since 1946 and is provided for pupils from 12 to 17 years of age. The chief port is Callao, which clears over 12 million tons of shipping annually. There are 3760 kilometres of standard gauge railways; a good modern network of paved highways connects the remote cities with the coast; and an international air service connects Lima with all the other South American republics.
Health

The Minister of Public Health and Social Welfare is in charge of the health services, and within the Ministry the Directorate-General of Health has five Departments: (1) Department of Technical Guidance Services, with divisions for sanitary engineering, communicable diseases and epidemiology, tuberculosis, maternal and child health, school health, leprosy, dental health, hospitals and preventive services, social welfare, biostatistics, and health education; (2) Department of Health Areas, with divisions for organization of services, supervision and co-ordination, social assistance, and maintenance of services; (3) Department of Pharmacy, with divisions for pharmaceutical laboratory production, supervision of laboratories, pharmacies and druggists, and control of medicaments and public medicaments distribution services; (4) Department of Nutrition, with a division for school meals; (5) Department of Administration, with divisions for administration, finance, budget and budgetary statistics, accounts, and personnel matters.

The Directorate-General of Health is directly responsible for the following units: (a) Office of Planning, Co-ordination and Evaluation; (b) Office for International Relations; (c) Office of International Health; (d) National Institute of Health; (e) Institute of Nutrition; (f) Institute of Occupational Health; and (g) Institute of Neoplastic Diseases.

The Directorate-General of the National Health and Social Welfare Fund co-ordinates its work with that of the Directorate-General of Health, and approves special allocations of funds for the development of certain health programmes.

In 1954, the birth rate was 34.3, the death rate was 10.9, and the infant mortality rate was 94.4.

Since 1950, a systematic nation-wide smallpox vaccination campaign has been in operation, and no case of smallpox has been reported since 1954. Typhus is endemic in the Andean region, and in 1950 the Government initiated a control programme in certain areas of the departments of Cuzco, Puno, Arequipa and Tacna, bordering on Bolivia and Chile. Later, stock “E” of Rickettsia prowaseki in a live vaccine was developed and tested in Peru in co-operation with Tulane University in the United States of America. As a result, only three cases of typhus (with no deaths) were reported in 1953 in the area treated in Cuzco department, compared with 581 cases and 66 deaths in 1948.

Yellow fever has been practically eliminated; it is now found (and to a very limited extent) only in the forest areas of Loreto, where 4243 vaccinations were given in 1954 and where only one case was reported up to 15 August. The inspection of 81,633 houses in 1956 revealed no positive foci of infestation of Aëdes aegypti.

Bubonic plague is no longer a problem in urban areas, although it is still serious in certain rural areas at altitudes of 1000-2000 metres, particularly in places along the Ecuadorean frontier, where there is abundant vegetation. In 1954, three cases were reported in Piura, 14 in Lambayeque, 30 in Cajamarca, and six in Ancash.

The decline of malaria in the coastal area is illustrated by the results of a survey made among the school population between 5 and 14 years of age. In all, 26,544 schoolchildren were examined, and the malaria parasite rate was found to be 0.79 per cent.

Triatoma infestans has been found in some of the southern departments along the Chilean frontier as far as the 14th parallel and from sea level up to 3000 metres. Since 1952, when insect control measures began, 262,432 houses have been treated in an area of 64,759,628 square metres, and 1,230,333 inhabitants have been protected.

For the control of tuberculosis, there were in 1954 four mobile x-ray units, 14 tuberculosis control centres, special wards for child and adult tuberculosis patients in some of the hospitals, regional sanatoria, and some preventoria for children. The “Social Action” service ensures that patients and their families receive economic support, and the Social Security Office has a fund for special assistance. There were altogether 3579 beds reserved for tuberculosis patients in 1954, but it is planned to increase this number to at least 7029. In the south, an 800-bed regional sanatorium is under construction, and similar plans are being made for the north and north-west.

Leprosy is most prevalent in the north-east of Peru — particularly in the departments of Apurimac and Loreto — where some 80 per cent. of all the cases in the country are found. There were 958 recorded cases in this area in 1954, while the total number in the area was estimated at 2800 and the over-all incidence at between 12 and 15 per 1000 inhabitants. In the country as a whole there were 1117 known cases, 3400 estimated, and a general incidence of 0.40 per 1000. The leprosy control service is staffed by ten doctors and two social workers.

Maternal and child health services are provided in 92 centres in different parts of the country.
PUERTO RICO

Puerto Rico is an island of the Greater Antilles group, lying between 18° and 19° north and 66° and 67° west, with a total land area of 8897 square kilometres. It is about 161 kilometres from west to east and 64 kilometres from north to south at the western end, narrowing towards the eastern extremity.

At the 1950 census, the total population was 2,210,703, with 224,767 in the capital, San Juan; in 1955 the population was estimated at 2,264,000. The majority of the inhabitants are of Spanish descent, and Spanish is the official language. In 1955 18.5 per cent. of the population over 10 years of age were illiterate.

Trade is carried on principally with the United States of America, which received 96 per cent. of the island's exports in 1955—mainly sugar, tobacco leaf, rum, fibre textiles and manufactures. Ninety per cent. of the imports came from the United States. Sweet potatoes and yams are also cultivated in the island. There are salt works, small deposits of high quality marble, and fair-sized deposits of white china clay.

Education is compulsory. The University of Puerto Rico in Rio Piedras is open to both men and women, as is also the San German Polytechnic Institute. In 1955-56, the University had 11,947 students, including 2025 extramural students.

In mid-1956 there were 6900 kilometres of paved roads and 759 kilometres of railways on the island.

Health

The Department of Health, headed by the Secretary for Health, is administered in four main divisions—hospitals, public health, social welfare and administration. The division of public health has units dealing with the control of communicable diseases, venereal diseases, tuberculosis, control of malaria and insects, public health laboratories, maternal and child health, handicapped children's services, dental health, public health nursing, and sanitation. The local health services in each of the 33 districts of the country are also supervised by the Division of Public Health, and include 20 health centres, 56 health units, and 129 sub-units. Units for health education, mental health, medical social work, nutrition, statistics, hospital construction, cancer control and medical education are also attached to the central services of the Department of Health.

Local health services have been well developed in each of the 33 districts of Puerto Rico, and cover environmental sanitation, communicable diseases, maternal and child health, medical care, statistics, laboratory services and health education.

The total expenditure for health services in 1957 was US $25,931,028 including US $6,929,376 from municipal authorities for medical care, the rest coming from the Commonwealth Government of Puerto Rico.

The main vital statistics for the years 1954-56 were as follows:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>35.0</td>
<td>35.0</td>
<td>34.1</td>
</tr>
<tr>
<td>Death rate</td>
<td>7.6</td>
<td>7.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>57.8</td>
<td>55.1</td>
<td>55.5</td>
</tr>
</tbody>
</table>

Hospital facilities are provided in 129 hospitals, with a total of 12,283 beds — i.e., approximately 1 bed per 176 inhabitants; these include 116 general hospitals (7,049 beds); eight tuberculosis hospitals (2,760 beds), three mental hospitals with 2,234 beds, and two other hospitals (240 beds).

There are 217 health centres, 90 of them in urban and 127 in rural areas, providing maternal and child health services, and covering a total population of 2,211,000 people. In 1956, 43,299 expectant mothers received pre-natal care and 30,296 children were cared for by these centres.

Medical and health personnel in Puerto Rico in 1957 included: 1,612 physicians; 325 dentists; 1,912 graduate nurses; 1,823 other nurses (licensed practical nurses); 23 graduate midwives; 1,072 auxiliary midwives; 61 veterinarians; 20 sanitary engineers. The personnel employed full-time in the health services were as follows:

<table>
<thead>
<tr>
<th>Health Personnel</th>
<th>National full-time</th>
<th>others</th>
<th>Local full-time</th>
<th>others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>213</td>
<td>84</td>
<td>180</td>
<td>69</td>
</tr>
<tr>
<td>Public health nurses</td>
<td>327</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Other graduate nurses</td>
<td>511</td>
<td>—</td>
<td>227</td>
<td>—</td>
</tr>
<tr>
<td>Auxiliaries</td>
<td>801</td>
<td>—</td>
<td>848</td>
<td>—</td>
</tr>
<tr>
<td>Graduate midwives</td>
<td>22</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Auxiliary midwives</td>
<td>—</td>
<td>—</td>
<td>5</td>
<td>—</td>
</tr>
<tr>
<td>Sanitarians</td>
<td>32</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Other sanitation personnel</td>
<td>237</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Dentists</td>
<td>6</td>
<td>40</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>Dental hygienists</td>
<td>2</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Veterinarians</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Laboratory personnel</td>
<td>150</td>
<td>—</td>
<td>47</td>
<td>1</td>
</tr>
<tr>
<td>Health educators</td>
<td>25</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Nutritionists or dietitians</td>
<td>48</td>
<td>—</td>
<td>13</td>
<td>—</td>
</tr>
<tr>
<td>Social workers</td>
<td>47</td>
<td>—</td>
<td>10</td>
<td>—</td>
</tr>
<tr>
<td>Statisticians</td>
<td>12</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Clerical personnel</td>
<td>111</td>
<td>—</td>
<td>105</td>
<td>—</td>
</tr>
<tr>
<td>Other personnel</td>
<td>2,857</td>
<td>—</td>
<td>1,212</td>
<td>1</td>
</tr>
</tbody>
</table>

* National includes all personnel employed by the Department of Health of the Commonwealth of Puerto Rico at State and local level for preventive and curative services, excluding vacant positions.

** Local includes all personnel employed by municipal governments for curative services.

Of the total of 16,243 deaths reported in 1955, 2,244 were reported to be due to diseases of the heart; 1,709 to gastritis and enteritis; 1,592 to malignant neoplasms; 1,433 to diseases peculiar to early infancy; 905 to influenza and pneumonia; 903 to vascular lesions affecting the central nervous system; 743 to tuberculosis; and 630 to accidents.
The incidence of communicable diseases has shown a considerable reduction in the period under review. The reported case rates for the following diseases per 100,000 population for 1954 and 1956 were: tuberculosis, 201.1 and 143.9; syphilis, 125.8 and 69.8; whooping-cough, 111.3 and 24.9.

In 1956, 300,000 x-ray examinations for tuberculosis were made at 20 clinic centres and by three mobile units, revealing 1276 cases. Of 158,148 serological tests for syphilis, 8819 showed positive results. Thirteen cases of malaria were reported in 1954, seven in 1955 and none in 1956. Of the 150 known cases of leprosy, 96 are segregated in the country's one leprosarium.

There are 217 health centres doing maternal and child health work, 90 in urban and 127 in rural areas; in 1956 they provided pre-natal services for 43,299 expectant mothers and infant care for 30,296 children.

Nearly all the population is served by a water-supply system; the dwellings of 965,000 people are connected to the 166 systems; 454,000 inhabitants are served by public taps or fountains, and 791,000 in rural areas have other sources of supply.

So far as sewage disposal is concerned, 64 systems — all in urban areas — serve 433,000 people. In urban areas, also, 40,000 are served by private septic tanks and 35,000 by latrines. In the rural areas, 30,000 are served by private septic tanks and 75,950 by latrines.

A pilot project is at present being carried out by the Department of Health of the Commonwealth of Puerto Rico in the Bayamon General District Hospital area, to demonstrate the proper integration of preventive and curative medical services with public welfare services in the area. The findings from this project will determine the feasibility of extending the programme to other areas.

The University of Puerto Rico School of Medicine, which was founded in 1949 and is owned and operated by the Government, has an annual enrolment of about 52, and some 43 students graduate each year. In the academic year 1955-56, there were 279 students in the school.

**SURINAM**

Surinam, previously known as Dutch Guiana, lies on the north coast of the South American continent between latitudes 1° 50' and 6° 7' north and longitudes 53° 59' and 58° 2' west. It is bounded on the north by the Atlantic Ocean, on the east by French Guiana, on the west by British Guiana, and on the south by Brazil. The area is 142,822 square kilometres.

The registered population at the end of 1953 was 219,436, and there were an estimated 22,000 Bush Negroes and 3700 aboriginal Indians living in the forests. The capital, Paramaribo, had a population of 96,951 at the end of 1955. At the end of 1957 the total population of the territory was estimated at 270,000.

For administrative purposes Surinam is divided into seven districts. The territory is under the authority of a Governor.

Agriculture is restricted to some areas of the alluvial coastal zone, and about 29,000 hectares are under cultivation. The staple food crop is rice. The chief products are sugar, cocoa, coffee, paddy, maize, bananas, rum, molasses, citrus fruits, tubers and coco-nuts. The principal exports are rice, citrus fruits, coffee, coco-nuts, balata, baukite and timber.

In 1956 there were 159 public and private schools, with a total of 45,000 pupils. There are also 36 schools for Indians and Bush Negroes run by missions.

There are about 400 kilometres of main roads in the territory, chiefly in the vicinity of Paramaribo and the settlements along the rivers. A railway links Paramaribo to Kabelstation. There is an airport, at which several international airlines call.

**Health**

The Bureau of Public Health was established in 1944, with a staff of four. By 1953 the number of staff had increased to about 250, and by 1958 to some 350.

A new building is now being prepared to accommodate and centralize most of the divisions of the Bureau.

At the end of 1953 there were 100 physicians in Surinam, and by 1958 this number had increased to 137, of whom some 55 per cent. were in government service, and 28 per cent. were medical specialists. The majority are settled in the capital.

Vital statistics in 1957 were as follows: birth rate, 39.5; death rate, 11.2; and infant mortality rate, 53.0.

Tuberculosis mortality, which was 72 per 100,000 inhabitants in 1940, had fallen to 19 in 1953 and 16 in 1957. A mass BCG immunization campaign was carried out in 1955 and 1956 with international assistance and included nearly 108,000 Mantoux tests and 55,521 BCG vaccinations.

The government leprosarium has been modernized, and owing to modern methods of treatment the number of patients in the three leprosaria of the territory fell from 509 to 268 between 1954 and 1958.

A school for children suffering from tuberculoid leprosy and for suspect cases, which had been functioning since 1931, was closed in mid-1958, as only six children were registered.

Malaria is holoendemic in the interior and hyperendemic in some parts of the savannah region. In the coastal zone, however, the number of new cases has declined from 13,788 in 1931 to 769 in 1953 and...
288 in 1957. A campaign for malaria eradication was started in 1957 with international assistance; key personnel have been trained, and geographical and epidemiological reconnaissance has been completed. Total-coverage spraying began in 1958 and is planned to continue until 1961.

No epidemic of urban yellow fever has occurred in Surinam since 1909, but jungle yellow fever is prevalent in the savannah region and in the interior, where *Haemagogus* species and monkeys are present. A programme for the eradication of *Aedes aegypti* with international assistance is being planned in conjunction with the malaria eradication campaign. Control measures in urban areas are carried out as a matter of routine, but resistance of *Aedes aegypti* to insecticides has been encountered in the capital.

Mass treatment of filariasis was started in 1949. In a survey of 50,000 inhabitants of Paramaribo between 1949 and 1951, *Microfilariae bancrofti* were found in 17.4 per cent. of the people examined; after mass treatment a second survey of 45,000 people was made between 1954 and 1956, revealing an infection rate of 6.1 per cent.

Yaws control on a large scale has been carried out in Surinam for many years; the disease is, however, still prevalent in rural areas, especially among the Indians and Bush Negroes.

Bilharziasis due to *Schistosoma mansoni* is endemic in the coastal swamp areas where there are shell ridges, and is particularly prevalent among the Indians who are rice farmers. The disease is not found in the savannah region and in the interior, where the intermediate snail host is absent. A survey made in an endemic area in 1957 revealed that, of 3772 persons examined, 374 (9.9 per cent.) had *S. mansoni* eggs in their faeces, and of 3980 persons examined, skin tests were positive in 536 cases (13.5 per cent.). With the development of road construction in the coastal area, it is feared that bilharziasis will become one of the most serious problems in the territory.

Three mobile medical teams were organized by the Government in 1956 to work in the interior, and in the same year a new hospital under a religious mission was opened, also in the interior. The Public Health Division of the Surinam-American Technical Cooperative Service started operating at the beginning of 1955; health demonstration programmes are being organized in rural areas, and personnel to staff the health services are being trained both in Surinam and abroad. A large modern health centre was established by the Service in 1958 at Lelydorp.

With assistance from UNICEF, a programme of milk distribution is in progress for the benefit of expectant and nursing mothers, pre-school children, schoolchildren and others. Free school lunches are provided for some 2500 children from needy families. Partial malnutrition is found among many people in the lower income groups.

The supply of drinking-water for the capital became rather short as a result of many new houses being built in the suburbs. To meet this situation, a new filtration plant has been installed. Water supplies in rural areas are being improved with the help of the International Cooperation Administration.

New legislation on housing came into force in 1957, laying down standards for new buildings and guarding against over-building in the capital.

### TRINIDAD AND TOBAGO

The islands of Trinidad and Tobago lie at the southern end of the Lesser Antilles and close to the coast of Venezuela and the Orinoco delta. The climate is tropical, with an average rainfall of 2.5-7.5 centimetres a month from January to May, and 17.5-25 centimetres a month from June to December. The area of Trinidad is 4828 square kilometres, with a population estimated in 1956 at 742,500. The area of Tobago is 300 square kilometres.

Trinidad is an agricultural country with substantial deposits of crude petroleum, which provide its principal exports together with asphalt, sugar, cocoa, and rum.

Education is compulsory for all children between 6 and 12 years of age who live within two miles of a school. Technical subjects are taught in 12 centres by the Board of Industrial Training, and the Extra-Mural Department of the University College of the West Indies provides a variety of evening classes, in courses leading to degree examinations of the University of London, or in subjects of topical interest.

A Planning and Housing Commission was set up in 1940 and by 1956 had provided apartment buildings in Port-of-Spain and San Fernando for 682 families, and 1493 cottages in semi-urban and rural areas. The expenditure up to the end of 1956 was BWI $10,000,000 (US $5,882,353). The Sugar Industry Labour Welfare Fund has provided three housing settlements, with a total of 200 building lots for owner-occupation. A field scheme on aided self-help principles was completed in 1954, and by 1956 one group of 15 houses had been completed and other projects were being launched.

The Extension Service of the Education Department is trying to stimulate social progress by informal adult education, to foster self-help and mutual help and to assist voluntary agencies in community development. In 1956 there were 1244 groups and village councils with a membership of 42,690.
Health

The Minister of Health is responsible for the policy of the Health Department, the services of which are administered by the Director of Medical Services, assisted by two deputy directors and a technical staff. A Central Board of Health of nine members appointed by the Governor, of which the Medical Director is Chairman, is authorized to make regulations and has general powers of supervision and control. The territory is divided into sanitary districts under local health authorities.

Municipal health authorities exist in the capital, Port-of-Spain, and in San Fernando and Arima. Local health authorities have also been set up elsewhere.

The essential vital statistics in 1954, 1955 and 1956 were as follows: birth rate, 41.9, 41.9 and 36.9; death rate, 9.8, 10.3, and 9.6; and infant mortality rate, 60.5, 67.9, and 63.9.

In 1956, there were 18 hospitals with a total of 3751 beds, including four general hospitals, with 1176 beds; three tuberculosis hospitals, with 484 beds; one mental hospital, with 1032 beds, and 10 other hospitals, with 1059 beds. Seven of the last mentioned are district hospitals, with about 249 beds. In addition, there were 159 maternal and child health centres; 912 health centres and dispensaries; four tuberculosis centres, two in dispensaries and two separate; 15 venereal disease control centres, of which 13 were in dispensaries, one in a general hospital and one separate; one leprosarium and nine specialized dispensaries; and two mobile units, one for dentistry and one for x-ray.

Medical and health personnel on the island include: 235 doctors, 85 dentists, 1039 graduate nurses and 462 other nurses, 982 graduate midwives, and 14 veterinarians.

The health services consist of 147 doctors (of whom 39 are part-time), 91 public health nurses and 1039 other graduate nurses, 81 sanitarians, 22 dentists, eight veterinarians (seven full-time), 56 laboratory personnel, one health educator, two nutritionists, seven social workers, and 113 clerical personnel, as well as some 600 other workers.

Hookworm infestation, venereal diseases and tuberculosis are the most prevalent diseases. Malaria is declining; its rate per 100,000 has decreased from 790.6 in 1954 and 213.6 in 1955 to 21.0 in 1956.

Nine cases of poliomyelitis were reported in 1956: three in children under five years of age; four in children between five and nine years; and two in the 10-14 age-group. The island has two rehabilitation centres.

UNITED STATES OF AMERICA

The United States of America occupies most of the southern part of the North American Continent, bounded by Canada on the north and Mexico on the south. The physical features are varied. From the Atlantic coastal plain, the Appalachian range rises at about 250 kilometres from the sea and falls on the west to the great Mississippi-Missouri Valley. Hence there is a gradual rise through prairie country to the Rocky Mountains, which fall again to valleys separated from the Pacific by the coastal ranges of California, Oregon and Washington.

The climate is also varied. On the east coast it ranges from maritime through semi-continental to humid-temperate; in the centre, from prairie-steppe to semi-arid; and on the west coast from maritime to Mediterranean. There are some deserts in the western Rocky Mountains area, such as those of Arizona, New Mexico and Idaho.

The area of the United States is 7,827,976 square kilometres, and its population was estimated at 170,148,000 in 1957, with a density of 21 per square kilometre. Between the 1940 and the 1950 censuses, the annual rate of increase was 1.36 per cent. According to the 1950 census, 64 per cent. of the population are urban and 36 per cent. rural.

The general educational level is high and there is practically no illiteracy. The main occupations are agriculture, employing seven million; mining, one million; manufacturing, 17 million; and commerce, 11 million.

There are 48 states and the Federal District of Columbia, which includes Washington, the seat of Government. Each state has its own constitution. Within the state, the chief unit of local government is the county, of which there are over 3000. Each state has its own constitution. The economy of the United States is industrial and agricultural, both on a large scale. About 61 per cent. of the total land surface consists of farms. There has been a great increase in the farm output owing to a higher degree of mechanization, greater use of lime and fertilizer, improved varieties of plants, and more effective control of insects and disease. Some of the recent gains have been obtained by decreasing the soil fertility reserve.

The United States has a very large iron and steel industry. Precious metals are mined mainly in nine western states. There are a good number of large hydro-electric plants, often combined with irrigation schemes and community water supplies.

Each state of the Union has a system of free public schools established by law. Every state also has compulsory school attendance laws which generally cover the years from 7 to 16. Nearly three-quarters of the children stay in school until the age of 17.

In 1957, there were 1890 universities, colleges and professional schools with over three million degree-credit students. The leading fields of study for the master's degree were education, engineering, business and commerce. At the doctorate level, the most popular were education, chemistry and psychology.
Health

The Public Health Service of the United States had its origin in an act of 1798, authorizing medical and hospital care for American merchant seamen. Subsequent legislation has vastly broadened its activities, especially in the past two decades. In 1939, the Service was transferred from the Treasury to the Federal Security Agency, and in 1953 a further reorganization plan transformed that Agency into the Department of Health, Education, and Welfare.

The Public Health Service is administered by the Surgeon General, under the supervision and direction of the Secretary of Health, Education, and Welfare.

The Public Health Service is the Federal Agency specifically charged with the following functions: (a) to conduct and support research and training in the medical and related sciences and in public health methods and administration; (b) to provide medical and hospital services to persons authorized to receive care from the Service, to aid in the development of the Nation's hospital and related facilities and to prevent the introduction of communicable diseases into the United States and its possessions; and (c) to assist the states, other governments, and professional and voluntary groups in the application of new knowledge for the prevention and control of disease, the maintenance of a healthful environment, and the improvement of human health.

The Office of the Surgeon General is responsible for administrative and management activities within the Service.

The Bureau of Medical Services administers hospital and out-patient care for federal beneficiaries, and also quarantine and the medical examination of immigrants. It is responsible for the health programme for American Indians and the indigenous population of Alaska. It provides technical assistance to states in survey, planning and the construction of non-profit hospitals, diagnostic and treatment centres, rehabilitation centres and nursing homes. The Bureau administers the research programme on hospital services and gives grants-in-aid to states, hospitals and universities for research in this area. Its officers give technical advice and provide personnel for health programmes of other Federal Agencies.

The Bureau of State Services operates the federal-state and inter-state health programmes, and is concerned with international health activities. It administers grants for health services and provides technical assistance to states and local health departments. It awards public health traineeships to professional health personnel to improve the competence of state and local health workers. It is concerned, primarily, with transforming knowledge into practice. It establishes uniformity in registration of mortality, morbidity, and vital statistics. On a national scale, it helps states, industries, civic groups, and other federal agencies to identify and solve health problems through basic and applied research, training and technical consultation in such subjects as heart disease, cancer, tuberculosis, venereal diseases, water supply and water pollution, sewage and industrial waste disposal, milk and food sanitation. At the same time, it is intensifying its efforts against some of the more important health problems of today, such as accidents, chronic disease, aging, radiation, and air pollution. It assumes responsibility for emergency public health services, especially in case of natural disasters, cooperating with states in developing national programmes against communicable diseases through direct aid in epidemics and disasters, continuing field studies on the epidemiology of diseases, laboratory investigations, development of materials and methods of disease control, consultations and demonstrations, and training public health personnel. It conducts, or advises on, Public Health Service responsibilities regarding international health agencies and programmes.

The National Institutes of Health (NIH) form the research arm of the Service. Their object is to extend basic knowledge in all problems of health and sickness. The Institutes have made notable contributions to the study of such conditions as cancer, diseases of the heart and circulation, allergy, infectious diseases, rheumatism, metabolic disorders, dental diseases, mental health problems and many neurological conditions. The Institutes conduct research in their own laboratories and, through research grants, aid medical science throughout the United States and in foreign countries. The Institutes are also concerned with the regulation of biological products. The Clinical Centre is a research institution. It was especially designed to co-ordinate clinical and laboratory research with the aim of securing improved diagnosis, treatment and cure of diseases, especially in the long-term group. NIH also supports training for research through fellowships and training grants. Its post-doctoral research fellowships have been extended to include citizens of foreign countries.

There are many other agencies in the United States concerned with health in the broad sense, and it would not be possible to describe or even to enumerate them in detail. Perhaps the most remarkable development among the older agencies was the Children's Bureau, which was attached to the Department of Labor from 1913 to 1939, when it was transferred to the Federal Security Agency. This Department has
conducted investigations and made reports on all matters related to child life. It has been faithful to its aim of increasing opportunities for the full development of all children in the United States by promoting their health and social welfare. The Children's Bureau has issued a long series of both technical and popular publications. It co-operates with the national, state and local organizations, giving grants to state agencies for mothers and children, and in particular it has set out to improve all the special services for children, especially the handicapped group.

Vocational rehabilitation has received special attention at the federal level; it has taken a great part in the development of schemes for preserving or restoring the ability of disabled men and women to perform useful work. These schemes are organized in cooperation with states. Both physical and mental rehabilitation and standards of service have been applied.

The total expenditure for hospitals from federal and state government budgets in 1955 amounted to US $1 589 153 000, of which US $836 769 000 were federal expenditures. The total government expenditure for local health services in 1956 was US $177 187 224, with US $127 163 949 from local, US $40 232 633 from federal sources. The total expenditure on tuberculosis control, not including sanitoria costs, from all federal sources.

At 1 January 1956, the total health personnel in the country included: 218 000 physicians, 89 000 dentists, 430 000 graduate nurses and 400 000 other nurses, 5000 sanitary engineers, 18 000 veterinarians, 500 graduate midwives and 9000 auxiliary midwives. In 1956, the total number of physicians employed in national health services was 13 518; in state health services, 456; and in local health services 1488. For the same year, the total number of public health nurses employed in the government services was, at national level, 13 500; at state level, 829; and at local level, 12 900. The total number of sanitary personnel employed in the national, provincial and local health services in 1956 was about 9975 (1628 graduate engineers and 8347 sanitarians and other sanitary personnel). In the same year, about 6000 dentists, some 7500 graduate nurses, 2075 veterinarians, approximately 700 laboratory technicians and some 33 000 auxiliaries were employed at the national level. The total laboratory personnel employed in government services at all three levels numbered 3526.

There are 85 medical schools in the country, with a total of about 6845 medical graduates annually.

The total number of hospitals in the country reported in January 1956 was 6956 and the number of hospital beds was 1 604 408, distributed as follows:

<table>
<thead>
<tr>
<th>Hospitals</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>5 578</td>
</tr>
<tr>
<td>Other general services:</td>
<td></td>
</tr>
<tr>
<td>Paediatrics</td>
<td>54</td>
</tr>
<tr>
<td>Maternity</td>
<td>78</td>
</tr>
<tr>
<td>Infectious diseases</td>
<td>20</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>374</td>
</tr>
<tr>
<td>Mental</td>
<td>586</td>
</tr>
<tr>
<td>Others</td>
<td>266</td>
</tr>
</tbody>
</table>

The voluntary hospitals are chiefly general hospitals where patients are usually under treatment for short-term conditions.

The turnover in mental and tuberculosis hospitals is so low that these units, with more than half of the beds, account for only 3 per cent. of the admissions. Two-thirds of the beds in state and local government hospitals are for mental patients, who generally spend a long period in hospital.

As in so many other countries, mental illness has created very serious problems in hospital accommodation. Most of the hospital care is provided in state or federal tax-supported institutions and the state governments bear the heaviest burden in providing care for the mentally sick. There is increasing evidence that closer co-operation among these hospitals and a study of the possibility of increased home care would reduce substantially the number of beds in operation.
The main responsibility for providing health services rests with state and local health authorities. In each of the 48 states there is a State Health Department with provision for all branches of health services, including environmental sanitation. The local health services consist of city or municipal health departments and county health departments, with their field provisions to render direct health service to the population. The principles on which the health services are founded lay due stress on public responsibilities for the provision of hospital and medical care, without detracting from the importance of individual effort. The health of the people depends primarily on the willingness of the individual to seek medical care in the early stages of illness. Nevertheless, society must ensure for its citizens reasonable access to professional services, including the provision of health education and a safe and healthy physical environment. In a highly complex modern community, many of the environmental services have passed far beyond individual control.

The following numbers of cases were reported in 1957 for some of the important communicable diseases: measles, 486,799; scarlet fever and streptococcal sore throat, 226,973; syphilis and its sequelae, 136,039; all forms of tuberculosis, 86,861; whooping-cough, 28,295, and poliomyelitis (both paralytic and non-paralytic), 5,485.

To summarize, in the words of the President's Commission on the Health Needs of the Nation, the following principles may be regarded as established in the United States:

1. Access to the means for the attainment and preservation of health is a basic human right.

2. The effort of the individual himself is a vitally important factor in attaining and maintaining health.

3. The doctor/patient relationship is so fundamental to health that everyone should have a personal physician.

4. The physician should have access to proper facilities and equipment, affiliation on some basis with a hospital, and the help of trained personnel in order to fulfill his part in providing comprehensive health services.

5. Comprehensive health service includes the positive promotion of health, the prevention of disease, the diagnosis and treatment of disease, the rehabilitation of the disabled—all supported by constantly improving education of personnel and a continuous programme of research.

6. Comprehensive health service is the concern of society and is best ensured when all elements of society participate in providing it.

7. Responsibility for health is a joint one, with the individual citizen and local, state and federal governments each having major contributions to make towards its fuller realization.

8. The American people desire and deserve comprehensive health service of the highest quality and in our dynamic expanding economy, the means can be found to provide it.

9. The same high quality of health services should be available to all people, equally.

10. A health programme must take into account the progress and experience of the past, and the realities of the present and must be flexible enough to cope with future changes.

**URUGUAY**

Uruguay lies on the eastern bank of the Rio de la Plata, and has land boundaries with Argentina and Brazil and a sea coast on the Atlantic. The country consists mainly of undulating grassy plains, with a few ranges of hills not exceeding 650 metres. The two main rivers are navigable. The climate is reasonably healthy and the temperature is uniform, with some cold spells in the winter. Rainfall is regular throughout the year, but there are occasional droughts. The area is 186,926 square kilometres.

The last census was in 1908, when the population was 1,042,686; in 1956 it was estimated at 2,614,775. Approximately one million people live in the city of Montevideo, the capital. The population is almost entirely of European (predominantly Spanish and Italian) descent.

The country is divided into 19 departments, each with a chief of police and a mayor.

The economy is mainly pastoral: there are large herds of cattle and flocks of sheep. Wheat, barley, maize, linseed, sunflower seed and rice are cultivated. Meat exports in 1952 amounted to 175,975 metric tons; the wool crop was 88,600 metric tons, and 251,165 bales were exported. Machinery, motor vehicles, hardware, yarns and chemicals, fuel and lubricants are imported.

Primary education is compulsory, and both primary and higher education are free. The University of the Republic at Montevideo, which was inaugurated in 1849, has 10 faculties.

Several railway companies were brought under a single administration in 1952; the total length open for traffic is 2,880 kilometres. There is a notable mercantile marine including many river vessels. The airport is served by nine different European and American airlines.

**Health**

The Ministry of Public Health has five main divisions: the Division of Hygiene, the Technical
Division, the Division of Assistance, the Pharmacy Division, and the Division of Administration. The Division of Hygiene is divided into a number of sections dealing with statistics, health education, occupational health, and environmental health, and it also administers clinics and laboratories for venereal diseases control. The Division of Assistance is in charge of 63 hospitals, 17 departmental centres, 27 auxiliary centres and 133 rural polyclinics. It also supervises the health services in the capital, which include hospitals and polyclinics. In addition to the Ministry of Public Health, other official agencies and semi-official institutions carry out certain public health work. Emphasis is laid on the curative rather than on the preventive side; all services are free.

In 1957, medical and para-medical personnel in the country included: 3116 physicians, 1650 dentists, 420 graduate nurses, 834 graduate midwives, 191 veterinarians, and seven sanitary engineers. As in other Latin American countries part-time personnel are employed to a very great extent in all the government services. In the 62 government hospitals in the country the number of beds totalled 13 750, 3850 of which were for mental patients, and 2115 were for tuberculosis.

The general death rates and infant and maternal mortality rates are relatively low, although in rural areas they are not so favourable. The death rate in 1953 was estimated at 7.7, in 1954 at 7.4, and in 1955 at 7.9. The birth rate was 18.7 in 1953 and 19.3 in 1954. Infant mortality rates were 51.2 in 1953, and 49.3 in 1954. Maternal death rates were 1.8 in both 1953 and 1954.

The main causes of death in 1956 were malignant neoplasms, cardiovascular diseases, diseases of early infancy, accidents, influenza and pneumonia, tuberculosis and gastro-enteritis. According to the number of cases reported, measles, whooping-cough, tuberculosis, typhoid fever, syphilis and poliomyelitis are important among the communicable diseases.

Forty-two cases of smallpox were notified in 1956, and in the same year 56 788 persons were vaccinated against this disease, and 39 847 were revaccinated. Eighty-six cases of poliomyelitis were reported in 1954, 551 in 1955, and 71 in 1956; 32 656 persons received the first dose of poliomyelitis vaccine and 24 559 received the second during 1956. In the same year, 48 222 children were vaccinated against diphtheria and 26 130 against whooping-cough. The number of leprosy patients in the country is estimated at 1200, about 75 of whom are segregated in a settlement. The Aëdes aegypti eradication campaign was expected to be completed by the beginning of 1958.

Tuberculosis control work is carried out by 34 clinics and eight mobile teams. Mass x-ray examinations totalled 128 856 in 1956, revealing 665 active cases, and 34 344 BCG vaccinations were performed.

In 1956 there were seven maternal and child health centres in the country, serving a total population—exclusively urban—of approximately 300 000. In the same year, 17 620 women received pre-natal care, and 28 105 infants and children were attended; according to clinic records, 22 705 visits were paid to children in their homes, and 15 452 visits were paid by children to infant and child welfare clinics.

A total of 206 water-supply systems served about 75 per cent. of the population in 1956; 1 350 000 people had a piped supply, and 300 000 were served by public fountains.

In the same year, there were 25 sewage-disposal systems, to which the dwellings of about 44.9 per cent. of the population were connected.

VENEZUELA

Venezuela is the most northerly of the South American republics; it is bounded on the north by the Caribbean Sea, on the west by Colombia, on the south by Brazil, and on the east by British Guiana. There are about 70 islands off the coast. The Eastern Andes cross the border from the south-west and extend to the Caribbean. On the Brazilian border, other ranges send off parallel northward spurs, between which there are the valleys of the Orinoco and its tributaries. The slopes of the mountains and foothills are wooded, whereas the basin of the Orinoco is mainly level stretches of open prairie with occasional woods. The Orinoco is the principal river and is navigable by large steamers for about 1100 kilometres from its mouth.

The climate is tropical and unfavourable except where it is modified by altitude or tempered by sea breezes. The hot wet season lasts from April to October, the dry cooler season from November to March.

The area is 912 050 square kilometres. The population at the last census, in 1950, was 5 034 838, with a density of 6 per square kilometre. The estimated population in mid-1956 was 5 772 790. The 1950 census omitted tribal Indians, estimated at 56 700. In 1950, 53.8 per cent. of the population was urban.

Venezuela is a republic, with a President. There are 20 states, two territories and a federal district. The cabinet includes a Minister of Health and Social Assistance. The 20 states, which are politically equal, have each a legislative assembly and a Governor. They are divided into 156 districts and 624 municipalities, while the federal district is divided into two departments and 22 municipalities. Each district has a municipal council, and each municipality a communal junta.

Petroleum provides the principal industry: Venezuela is the largest petroleum exporter in the world and the second largest
producer. Other industries are small, but agriculture, stock-raising, dairy-farming and forestry are important.

Principal exports, in addition to petroleum, are coffee, diamonds, gold, and cocoa. Iron ore is growing in importance. Principal imports are machinery, textiles, foodstuffs, steel and iron, and chemicals.

Elementary education is free and compulsory from the age of seven. During the school year 1955-56 there were: 6956 primary schools with 623,083 pupils; 224 secondary schools with 40,556 pupils; 82 special schools with 13,973 pupils, and 43 teacher-training schools with 5133 students. There are three State universities, in Caracas, Mérida and Maracaibo, and two private universities in Caracas; the total student body in the academic year 1955-56 was 7791.

The chief ports are La Guaira, Maracaibo and Puerto Cabello. In 1952, the Government, with the consent of the oil companies, proposed to establish a fleet of oil tankers. There are 13 main railway lines (1000 kilometres) and 19,927 kilometres of roads which are fit for traffic all the year round. There is an important international air service; the national airline has a subsidiary for international traffic.

Health

The principal technical sub-division of the Ministry of Health and Social Welfare is the Directorate of Public Health, which consists of the following Departments: Demography and Epidemiology, Environmental Sanitation (with divisions of sanitary engineering, malaria, yellow fever and plague, and veterinary public health), Adult Health (with divisions for tuberculosis, leprosy, cancer, cardiovascular diseases and venereal diseases), Local Services (health units and hospitals, health centres and rural medical posts), Maternal and Child Health (with divisions for maternal and child health, school health and dental hygiene), Mental Health, Social Welfare, the National Institute of Hygiene, General Secretariat (divisions for health education and pharmacy and sections for international organizations, food control—registro de alimentos—and personnel administration), and a Technical Advisory Service (administrative management and budget, planning, and technical advice).

The National Nutrition Institute, the Venezuelan Council for Children, the Institute of Scientific Research, the national organizations for school meals and for the care of the aged and disabled, and the National School of Nursing are autonomous institutions which are part of the Ministry's central organization. At the present time plans are under consideration for the establishment of a Directorate of Social Affairs.

In the health field the states and municipalities are mainly concerned with institutions which provide medical care. This work is being gradually absorbed by the national health administration, in virtue of a constitutional provision which authorizes the national executive to nationalize the hospitals in the interests of public health. The construction of water supplies and sewage-disposal plants in towns is the responsibility of the National Institute of Sanitary Works, which is autonomous but on whose administrative council the Minister of Health and Social Assistance is represented. The construction of rural water-supply systems is being carried out under a co-operative programme implemented jointly by the Ministry of Health and Social Welfare, the state governments, and the Government of the United States of America.

The recorded death rates in 1954, 1955 and 1956 were 10.3, 10.4 and 10.3; the birth rates were 47.6, 48.2 and 48.1; infant mortality rates were 68.4, 69.9 and 66.7, and maternal death rates were 1.5, 1.4, and 1.4. The main causes of death during the period under review were gastro-enteritis, heart diseases, diseases of early infancy, malignant neoplasms, influenza and pneumonia, accidents and tuberculosis. Numerically the most important communicable diseases reported were measles, whooping-cough, syphilis, tuberculosis, malaria and typhoid fever.

The medical and para-medical personnel in Venezuela in 1957 included: 3689 physicians, 632 dentists, 2027 graduate nurses, 5020 other nurses, 990 auxiliary midwives, 170 veterinarians, and 34 sanitary engineers. There were 268 hospitals with a total of 21,406 beds; 233 of these were general hospitals, with 14,420 beds; the specialized hospitals included 17 for tuberculosis, with 2883 beds, and 16 for mental disorders, with a total of 3103 beds. There were 57 health units and centres in the country, serving an urban population of 2,758,453 and a rural population of 454,872. In addition, there were 393 medical posts, serving a population of 1,970,191, of whom 875,956 lived in towns.

As regards special public health programmes, vigilance is maintained in the control of yellow fever. Twenty-nine cases of yellow fever were notified in 1954, five in 1955 and three in 1956. Inoculations against the disease are being continued; 491,332 persons were inoculated in 1956, and it is stated that more than 80 per cent. of the population at risk has now been inoculated. One hundred and forty-seven centres carry out viscerotomy. Plague is enzootic in a certain zone and efforts are being made to prevent it from spreading to other parts of the country. Thirteen cases of smallpox were reported in 1954, two in 1955, and four in 1956; 638,844 persons were vaccinated against smallpox in 1956, and 493,968 were re-vaccinated in the same year. The estimated number of leprosy patients for the whole country is 13,000. The number of known cases in 1956 was 9298, and 858 patients were segregated. There are two leprosaria, with a capacity of 1000 patients. In 1956, 343 cases of polio-
myelitis were recorded, of which 285 occurred in children under five years of age, and inoculation with Salk vaccine was introduced. Altogether 91,086 children were inoculated against diphtheria in 1956 and 82,335 against whooping-cough.

Tuberculosis control was carried out in 1956 by 87 tuberculosis clinics and one mobile unit. The total number of x-ray examinations performed in that year was 769,088, and the number of cases thus diagnosed was 6016; 23,136 contacts were also x-rayed. The number of BCG vaccinations effected in 1956 was 44,755. Several thousand persons were treated with PAS, isoniazid and streptomycin. Important work is also carried out in syphilis control, the number of serological tests performed in 1956 being 868,012, of which 150,279 were positive. PAM was administered to 10,216 syphilis cases. The results of the Venezuelan antimalaria campaign are well known; they are about to lead to the eradication of this disease from the country. The original malarious area has already been reduced by 60 per cent., and it is hoped that by means of a special plan, which was put into operation two years ago, the disease will be eradicated within the next two or three years. The mortality rate, which was 110 per 100,000 population in the five-year period 1941-45, had dropped to 0.12 per 100,000 in 1956.

In 1956, 479 health centres were providing maternal and child health services, 86 of these being located in urban and 393 in rural areas; 136,083 pregnant women in urban areas and 53,612 in rural areas were given pre-natal care. In urban areas, 187,255 ante-natal home visits and 33,392 post-natal home visits were made. A total of 196,796 children attended the urban centres and 36,701 attended the rural centres; 957,714 home visits to children were made in the urban areas.

The Venezuelan Council for Children is responsible for the social, legal and moral protection of homeless children, and maintains for this purpose about a hundred institutions for the care, housing and re-education of minors.

The social security system introduced in 1944 covered 513,344 persons in 1956, including workers and members of their immediate families. Its benefits are limited to sickness, maternity, occupational accidents and occupational diseases. The system does not cover all workers and does not extend throughout the country; it is financed by the national Government and by contributions from employers and workers.

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**WINDWARD ISLANDS**

The Windward Islands form the eastern barrier to the Caribbean Sea between Martinique and Trinidad, and consist of Dominica, Grenada, St Lucia, St Vincent and the Grenadines (of which half are dependencies of Grenada and half are dependencies of St Vincent). Each island has its own administrator, executive council and legislative council, and its own institutions; there is no common legislature, laws, revenue, or tariff, but the territories unite for certain other common purposes, such as the Windward Islands and Leeward Islands Supreme Court and Court of Appeal.

**Dominica**

Dominica has an area of 790 square kilometres, and in 1955 its population was estimated at 62,242, of whom about 60 per cent. were Negroes.

The economy is agricultural, and the chief exports are bananas, cocoa, copra and lime juice. There was marked economic progress in Dominica in 1953 and 1954; the export crops increased in quantity and value, trade in consumer goods expanded, and building increased.

Free primary education is provided, generally with an age range of from 5 to 15, and is compulsory where accommodation permits. The Government provides a number of scholarships in the secondary schools.

Various types of adult education are provided; classes are arranged by women's organizations, and by the Extra-Mural Department of the University College of the West Indies in Jamaica.
were 12.3 and 14.0. The infant mortality rates for the three-year period 1954-56 were: 99.4, 120.3, and 132.0.

The principal causes of death reported in 1955 were: gastro-enteritis, avitaminosis, diseases of early infancy, tuberculosis, influenza and pneumonia, typhoid fever, and diseases of the heart. Malaria was stated to be the cause of only two deaths in 1955.

The estimated number of cases of yaws in 1956 was 1734, of which 1698 were treated in clinics.

There is no medical school in the territory; medical qualifications are normally obtained in the United Kingdom or in Jamaica. Local training is provided for pharmacists and sanitary inspectors, as well as for nurses and midwives, and initial training is provided for laboratory technicians.

In 1954, roads, water-mains and sewers for a 582-house project were completed.

Grenada

Grenada has a total land area of 344 square kilometres, and its estimated population in 1955 was 88 215. More than half of the population is Negro and the remainder is of mixed origin.

The economy is agricultural, and the principal exports are cocoa and nutmegs.

Free primary education is provided, generally with an age range of from 5 to 17 years, and is compulsory where accommodation permits. A number of scholarships in the secondary schools are provided by the Government.

In 1955 there were 12 government primary schools and 41 private schools, with a total average attendance of 14 338 pupils; one government secondary school and five private, with a total enrolment of 1307 pupils; and three handicraft centres.

A site was acquired in Grenada for a pilot self-housing project in 1954.

Health

The senior medical officer is chairman of the Central Board of Health, and is assisted by the medical officers of each of the medical districts.

The public health budgets for 1954, 1955 and 1956 were as follows:

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In 1955, the birth rate was 44.4, the death rate was 13.7, and the infant mortality rate was 76.0.

The public health personnel in 1957 consisted of 13 physicians, four public health nurses, 73 other graduate nurses, 46 graduate midwives, 16 sanitarians, one dentist, one veterinarian, five laboratory personnel, one social worker, one statistician, and 297 other workers.

Medical care is provided in seven hospitals, with a total of 527 beds, divided as follows: three general hospitals, with 281 beds; one hospital for infectious diseases, with 20 beds; one tuberculosis hospital, with 68 beds; one mental disease hospital, with 148 beds; and one other hospital, with 10 beds.

There are also one urban and 25 rural maternal and child health centres, serving 72 387 inhabitants. In 1956, 3561 mothers received pre-natal care, 3036 children were attended and 7186 visits were made to children at home.

There is no medical school in the territory; medical qualifications are normally obtained in the United Kingdom or in Jamaica. Training is provided in the territory for nurses, nurse-midwives, health visitors, pharmacists and sanitary inspectors; initial training is provided for laboratory technicians.

The water supply is apparently good; the island has seven systems in urban areas and 13 in rural areas.

There is one urban sewage-disposal system serving 5800 inhabitants, 4000 of whom are on a connected system, 400 inhabitants have private septic tanks, 1250 have latrines, and 150 have neither tanks nor latrines.

St Lucia

St Lucia has an area of 616 square kilometres, and an estimated population in 1956 of 89 006 (predominantly Negro), of whom some 25 000 lived in urban areas.

The economy is agricultural, and the chief exports are cocoa, coco-nut oil, copra and sugar. In 1954 there was a revenue surplus.

Free primary education is provided at 51 schools, generally with an age range of from 5 to 15, and is compulsory where accommodation permits. The Government offers a number of scholarships in the two secondary schools.

Various types of adult education are provided by women's organizations, and by the Extra-Mural Department of the University College of the West Indies in Jamaica.

The Vide Bouteille housing scheme was completed recently in St Lucia.

Health

St Lucia has a Medical Department headed by a senior medical officer.

There are eight hospitals on the island, with a total of 477 beds: four general, one for tuberculosis,
one for mental diseases, one for leprosy and one for the aged. The health personnel is composed of 10 doctors, 18 public health nurses, 27 other graduate nurses, 17 graduate midwives, 10 sanitarions, 46 other sanitation personnel, one nutritionist, one dentist, two veterinarians, three laboratory personnel, one social worker and 113 clerical and other personnel; practically all are full-time.

The essential vital statistics during the years 1954, 1955 and 1956 were: birth rate, 36.1, 40.7 and 40.1; death rate, 12.0, 11.9 and 12.7; and infant mortality rate, 101.3, 98.1 and 101.9.

In 1956, malaria, enteritis and tuberculosis were among the most important health problems. The number of reported cases of malaria remained high although it had decreased from 3642 in 1954 to 1130 in 1956. In the same year there were 147 reported deaths from gastritis and enteritis. The provisional number of reported cases of tuberculosis in 1956 was 67, as against 143 in 1955. Apart from the tuberculosis hospital mentioned above, there is one tuberculosis control centre, which provides ambulatory treatment only; tuberculosis patients are also dealt with in 14 general health centres.

Maternal and child health services are provided in 15 centres in both urban and rural areas. A total of 9777 pre-natal visits was recorded in these centres in 1956, as well as 6681 visits of children.

Medical education is usually obtained in the United Kingdom and in Jamaica. Nurses, nurse-midwives and pharmacists are trained locally. Health visitors and sanitary inspectors are trained in Jamaica.

St Vincent

St Vincent has a land area of 388 square kilometres, and its estimated population in mid-1955 was 75,958. About 60 per cent. of the population are Negro and the remainder are of mixed origin.

The economy is agricultural, the main exports being arrowroot, copra, cotton and sugar.

Primary education is provided free of charge, generally with an age range of from 5 to 15 years, and is compulsory where accommodation permits.

In 1955 there were 41 government primary schools, two government and two private secondary schools, and a teacher-training school.

Since 1947 the Central Housing and Planning Authority has set up seven villages with about 1000 houses and housing schemes containing 250 units. Five new housing areas on which 40 units are to be built privately have also been selected.

Health

The Medical Department is administered from a central office under the senior medical officer, and the island is divided into six medical districts, each with a district medical officer, district health nurses and a public health inspector. District dispensaries are located in suitable places in each district. The public health inspectors are responsible chiefly for general and environmental sanitation, and the other district services deal with both curative and preventive medicine.

In 1954, 13.7 per cent. of the total budget for the territory was spent on health.

The vital statistics for the years 1954, 1955 and 1956 are as follows: birth rate, 42.0, 47.5 and 46.3; death rate, 15.2, 14.5 and 12.0; infant mortality rate, 117.4, 118.1 and 106.9.

There are seven hospitals, with a total of 325 beds, including a general hospital with 134 beds, an infectious diseases hospital with 40 beds, a mental hospital with 105 beds, a leprosy hospital, and three district casualty hospitals. There are also 13 rural and seven urban health centres.

At the end of 1956 the following personnel were employed in the health services: 10 doctors, 21 full-time and one part-time district nurses, who also serve as midwives; 37 other graduate nurses, 32 auxiliaries, 54 graduate midwives, 10 full-time and one part-time sanitary inspectors, 60 full-time and 80 part-time other sanitation personnel, one dentist, one veterinarian and four laboratory personnel.

In the year 1955, of a total of 1102 deaths, 337 were due to diseases of early infancy, 148 to gastro-intestinal diseases, 96 to diseases of the heart, 55 to bronchitis, 38 to influenza and pneumonia, 35 to whooping-cough, 23 to tuberculosis, and 23 to malignant neoplasms.

Yaws, syphilis, and tuberculosis are the main health problems, the number of reported cases for 1956 being: yaws, 410; syphilis, 120; and tuberculosis, 33. There are 20 known cases of leprosy, all of whom are segregated in a settlement.

Maternal and child health services are provided at the general health centres in both urban and rural areas. In 1956 these centres recorded 2787 visits by children to clinic sessions, and 10,032 visits made to children in their homes.

There is no medical school in the territory. Medical qualification is normally obtained in the United Kingdom or in Jamaica. Training is provided in the Windward Islands for nurses, nurse-midwives, health visitors, pharmacists, and sanitary inspectors; initial training is also provided for laboratory technicians.

There are 32 systems supplying water to 20,291 people, 15,646 of them in rural areas. Public taps or fountains serve 41,829 inhabitants.
SOUTH-EAST ASIA REGION
FIG. 8 SOUTH-EAST ASIA REGION
AFGHANISTAN

Afghanistan is a land-locked mountainous country bordered by the Union of Soviet Socialist Republics, China, Iran and Pakistan, with an area of 630,000 square kilometres. Most of the land is too dry and rocky for cultivation but there are many plains and valleys which are being developed more fully by irrigation from small rivers and wells. The climate is of the mountain type.

There has been no general census in Afghanistan but the population was estimated in 1947 at between 12 and 13 million, of whom approximately two million were nomadic. The most recent estimate of population in the chief cities is: Kabul, the capital, 220,000; Kandahar, 80,000; Mazar-i-Sharif, 43,000; Jalalabad, 16,000.

There are four main tribes in Afghanistan, the members of all of which are considered Afghans, without any distinction. There are house dwellers and tent dwellers. People are generally engaged in agricultural and pastoral occupations.

Afghanistan is self-sufficient in food production but the economy is still unstable. In a census of manufacturers made in 1948 there were 23 industrial enterprises—mainly textile factories but including some other light industries such as sugar production—with a total of 6,000 employees. There are government monopolies for the import of motor vehicles and the import and export of sugar and tobacco. Eighty per cent. of the trade goes through Pakistan, the main exports being spices, fruits, karakul skins, carpets and raw wool.

There are elementary schools in various parts of the country but secondary schools are limited to Kabul and the provincial capitals. Some of the technical, art and commercial schools provide higher education and the Kabul University, founded in 1932, has faculties of law, science, medicine, theology and arts.

There are no railways in Afghanistan and water transport is used for timber only. The number of roads fit for motor traffic is increasing; all the provincial capitals are now connected by motor roads with Kabul, and much of the merchandise is carried by lorries. Six of the more important provincial cities have regular airline connexions with Kabul. The main programmes of development are in irrigation and transport.

Health

The Minister of Public Health and his deputy head a ministry comprising three directorates—public health services, general administration, and the Public Health Institute. The first is responsible for all the technical services and the second for finance, personnel and general services. The Public Health Institute is in course of establishment and the director is at present in charge of training, which will be one of the functions of the Institute.

Health administration in each of the thirteen provinces is under a Director of Health, who is responsible for both curative and preventive work and is also in charge of the central provincial hospital.

In 1957, Afghanistan had a total of 190 doctors (excluding assistant doctors), 440 male and 160 female nurses, 62 midwives and 28 dentists. The Government employs 150 doctors in the civil service, of whom about 100 work in Kabul and the rest in the provincial capitals.

The country is reported to have 37 hospitals with a total of about 1,410 beds, 50 per cent. of which are in Kabul. There are 20 maternal and child health centres in the country, of which 16 are in Kabul and one in each of the provinces of Kandahar, Jalalabad, Mazar-i-Sharif and Herat. There is a central public health laboratory in Kabul and one provincial laboratory in each of the provinces of Kandahar, Jalalabad, Mazar-i-Sharif, Gardez and Mashriqui.

Communicable diseases reported to be common are: smallpox, typhoid and paratyphoid fevers, dysenteries (both amoebic and bacillary), typhus, venereal diseases, tuberculosis, malaria, relapsing fever, leprosy, cutaneous leishmaniasis and trachoma. Typhus has been decreasing during the past few years, through control measures instituted by the Government. Programmes for the control of venereal diseases have been established in Kandahar, Herat, Jalalabad, Mazar-i-Sharif, Gardez and Kataghan. Malaria control work, which has been in operation since 1948, was expanded in 1952 to cover the entire country and has proved so successful that an eradication campaign has recently been started. For tuberculosis control, there are the Chaman tuberculosis control demonstration and training centre in Kabul and the female and male tuberculosis sanatorium units at the Aliabad hospital. Since 1956 domiciliary treatment by chemotherapy was introduced in the Chaman centre, covering about 50,000 people in Kabul.

Following the demonstration of an integrated approach for rural development in a few villages in the Shewaki area, about 16 km from Kabul, the Government has recently, under Royal Charter, adopted a first five-year plan for rural development. The project in the Shewaki area started in 1954 as a rural health unit serving eleven villages. The unit now consists of a health centre, one sub-centre and five visiting points with a staff of a doctor, an assistant doctor, two midwives, one sanitary, two compounders and one vaccinator serving approximately 30,000 people in the area. Since 1956, the Government has developed this demonstration and training area with technical assistance from the United Nations and five of the specialized agencies. Students from the Sanitarians' Training School, the Female Nurses'
Training School and the School of Midwifery in Kabul undergo a period of practical training in the area.

Medical students are trained in the medical faculty of the University of Kabul, where the curriculum combines preventive and curative medicine. Thirty-three medical students graduated in 1956, and all of them have been employed by the Government.

In 1957 there were 212 medical students in the faculty. Nurses have a three-year training course—male nurses at a school associated with the Aliabad Hospital, and female nurses at a nursing school at the Masturat Women's Hospital. Midwives follow a 20-month course in the midwifery school at Shahrara maternity hospital. In 1956 a three-year course for sanitariums was introduced.

BURMA

The Republic of the Union of Burma forms the western portion of the sub-continent of Indo-China; its neighbouring countries are Pakistan, India, China, Laos and Thailand. It lies between latitudes 10° and 28° north and longitudes 93° and 103° east, and falls into three well-marked natural divisions: the western hills, the central basin, and the Shan plateau in the east, with a southward continuation of this highland in the Tenasserim. Apart from the mountain ranges, there are a series of river valleys and two coastal strips on the Bay of Bengal. The area of the Union is 677,950 square kilometres. The climate is of a characteristically monsoon type, with three seasons—the rainy, the hot and the cold. The temperature in the hot season in the Delta is about 38° C, while in the dry zone it may be slightly higher. During the cold season the temperature may drop to about 15° C in South Burma, and may fall even lower in the dry zone in the north. The Delta and the coastlands are humid all the year round. There are wide variations in rainfall.

According to the official estimate, the population of Burma at mid-1956 was 19,855,560. The population is composed of many ethnic groups, each with its own language and customs. Burmese of mongoloid stock form the main group, other large groups being Indian, Pakistani, Chinese, European and Anglo-Burmese.

The rural inhabitants comprise 85 per cent. of the population. In the villages, homes are constructed of bamboo poles, with bamboo mats for walls, split bamboo tied together for the floors and a straw roof; these dwellings are always built well above the ground on stilts.

The Burmese Health Administration is centralized in the Ministry of Health, under the Minister of Health. The Director of Health Services, who is responsible to the Minister for carrying out policy and managing the health services, is assisted by four Deputy Directors in charge respectively of hospitals and dispensaries, public health, maternal and child health, and laboratories. A National Health Council advises the Government on health matters. A number of voluntary organizations are also engaged in health activities.

At the district headquarters level, the work is in the charge of the District Health Officer, who, except in four districts, is also the Civil Surgeon and thus in charge of both curative and preventive work. In districts with a full-time district health officer, the work is divided between him and the civil surgeon. At the local level, there are township medical officers and other health staff, and the public health work is based on urban and rural health centres.

Since the war, complete registration of vital statistics has only been effective in certain of the large towns and in a few rural areas which are designated as registration areas. The population of the 78 large towns thus covered amounts to just over two million. On the basis of the experience gained in the registration areas, the Government is planning to make a gradual improvement in the system of reporting and recording vital and health statistics throughout the entire country. According to statistics from the registration areas, in 1955 the birth rate was 35.9, the death rate

second language from the fifth grade onwards. Education in all its branches is free. The rate of literacy has been reported as about 60 per cent. throughout the Union. A State school of fine arts, music and drama was inaugurated in Rangoon in 1952. A mass education council, through educational centres set up in various rural areas, endeavours to eradicate illiteracy in the country and to spread elementary education and basic knowledge in economics, citizenship, culture and health amongst the adult rural population. Women participate fully in social life and take an important share in agriculture.

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was 21.8, the infant mortality rate was 167, and the maternal mortality rate was 5.8.

There are 241 government general hospitals in the Union (45 district, 140 township and 56 other smaller hospitals) with a total of 11,310 beds, and nine non-governmental general hospitals with a total of 940 beds. There are also seven specialized hospitals for maternity, psychiatry, leprosy, tuberculosis, paediatrics and contagious diseases, with a total of about 2000 beds. Among other health establishments provided by the Government in 1956 were 133 dispensaries, 12 urban health centres and 296 rural health centres. The rural health centres are distributed throughout the country, and it is estimated that their services cover some 4,440,000 people in rural areas.

The Union has, in government service, a total of 393 physicians, 533 trained nurses, 241 women health visitors, 654 midwives, 371 compounders, 44 laboratory assistants, 264 health assistants, 26 trained public health nurses and 230 vaccinators.

The shortage of medical and para-medical staff of all categories is a serious problem. Undergraduate medical education is provided in two medical schools, in Rangoon and Mandalay, and there were 94 graduates from both in 1956. Post-graduate training in public health has to be obtained abroad. In 1956 a 12-week public health course was offered to 11 medical officers. The training of nurses is undertaken at schools attached to six government hospitals, at one State training school and at two non-governmental schools. In 1956 there were 477 student nurses and 85 graduate nurses studying in these institutions. Training facilities for other types of health worker include courses for health visitors in Rangoon (47 graduates in 1956); for midwives in Rangoon, Mandalay and in 33 district hospitals (a total of 314 graduates in 1956); for health assistants at the Health Assistants’ School, Rangoon (a total of 429 by 1955 since its establishment in 1950); and for laboratory technicians at the Pasteur Institute in Rangoon (eight graduates in 1956).

From the statistics available, it appears that the incidence of cholera was decreasing during the three years under review, with only six deaths in 1956; plague and smallpox were still prevalent, but to a considerably lesser extent than in the years before 1952. The incidence of beri-beri appeared to be high, with a total of approximately 5000 cases reported by 288 hospitals and dispensaries throughout the country in 1955. In 1956, 498 deaths from typhoid and paratyphoid were registered in 63 towns—a rate of 24 deaths per 100,000 population.

Malaria affects over half the population and is considered to be the most important health hazard retarding the economic development of the country. A systematic nation-wide malaria control programme was initiated in 1952; by 1956 a total of 58 malaria control units were in operation, and 6.3 million people were directly protected by the campaign.

Leprosy is prevalent throughout Burma and is also an important health problem. The number of cases in the Union is estimated at about 200,000. There are special clinics for diagnosis and treatment of ambulatory patients, and in-patient accommodation is provided in leprosaria and settlements for selected cases suffering from the lepromatous form of the disease, which is the type most commonly found in Burma. There are 21 such establishments with accommodation for 3,675 patients. Altogether 30,995 leprosy patients were treated in 1955, as against 35,571 in 1951.

The problem of tuberculosis seems to be of considerable magnitude in Burma. Statistics obtained from tuberculin-testing (as part of the BCG campaign) show on the whole a high rate of infection: 28 per cent. up to 6 years, 53 per cent. up to 14 years, and 81 per cent. for 15 years and over. A control programme was initiated in 1951; in addition to a mass BCG vaccination campaign, tuberculosis clinics with mass x-ray equipment were established in Rangoon and Mandalay, and a 200-bed tuberculosis ward was added to the Rangoon General Hospital. By 1956, ten teams were engaged in the BCG programme, and since the beginning of the campaign 4,416,435 persons had been tuberculin-tested and 1,378,505 had received BCG vaccination.

A venereal disease control programme was started in 1951, and by 1956, 15 anti-venereal disease district teams were operating in the Union. Total attendance at clinics in 1956 was 180,038, compared with 214,482 in 1955; and 66,687 new cases were discovered in 1956, as against 87,062 in 1955. Blood samples taken for serological tests for syphilis during these two years also showed some decrease in the percentage of positives—16.3 per cent. in 1955 and 15.2 per cent. in 1956.

Before maternal and child health services were taken over by the Directorate of Health Services in 1953, this work had been carried out, mainly in Rangoon and a few large cities, through the efforts of a great many private and voluntary agencies. The Directorate of Health Services now contains a Division of Maternal and Child Health under the charge of a Deputy Director and two assistant Directors, one for MCH and the other for school health. Efforts are being made by the Directorate of Health Services to integrate MCH services into the work of urban and rural health centres; in rural areas this is being
accomplished, but in the large cities—particularly in Rangoon, Mandalay, Bassein and Moulmein—progress has been slow. By the end of 1956, 12 of these integrated health centres had been set up in Rangoon, Mandalay, Moulmein and Bassein. Each of the 296 rural health centres provide ante-natal care, although not all of them have yet been provided with an adequate number of midwives and female health visitors.

Dietary and nutrition surveys have recently been carried out among schoolchildren and in villages, revealing that the diet of the villagers is lacking in vitamin A, calcium, thiamine and riboflavin, and that it is also deficient in animal protein. Among the schoolchildren examined, deficiency in all essential vitamins was evident, and anaemia and caries were found in a high proportion of cases. Surveys of nutritional diseases, including goitre and beri-beri, were also in progress at the end of the period under review.

Environmental sanitation is dealt with by the Ministries of Health, Social Welfare, and Housing and Works. Only a few of the major towns have adequate piped water supplies, which are derived mainly from upland streams or deep wells. A recent survey of 65 major towns showed that over 60 per cent. of them had no water-supply system, and less than 10 per cent. had an adequate water supply. For rural areas, a Rural Sanitation and Water Supply Board under the Ministry of Social Welfare has the specific function of providing the rural population with clean drinking-water and distributing cement slabs for the construction of fly-proof latrines. By the end of 1956, 2190 tube wells had been sunk in 18 rural districts, and 7974 latrines had been constructed with the help of mass education workers.

CEYLON

Ceylon lies in the Indian Ocean just south of the tip of the Indian sub-continent. The length of the island from north to south is 435 kilometres and its breadth from east to west 225 kilometres. The area is 65,610 square kilometres. There is a mountainous region in the south centre, which rises to as much as 2550 metres above sea level and is surrounded by an upland belt ranging from 300 to 900 metres. Below this is a narrow coastal plain which broadens into a wide belt in the north. Forest, jungle and scrub cover most of the island.

The climate is warm throughout the year, with a relatively high humidity. The rainfall generally is heavy, with marked regional variations. About 14,200 square kilometres are under cultivation, and there are a further 18,425 square kilometres of pasture-land.

At the 1953 census the population was just over eight million, nearly 70 per cent. being Sinhalese; Ceylon and Indian Tamils accounted for 23 per cent. and Europeans numbered only 6508. In 1956 the population was estimated at 8,929,000. The main occupation of the people is agriculture, with some mining, and there is growing industrial development.

For general administration, the island is divided into nine provinces, with 21 districts, each presided over by a Government Agent, with assistants and subordinate headmen. There are seven municipalities, 35 urban councils and 38 town councils. The island is an important exporting country, the chief items being tea, rubber, coco-nuts, copra, coco-nut oil, coir, and cocoa. The chief mineral export from Ceylon is graphite.

Primary education for the age-group 5-11 is universal and is given in the mother tongue. English is taught as a second language from Standard 2.

Social security schemes are developing and ordinances relating to the relief of the poor came into force in 1940. Their provisions were applied at first to the towns of Colombo, Kandy and Galle, where the local authority is responsible for administering and financing poor relief. In other areas the administration is undertaken by the central Government, with the assistance of advisory committees.

Ceylon is an important centre of communications and many ocean-going vessels enter the port of Colombo. In recent years air services have been developing rapidly, and a national airline operates regional services between Colombo and Madras. There is also an internal service, and many international airlines call at Colombo. Railway services extend to 1400 kilometres, but road development is becoming relatively more important; there are now about 100,000 motor vehicles in service.

Health

In the Central Department of the Ministry of Health the Director of Health Services has three Deputy Directors, one in charge of curative services, one dealing with preventive work and the third in charge of laboratory services. There is also a staff of administrative officers. At the beginning of 1954 the decentralization of the Department was begun with the creation of 15 administrative health districts, each under a superintendent of health services. Each of these divisions has been further subdivided into four or more health areas, known as health units, each covering a population of about 50,000. The full staff required for such a unit consists of one medical officer of health, five public health nurses, five public health inspectors and 10 public health midwives. At present there are 97 health areas; of these 44 are in the charge of medical officers of health, and three are supervised by district medical officers doing health work and are run on health unit lines. Of the remaining 50 health areas, 47 are in the charge of supervising public health inspectors, and three are in the charge of district medical officers doing part-time health work. The duties of both types are similar, except that the latter are not concerned with maternal and child health or school health services.
The percentage of the general government budget devoted to health and medical services was 11.55 in 1954/55 and 11.08 in 1955/56.

In 1955 the personnel employed in the Medical Services Division of the Department of Health included 836 medical officers, 48 dental surgeons, 990 apothecaries, 1786 matrons, sisters and nurses, 424 pupil nurses, and 623 midwives. The Public Health Services Division included 105 medical officers of health, two medical officers doing health work, 15 divisional supervising public health inspectors, 53 supervising public health inspectors, 774 public health inspectors, 108 public health nurses, 17 ankylostomiasis dispensers, 41 male vaccinators, eight female vaccinators and 1186 public health midwives.

There is a Faculty of Medicine in the University of Ceylon, and doctors in public health receive their training in short-term courses arranged by the Government, and by study abroad. Dental surgeons are also trained in the Faculty of Medicine. There are training schools for nurses at Colombo, Kandy and Galle, and midwives are trained in four hospitals, with domiciliary training at certain health units. Public health inspectors receive a six months' training course at the Kalutara Health Unit.

All rubber, tea and cocoa estates of over 10 acres are scheduled under the Medical Wants Ordinance for the care of the sick. In 1955 there were approximately 2335 estates so scheduled, with an approximate labour population of 1,014,897. In 1955 the Government employed two full-time inspecting medical officers and 45 part-time medical officers. It also maintained 66 hospitals and 116 dispensaries in the estate medical districts, in the charge of qualified medical officers and apothecaries who rendered medical aid to the estate and indigenous population. In addition, the estate authorities maintained 94 estate hospitals and 684 estate dispensaries for the exclusive use of plantation workers, employing three medical officers, two Indian-qualified licentiates, 12 qualified apothecaries and 536 dispensers.

The following table shows the number and bed capacity of medical establishments at the end of 1955:

<table>
<thead>
<tr>
<th>Establishment</th>
<th>Number</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombo group of hospitals</td>
<td>7</td>
<td>2,624</td>
</tr>
<tr>
<td>Provincial, base and district hospitals</td>
<td>121</td>
<td>12,962</td>
</tr>
<tr>
<td>Peripheral units</td>
<td>52</td>
<td>1,412</td>
</tr>
<tr>
<td>Rural hospitals</td>
<td>68</td>
<td>1,451</td>
</tr>
<tr>
<td>Maternity homes</td>
<td>107</td>
<td>1,170</td>
</tr>
<tr>
<td>Special institutes (tuberculosis, leprosy, mental, infections diseases and prison hospitals)</td>
<td>26</td>
<td>5,863</td>
</tr>
<tr>
<td>Dispensaries (central)</td>
<td>283</td>
<td>—</td>
</tr>
<tr>
<td>Private nursing homes</td>
<td>46</td>
<td>—</td>
</tr>
</tbody>
</table>

Registration of births and deaths is compulsory in Ceylon. The birth rate was 37.0 in 1956, and the death rate was 10.1. Infant mortality is falling steadily, and reached the rate of 67 in 1956.

The changes in the vital statistics of Ceylon have been dramatic during the past half-century. The crude death rate for the island at the beginning of the century was well over 25, the rates for the decades 1901-10, 1911-20, 1921-30 being 28.7, 30.8, and 26.2 respectively. The rate improved steadily up to the malaria epidemic of 1934-35, when it shot up to 36.5. From that point there was a steady decline to 19.8 in 1946. The antimalaria DDT spraying campaign of that year resulted in a drastic reduction of the death rate to 14.0 in 1947, since then it has declined gradually to its present figure. The infant mortality trend has been roughly parallel with the general mortality. The rate in the island in 1931 was 158, and rose to the peak of 263 following the malaria epidemic. In the following decade the rate improved appreciably and dropped to 101 in 1947; as shown above, it is still on the decline. Some of the principal causes of death are pneumonia, cancer, tuberculosis and typhoid. Among children gastroenteritis takes a heavy toll. The disease known as *mandama* occurs mostly in rural areas and is a common cause of death; it is presumably connected with malnutrition.

Up to late 1954, all maternal and child health work in rural areas was under the Sanitary Services Section of the Department of Health Services and was carried out wholly through the health units. With the reorganization of activities in areas other than those in the charge of medical officers of health, the work is carried out by the peripheral units and by doctors from nearby hospitals. The following figures indicate the extent of the work done:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of health centres holding MCH clinics</td>
<td>744</td>
<td>768</td>
</tr>
<tr>
<td>Number of clinic sessions held</td>
<td>24,556</td>
<td>30,851</td>
</tr>
<tr>
<td>Number of public health nurses</td>
<td>97</td>
<td>108</td>
</tr>
<tr>
<td>Number of homes visited</td>
<td>58,098</td>
<td>81,638</td>
</tr>
<tr>
<td>Number of midwives</td>
<td>1,336</td>
<td>1,186</td>
</tr>
<tr>
<td>Number of homes visited</td>
<td>296,962</td>
<td>306,577</td>
</tr>
<tr>
<td>Number of mothers delivered by midwives</td>
<td>72,594</td>
<td>80,149</td>
</tr>
</tbody>
</table>

* The 1954 figure includes midwives attached to maternity homes; in 1955 these are excluded.

School health services cover only the English, Sinhalese and Tamil schools, which number 5888 and have an enrolment of 1,572,645 pupils. The number of schoolchildren examined in 1955 was 130,636.

The control of the environment is the special concern of the Division of Public Health Services. A
pilot project was started in 1955 with the aim of working out simple sanitary improvements in rural water supply and excreta disposal, testing them on a pilot scale, developing rural programmes in environmental sanitation and training national sanitation workers; for this purpose the construction of sanitary facilities is being demonstrated in two areas, one a dry zone and the other a wet zone. A great deal has yet to be done towards the general provision of a protected water supply. Recent investigations have shown that only one in three houses in Ceylon is provided with sanitary latrine accommodation; the Department has introduced an aided scheme of construction, and under this and other plans nearly 40,000 latrines were installed in 1954 and more than 37,000 in 1955. Ceylon has a scheme of rural sanitation which is playing an important part in the improvement of sanitary and health conditions in rural areas. Among the practices that householders are encouraged to adopt are the use of boiled water for drinking purposes, the provision and use of a sanitary latrine, the disposal of refuse in compost pits, and the cultivation of a vegetable garden where the compost can be used as a fertilizer.

INDIA

The Republic of India is a federation of states, comprising 14 major states and some union territories. Its area is 3,288,375 square kilometres. The estimated population of both states and territories in mid-1955 was 382,390,000, compared with 377,130,000 in 1954. The average population density for 1955 was about 116 per square kilometre. On the Ganges plain the density is much higher. The capital, New Delhi, had in 1951 a population of 276,314. According to the 1951 census, 83 per cent. of the population were rural. In 1955 there were 85 cities with a population of more than 100,000 inhabitants and 228 towns with from 30,000 to 100,000 people.

A Council of Ministers aids and advises the President of the Republic in the exercise of his functions. Among the Ministries in the Cabinet are Education; Health; Food and Agriculture; Works, Housing and Supply; and Labour.

On the local government side in 1948 there were nearly 50,000 municipal authorities serving a population approaching 17 million. These bodies are entrusted with the lighting and maintenance of roads, water supply, drainage, sanitation, as well as the personal services of medical relief, vaccination and education. They impose taxes and enact by-laws with the sanction of the state government. In all the larger and in some of the smaller towns the majority of the members of the councils are elected by rate-payers. In many municipalities women are entitled to vote and in some of them they are also eligible for election. In the rural areas there are district and sub-district boards or councils, which are in charge of roads, district schools, markets, public health institutions, etc.

The economy of the country is based principally on agriculture. At least 250 million of the inhabitants are dependent on this occupation. Most of the agricultural holdings are very small—less than two hectares. Food crops occupy four-fifths of the cultivated land. There are at least 150 million cattle—about one-quarter of the world’s cattle population. The chief imports are machinery and vehicles, implements, metals and manufactured goods, electrical goods and raw cotton. The principal exports are cotton piece-goods, jute and tea.

The first five-year development plan of the Indian Republic was launched in 1951-52. Its long-term purpose was to double the income per head by the end of 27 years. The immediate purpose was to increase the national income by 11 per cent. in the first five years. The second five-year plan, encouraged by the success of the first, proposed to increase the national income by 5 per cent. during each year of the five-year period. Production is mainly in the hands of private enterprise.

Health

Matters connected with health fall largely within the sphere of responsibility of the state governments, under a Department of Health in each state. The Central Government is concerned mainly with international health matters, assistance towards and co-ordination of state activities with the object of achieving uniformity of action and approach, establishing standards, and promoting research and education, particularly in the post-graduate sector.
A Central Council of Health was established in 1952, with the Union Health Minister as chairman and the state Health Ministers as members, to consider and recommend broad lines of policy with regard to health in all its aspects, including remedial and preventive care, environmental hygiene, nutrition and health education and the promotion of facilities for training and research.

The progress of health schemes included in the first five-year plan was reviewed in July 1954, and certain readjustments and reallocations were made, such as increased provision for tuberculosis and leprosy control, and water-supply schemes; some new schemes were also added, such as the establishment of departments of social and preventive medicine in medical colleges, and rural health centres.

Other health schemes and achievements during 1955 included the establishment of a child guidance clinic at the College of Nursing in New Delhi, increased training facilities for 35 nurses at the Lady Hardinge Medical College and Hospital in New Delhi, and the publication in November of the Indian Pharmacopoeia.

General progress has been made in malaria control; BCG campaigns against tuberculosis; maternal and child welfare and the training of nurses, midwives, dais and health visitors. A contributory health scheme introduced for Government employees in 1954 continued to expand in 1955. Furthermore, the All-India Mental Health Institute has been established in Bangalore and research is being extended into various fields which have a bearing on health programmes. A family planning scheme has been introduced.

The birth rate was 27.0 in 1955 compared with 24.4 in 1954; the general mortality rate was 11.7 in 1955 as against 12.5 the previous year, and the infant mortality rate was approximately 100 in 1955 compared with 115 in 1954.

Smallpox is responsible for nearly one per cent. of the total mortality and has a large case incidence in nearly all the states. Cholera attained its peak in most of the states in the months of January, April-June and August in 1955, with a case-fatality ratio of 20-50 per cent. Mass inoculation and other measures such as disinfection of water supply were carried out where the disease was most prevalent.

Some deaths occurred from plague during the year 1954, but there has been a steady improvement in the mortality from these diseases. Respiratory diseases include tuberculosis, pneumonia and bronchitis. Very little information is available about the last two but a large number of deaths are ascribed to tuberculosis.

In its first five-year plan the Government of India concentrated on BCG vaccination for the people as a preventive measure, and the campaign continued to receive the highest priority during 1955-56. During 1955 over 22 million persons were tested, of whom over 8 million were vaccinated. From the beginning of the campaign in 1948 up to the end of 1955, 66.5 million persons were tested for tuberculosis and approximately 22.6 million of them received BCG vaccination. At present there are 128 campaign units each consisting of a doctor and six technicians. Tuberculosis centres were established in New Delhi, Trivandrum and Patna in 1950, 1951 and 1952 respectively, and eleven more centres of this kind are proposed in the second five-year plan. The number of tuberculosis clinics in the country has now reached 185.

There are now three cancer institutes in India, the chief of which is the Indian Cancer Research Centre of Bombay. The second is the Chittaranjan National Cancer Research Centre in Calcutta, and the third was opened in Madras in 1955 with grants-in-aid from the Government of Madras and the Government of India. Special methods of early diagnosis have been established and a large amount of general research work is being carried out.

The National Malaria Control Programme, which started in 1953-54, has succeeded in considerably reducing the prevalence of malaria in the country. The number of malaria control units in 1955-56 reached 132. During the year 30 medical officers, 139 malaria inspectors and 10 entomologists were given training in malariology at the Malaria Institute of India.

Services for the health and welfare of mothers and young children form an integral part of the programmes of community development. In 1954 training programmes were expanded and the staffing of maternal and child health centres was brought into line with that of the primary health centres. Central assistance to states to develop maternal and child health centres included aid to community projects and national extension services for training programmes for different types of workers and also for undertaking maternal and child health services in certain backward areas.

Considerable expansion of the staff of health visitors is needed for the maternal and child health services, and financial assistance is being offered for training. There is an acute shortage of midwives, and to meet the demand a training course for auxiliary nurses and midwives was started in 1954 with assis-
tance from the community development programmes. Eighty-five midwives and 231 auxiliary midwives were trained during that year.

The various states of India have carried out nutrition surveys and these have been followed up by feeding programmes, especially for expectant mothers and young children, which are now carried out by all states. The diets in general were found to be unsatisfactory; those in rural areas sometimes contained a higher percentage of cereals and pulses than those of the urban populations, and there was a lack of vitamins, animal protein, vegetables, oils and fat, sugar and fruits. Education and publicity measures have been carried out by exhibitions, cooking demonstrations, and other activities.

Lack of facilities for mental hospital treatment has led to overcrowding. Psychiatric clinics, which have been attached to various hospitals in Calcutta, act largely in a custodial capacity, with occupational therapy as the main line of treatment.

Non-governmental organizations have continued their work of giving relief to undernourished children and nursing mothers and have rendered assistance in flood-stricken areas. The Indian Red Cross Societies and the Indian Medical Associations have provided social help. A very large number of people attended courses of instruction on first aid, home nursing, hygiene and sanitation, mothercraft and child welfare, all under voluntary auspices.

Certain departments of selected medical colleges and research institutes have been upgraded since 1948 in seven of India’s institutes. Departments of social and preventive medicine were established in medical colleges in Darbhanga and Madras. The All-India Institute of Medical Sciences in New Delhi is gradually being expanded.

Low-cost housing schemes were started in 1954, and the Community Project Administration has reconditioned 102,520 houses and constructed 15,517 new dwellings for the staff.

INDONESIA

The Republic of Indonesia consists of a group of islands situated between 95° and 141° east, and 6° north and 11° south. It comprises three large islands—Java, Sumatra, and Sulawesi (Celebes)—part of Kalimantan (Borneo), and some 3000 smaller islands. The area of the Republic of Indonesia is 1,904,346 square kilometres.

The islands are mostly mountainous and volcanic, with lowlying plains in the coastal regions. The highest mountains are Kerintji in Sumatra (3800 metres) and Semeru in Java (3700 metres). In the various islands there are a large number of short and turbulent rivers, few of which are navigable.

The climate is tropical except in the higher altitudes, with a dry season from May to December and a rainy season from November to April. In general, the temperature is about 25° C, with no greater seasonal variation.

The rainfall is abundant in Java, where the annual average at Djakarta is about 183 centimetres. In Sumatra and Borneo the rainfall varies a great deal but in general is greater than in Java.

No population census has been held since 1930. The most recent official estimate gives the population of Indonesia at the beginning of 1956 as 82,583,000. It is estimated that 66 per cent. of the people live in Java, which has a population density of 393 persons per square kilometre, and 34 per cent. inhabit the outer islands, where the density is 20 persons per square kilometre. For the whole area of Indonesia the average density of population is 53 persons per square kilometre.

The people of Indonesia belong for the most part to the sub-group of Malaysians of the Mongolid group, except for the populations of the islands east of Sulawesi (Celebes) and Lombok, who belong to the Melanesian Negroids (Papuan group). The estimated distribution of population by ethnic group in 1952 was: Indonesians, 75 million; Europeans, 240,000; Indonesians of Chinese origin, 1,200,000; Indonesians of Arab origin, 70,000; nationals of other Asian origin, 45,000.

It is difficult to define the rural population with any accuracy; the municipality of Djakarta, for example, contains large populous areas which are yet rural in type. In any case the rural population forms a very high proportion of the whole—probably about 80 per cent. A good deal of internal migration takes place between rural and urban and semi-urban areas, and the Government is encouraging people to move from densely populated Java to underpopulated areas in the other islands.

From administrative purposes the country is divided into provinces (which under the Constitution have broad regional autonomy), one special area (Jokjakarta) with the status of an autonomous territory, and into regencies, sub-districts and villages. Immediately after attaining independence, the Republic of Indonesia was a federation of states; it was made a unitary State in 1950. Among the Ministries in the Cabinet are Public Works, Education, Health, Social Affairs, Labour, and Agriculture.

In the western part of the country the main food crop is rice. In the Molucas, the emphasis is on sago. Other additional crops are cassava, maize, sweet potatoes, peanuts and soya beans. The important commercial crops are rubber, copra, palm oil, coffee, tea, cocoa, cane sugar and tobacco. Fishing and livestock rearing are also common occupations. Nearly 70 per cent. of the population are engaged in agriculture and related production. Indonesia is rich in minerals: petroleum, tin, coal and bauxite are the principal products. There are also considerable deposits of gold, silver, manganese, phosphates, nickel and sulphur. Among exports are rubber, tea, copra and palm oil. The production of petroleum is declining and its domestic use is on the increase. Main imports are machinery and electrical equipment, vehicles, chemicals and drugs. Production is normally under private ownership but new plans developed under the Economic Urgency Scheme are sometimes run by the Government—at least in the first stages. The production of staple foods appears to be adequate for the local demand.
Indonesia has prepared its first five-year economic development plan, which is to run from 1956 to 1960. It has been realized that increasing economic productivity is the only means of increasing net income faster than the increase of population. The Government proposes to achieve this by developing existing natural resources and by improving the number of skills of the labour force. In the five-year plan the Government envisages three sectors: the public sector, the private sector, and the village community sector.

In 1954 there were in all Indonesia 49,430 kilometres of roads. Most of the villages in Kalimantan, Sulawesi and the Moluccas have to be reached by boat. In 1954 there were 4840 kilometres of railways in Java and 1446 kilometres in Sumatra. The railway systems in north, central and south Sumatra are not interconnected. Excellent plane services link all provincial capitals and major towns.

A tremendous effort is being made to improve education. Hundreds of new schools have been opened and are working sometimes on three shifts to meet the great demand. Adult education is also being attempted in order to catch up with modern needs. The school situation is as follows: there are 587 pre-schools, 31,802 primary, 1,640 secondary, 635 technical and 828 teacher-training schools. Higher education is offered at the University of Indonesia in Djakarta, which has nine faculties. It had nearly 7000 students in 1953. The State University, Gadjah Mada, has six faculties and some 6000 students. New universities are those of Surabaya, Bandung, Medan, Makassar and Bukittinggi. The National Academy, with four faculties, has about 500 students and there is a Technical Faculty in Bandung with 2000 students. In addition there is an Islamic University at Bukittinggi, a Christian University at Djakarta, and, finally, a school of navigation at Surabaya.

Health

Public health in Indonesia is the responsibility of the Ministry of Health, which is the supervising and co-ordinating body that determines the policy of the medical and the health service. The autonomous provincial governments are the executive authorities for carrying out programmes and financing them from their own resources, sometimes with a grant from the Central Government. Under the Minister of Health there is a Secretary-General for Health. The central department has 13 divisions: administration; hospitals; dental health; school health; control of communicable diseases, epidemiology and quarantine; plague control; leprosy control; sanitation and housing; pharmaceutical matters; maternal and child health; international health work; and education. In 1956 a division of rural health and health education was added. Through a co-ordinator, the regency director supervises the sub-district health services and the work in the villages.

In the health organization there are two types of local area, the regency (predominantly rural) and the municipality (urban). Rural health work is being developed on the pattern of work known as the "Bandung Plan". This is a combined curative and preventive programme of health work under one direction. The desa, or village, which from early times has formed a well-recognized political, social, and economic unit, has been made the smallest unit for health administration. The desa has a population of about 3000-5000. These primary units are grouped in sub-districts of about 23,000-30,000 people. The regency headquarters will have general and special hospitals, providing a total of 400-600 beds, and all consultant and laboratory services. Branch hospitals will be established in the surrounding districts with a capacity of 20-60 beds, and out-patient clinics will be distributed in the villages.

The medical and para-medical staff of the regency health department will exercise supervision and control over the village and sub-district health units and perform certain functions of health care at regency level, such as hospital treatment, tuberculosis clinic work, etc. The distribution of personnel and their functions are as follows:

1. Village health unit: a village hygienist in charge of public health education, supervision of rural sanitation, collecting of vital statistics; a female home-visitor for the MCH service; an assistant midwife; an assistant nurse for the treatment of minor ailments.

2. Sub-district health unit: an elementary hygiene (health) educator; a nurse-midwife with a short training in public health; a clinical nurse; a school health nurse; all types of medical personnel working in co-operation with other departments.

3. Regency health department: a physician; a sanitary inspector (assisted by special types of health workers, such as malaria assistants); a public health nurse; a nutritionist; a dentist; a dental nurse; additional staff appointed for campaigns against diseases prevailing in the area concerned.

Health centre areas of similar structure are operating in the city and in the regency of Bandung, in Magelang, in Banjumas, and in an area of the city of Djakarta. Recently a health centre area has been laid out in Bekasi.

The proportion of the general budget allotted to the Ministry of Health for the years 1952-55 was 1.9, 1.2, 2.0, and 1.9 per cent. Accurate statistics are not in most cases available in Indonesia. The Central Statistics Office estimated at the beginning of 1956, however, that the birth rate in Java was about 40, the death rate about 18, and the infant mortality rate 150.

In 1956 there were 533 government-owned hospitals, general and specialized, with a bed capacity of 50,262,
and 176 private hospitals with 17,458 beds. This total of 67,720 hospital beds represents approximately 0.9 beds per 1000 population. Beds are distributed as follows: general and auxiliary, 50,732; mental, 7,660; sanatoria, 1,748; leprosaria, 4,907; ophthalmological, 775; maternity, 1,658; venereal diseases, 240. There is still a serious lack of nurses, which hampers expansion of the hospital service.

Medical care in general can also be expanded by increasing the number of out-patient clinics, of which there were 3,153 at the end of 1954, 245 of them being privately owned.

A Central Medical Laboratory was set up in 1888; other laboratories have been added since, including a number of specialized units for malaria, etc. There are now 16 laboratories, including the special institutes, and it is planned to establish at least one laboratory for each province and later to install regency laboratories in connexion with auxiliary hospitals or health centres.

There are six medical schools and two dental schools in Indonesia. The medical faculties are attached to the universities of Bukittinggi, Djakarta, Jokjakarta, Makassar, Medan and Surabaya, graduating a total of 200 students each year. The two dental schools are at Surabaya and Jokjakarta, each graduating 20 dental surgeons a year.

Since 1954 considerable development has taken place in training activities for many types of auxiliary health personnel. Refresher courses are held for midwives, and six additional courses were started in 1954 for assistant midwives. A home visitor course was begun in Sulawesi in 1955, and another in South Sumatra in 1956. In 1956 a public health nursing school was opened in Djakarta, and the number of courses for nurses was increased in the provinces.

In 1954 the medical and para-medical personnel in Indonesia were reported as follows: 1,504 doctors, 260 dentists, 108 pharmacists, 1,174 assistant pharmacists, 1,838 midwives, 727 nurses (new type), 6,000 nurses (old type), 64 analysts, 14 dietitians, 3,200 other para-medical personnel.

Of the notifiable diseases, the highest case and death rates relate to typhoid, bacillary dysentery, smallpox and plague. In 1956 there were 6,106 cases of typhoid and 433 deaths; 3,330 cases of bacillary dysentery and 163 deaths; 113 cases of plague and 28 deaths; and two smallpox epidemics in that year brought the number of cases to 2,817 and the number of deaths to 2078. Diphtheria accounted for 1001 cases and 168 deaths in the same year. No cases of yellow fever, cholera, typhus or relapsing fever occurred in the period under review. In 1953 there were 203 cases of poliomyelitis; the number dropped to 135 in 1954 but increased again to 194, with 10 deaths, in 1956.

Between 1946 and 1949 antimalaria work had been initiated by the use of residual DDT spraying, and the systematic use of DDT for indoor spraying was begun in 1950. From 1951 to the present time this work has steadily expanded and the population covered has increased from 140,000 in 1951 to 4.9 million in 1954 and 17.8 million in 1957. A mass campaign for yaws control started in 1950 and is continuing; it is planned to complete the programme by 1965. In 1956, 5234 patients were under hospital treatment for leprosy in the 55 leprosaria, leprosy settlements and villages; over 5,000 more were receiving treatment at out-patient clinics or were isolated at home. A five-year plan has been worked out which includes registration of cases, repair and construction of buildings for treatment of leprosy cases, training of medical and para-medical personnel, and research.

Tuberculosis is endemic and appears to have extended in recent years. There are now 19 hospitals for tuberculosis patients, and it is planned to increase the number of tuberculosis centres, which will form the most important links in the chain of control. Tuberculosis control work includes BCG vaccination programmes and will in the long run lead to a mass X-ray control programme. In 1954, 81,903 persons were vaccinated with BCG.

Health education of the public is fully appreciated in Indonesia and work has been in progress since 1924, when an anti-hookworm campaign was developed. Since that time various health demonstrations have been given, and a training school for health educators and village hygienists was set up in 1935. Unfortunately much of this work was ruined by the war and has had to be built up again. There is a long-standing tradition in Indonesia that the community, especially in rural areas, should take an active part in conducting its own affairs, including community health work. Many villages select their own rural health worker and support his activities. In addition there are: (a) a number of child welfare foundations in many towns and rural areas providing home visitors at their own expense; (b) village health committees in rural areas which organize and sponsor clinics for both preventive and curative purposes; (c) voluntary agencies which organize small centres for minor ailments only; (d) parent-teacher associations which carry out active work in schools to encourage both personal and environmental hygiene.

The Indonesian Red Cross has first-aid posts all over the country and in some rural areas there are village Red Cross associations.
Dental care is provided through 27 dental clinics. A school dental service has been organized on an experimental scale at Bandung and Djakarta, and schoolchildren in other places receive attention at the local dental clinics.

The Ministry of Health has established a Nutrition Institute in Djakarta. It has been recognized for a long time that the high infant mortality rate is due largely to malnutrition, and the number of nutritional diseases gives rise to serious problems.

Maternal and child health is part of the public health programme of regencies and sub-districts and is under the supervision and direction of the regency medical officer, who is assisted by a nurse-midwife with public health training. The primary unit for MCH work in a regency is the village. Here, one home visitor and one assistant midwife are responsible for the work. Their activities are supervised and coordinated at the sub-district level by the nurse-midwife stationed at the sub-district capital, who is responsible to the regency nurse-midwife. She in turn is super-

visited by midwife-supervisors stationed in the provincial health departments.

The aim is to establish altogether 3000 MCH centres; at the end of 1956 there were 1650, and by the end of 1957 some 1900. The number of technical staff for these services has also increased considerably, and 905 midwives were engaged in MCH work at the end of 1956. Four new auxiliary maternity homes have been established, and in the various regencies efforts are being made to organize school medical services.

According to a survey made by the Ministry of Health in 1952, it was estimated that more than half the rural population were using surface water for drinking. About one-third obtained their water from wells, and in several places rain-water was collected and used. Wells are for the most part of the shallow type and are neither lined nor covered. There are practically no pipe-borne water supplies in rural areas, but on the estates treated river water is used to a great extent.

NEPAL

Nepal lies between India and Tibet on the southern slopes of the Himalayas and includes Mount Everest. The mountains are barren but there are many fertile valleys. The country has two main divisions: the Tarai, a broad level strip along the southern border; and a great mountainous tract stretching north to the Himalayas. The rainy season is from June to October and the hot weather from April to June. The area is 140,753 square kilometres.

The population at the 1954 census was 8,431,537, with a density of 60 per square kilometre. No other vital statistics are available. The indigenous race is Mongol with a considerable admixture of Hindu blood from India. The people were originally divided into many hill clans, one of which, the Gurkha, became predominant towards the end of the 18th century and has given its name to all. The capital, Katmandu, has a population of about 109,000. The surrounding valley has 450,000 people, including Patan with 105,000 and Bhadgaon with 93,000. The main occupation is agriculture.

The principal articles of export are food grains, jute, timber, oilseeds, ghee, potatoes, hides and skins, and cattle. There are valuable forests in the southern part of the country. Medicinal herbs grow in the north on the slopes of the Himalayas.

New industries are developing, such as jute and sugar mills and various factories and chemical works. Three hydro-electric plants were in operation in 1953. The chief imports are textiles, cigarettes, salt, petrol and kerosene, sugar, machinery, boots and shoes, paper, iron and steel. Nepal has good agricultural, mineral and water power resources but is still largely undeveloped, with few modern means of transport. A good part of the revenue is now being devoted to development and land reform has begun. Schools and village development centres are also being established. In 1954 there were 921 primary schools, with over 26,000 pupils, 399 secondary and technical schools, with 46,000 pupils, and 21 higher schools, with 1316. In 1952 some 20 students were sent to Australia, India, the United Kingdom, and the United States of America.

The first railway, narrow gauge, was opened in 1927 and there are now several narrow gauge lines in the country. There are about 417 kilometres of motor roads. Three airstrips were constructed in 1951-52, one of them in Katmandu.

Health

Under the Secretary to the Minister of Health, Education and Local Self-Government, there are a Deputy Secretary for Health and a Director of Health Services. Under the latter are two deputy directors, one for allopathic medicine and one for ayurvedic medicine. No medical officer has yet been designated for public health work although one has been trained for the purpose. There are as yet no trained nurses, but a school of nursing was set up in May 1956. The latest available figures indicate that 12 candidates are in training and eight more are to be selected shortly. A school for health assistants, accommodating 20 students, was opened in February 1956. Doctors are trained in the medical schools in India and there are a number of students in training at the present time. Compounders are trained in the Civil Medical School at Katmandu with a two-year curriculum.

There are 32 government hospitals in the country, including six situated in Katmandu, with a total of approximately 600 beds. Many of the sanctioned
ports in hospitals for doctors, nurses, compounders and dressers are not filled on account of the shortage of trained personnel. There are also two government dental clinics in Katmandu.

The Government maintains 20 dispensaries in the districts beyond the Katmandu Valley. The services include immunization and health education through a number of compounders who have been given a two-year course in public health subjects. They work in district headquarters towns and their immediate environs. It is proposed during the next five years to open 22 additional dispensaries and to convert them, together with the existing dispensaries, into health centres as soon as enough health assistants have been trained.

In a study based on the information collected from 14 Nepal hospitals and dispensaries on their in-patients and out-patients for the years 1954 and 1955, it is revealed that diseases of the digestive system, diseases of the eye, inflammation and ulceration of skin, diseases of the ear, dental diseases, malaria, diseases of the respiratory system, injuries and diseases of the endocrine glands were the leading causes of morbidity. Among the quarantinable diseases, smallpox and cholera were recorded in the study. Leprosy and tuberculosis are both reported to be prevalent.

PORTUGUESE INDIA

The State of Portuguese India consists of three enclaves on the west coast of India—the districts of Goa, Damão and Diu—lying between latitudes 14° 45’ and 20° 45’ north and longitudes 70° 52’ and 74° 21’ east. The total area is 4 193 square kilometres, of which Goa occupies 3 611 square kilometres, Damão 546, and Diu 36.

At the 1950 census the total population of Portuguese India was 637 591; the distribution by district was: Goa, 547 448; Damão, 69 005; and Diu, 21 138. In 1956 the population was estimated at 645 639.

For administrative purposes, the State of Portuguese India is a Portuguese overseas province under the supreme authority of a Governor-General.

Health

The structure of the health services is based on a Decree of 1945, under which the health services in the Portuguese overseas provinces were reorganized. The central Health Department is in charge of three sections—medical, pharmaceutical, and administrative.

Medical services are provided throughout the territory through 16 district health services, six subsidiary district health services, and a port health station at Mormugão. Local health units, maternal and child health clinics, and health stations for mine-workers are all under the technical supervision of the district and subsidiary district health services. Hospitals, medical stations, leprosaria, maternity homes, and all other establishments for in-patient care, are under the technical direction either of the central Health Department or of the district health services in whose area they are located.

The pharmaceutical section is responsible for the supervision of pharmaceutical practice and for the purchase and distribution of drugs and other medical supplies for the use of the government health services.

The administrative section is responsible for the work of the Secretariat and for the administration of funds allocated to the health services. The proportion of the total budget allocated to the health services is 1.29 per cent. This only covers the cost of running the services; expenditure on maintenance and equipment of hospitals and other establishments is met from another fund.

Medical care is provided through hospitals, dispensaries, health units, medical stations, and other government establishments, or by voluntary institutions, which are nearly always subsidized by the State. In 1956 there were in Portuguese India three government general hospitals with surgical and specialized units and a total of 300 beds, an infectious diseases hospital with 10 beds, a leprosarium with 150 beds, a sanatorium (145 beds), and a hospital for mental diseases (110 beds). The general hospital in Goa has 180 beds; those of Damão and Diu each have 30 beds and small surgical and maternity units. There are also three hospitals run by voluntary organizations with government subsidies, and equipped with surgical and specialized units; their total bed capacity is 310 (Ribandar, 130 beds; Margão, 110; and Mapuca, 70). Further accommodation is provided in the regional medical station at Pondá (12 beds), and 12 nursing homes with a total of 120-140 beds. Medical care in hospitals and other government health establishments is entirely free of charge to the indigenous inhabitants and to civil and military officials.

At the end of 1956 medical and health personnel in the territory (both government and private) consisted of 400 physicians, 132 male nurses, 98 female nurses, 119 midwives and 90 pharmacists.

The general health situation in Portuguese India was good during the period under review. No case of cholera was notified, although as a preventive measure systematic vaccination is carried out; 21 663 cholera vaccinations were performed in 1956. Only
small outbreaks of smallpox occurred, in very limited areas, in 1955 and 1956; smallpox vaccination is carried out on a large scale.

The campaign against filariasis includes control at the larval stage of the mosquito responsible for Bancroft's filariasis and treatment of filaria carriers. A survey, begun in 1954 in Goa and Reis Magos, is continuing in the town of Diu, where the percentage of microfilariae carriers was found to be 6.8, and treatment with Hetrazan was given. Ninety-five per cent. of the insects caught were culicines, which leads to the conclusion that the vector responsible may be Culex fatigans.

A malaria survey was made in the district of Quepem. Malaria control campaigns were started before 1954 in Old Goa, Canacona and Sanguém. In the main urban areas insecticide spraying is carried out at regular intervals, with beneficial results.

With regard to leprosy, all infectious cases are compulsorily segregated in the leprosarium. The programme of tuberculosis control includes case-finding among relatives of patients. An epidemiological survey, with tuberculin-testing, is planned for the near future.

There are 20 maternal and child health clinics in operation in the territory. Since 1954, midwives appointed to the rural maternal and child health services of the Public Assistance and Welfare Organization work under the technical direction of the district health services. Infant mortality rates during the period under review were as follows: 89.1 in 1954, 98.6 in 1955, and 87.6 in 1956.

THAILAND

Thailand lies between 5° and 21° north and 97° and 106° east. It is bounded on the east, north-east and south-east by Laos and Cambodia, on the south by Malaya and the Gulf of Siam, and on the west and north-west by Burma. The country falls into four natural zones: northern Thailand, which is mountainous and forested; the Khorat Plateau, 150-450 metres above sea level and rather barren; central Thailand, a large, well-watered and fertile alluvial plain; and southern Thailand, a long peninsula which contains tin and wolfram mines and produces rubber and some rice.

The climate is very humid. The wet season runs from May to October, with temperature ranges from 24° to 32° C during the day. The north-eastern monsoon begins in November, after which it is cooler. After February the heat in the interior gradually increases and may reach 38° C. The climate varies according to the region, altitude and distance from the sea. The total area is 514 000 square kilometres.

The population at the 1947 census was 17 442 689 (1958 estimate: 860 409 at the 1947 census (1958 estimate: 1 470 000). The main occupations are agriculture (9 million workers), manufacture (200 000), and commerce (700 000).

The country is divided into 71 changwads (provinces), each of which has a governor. Local legislative and executive bodies are being established, with functions and modes of election closely modelled on those of the National Assembly. The economy of Thailand is almost exclusively agricultural; the country's prosperity depends on its chief commodity, rice, for the production of which its climate and conditions are very favourable. Fishing and animal husbandry are also important, and tin, rubber, and teak are produced in quantity. The principal imports are textiles, machinery, vehicles, chemicals and petroleum products.

At the end of 1957 there were 3490 kilometres of railways, 7449 kilometres of state highways and 1693 kilometres of provincial highways open to traffic, and over 5772 kilometres of state highways and 1930 kilometres of provincial highways were under construction. There is one national air transport company, and many international air lines call at Bangkok.
Health

In 1888 the Department of Medical Care was established; it was the first institution dealing with the health of the Thai people. Its main functions were to control the hospitals and to carry out vaccination. The first public health law was promulgated in 1897, requiring the appointment of a medical officer of health and a sanitary engineer. Its duties were transferred to the Ministry of the Interior in 1908. In 1909 sanitary boards were created for towns and communities. The supervision of these boards was entrusted to the newly formed Medical Department in 1915. In 1918 the Department of Public Health was established by Royal Decree, and was expanded in 1942 to become the Ministry of Public Health.

The Ministry of Public Health has the following offices: Office of the Secretary to the Minister; Office of the Under-Secretary of State; Department of Medical Services; Department of Medical Sciences; Department of University of Medical Sciences; and Department of Health. In addition to these there are now the Committee for Medical Research, the government pharmaceutical laboratories, and the National Nutrition Committee.

The Medical Council, and committees dealing with the control and sale of drugs, the quality of food, medical registration, international health and nursing, have been placed directly under the Under-Secretary of State.

The Department of Medical Services includes the divisions of mental hospitals, provincial hospitals and several separate units. The Medical Sciences Department covers medical research, diagnostic laboratories, drug control, and the analysis of food and drugs. The University of Medical Sciences is composed of the various schools of medicine (Siriraj and Chulalongkorn) and schools of dentistry, pharmacy, public health, public health nursing, nursing and midwifery, sanitary science, dental hygiene and medical technology.

The University of Medical Sciences was founded in 1943, bringing together under the control of the Ministry of Health the whole of medicine and the allied sciences. Since 1943 there have been a number of changes in organization: the Faculty of Veterinary Sciences was transferred to the Agricultural University (Kasetrasart), and a second medical school was created at Chulalongkorn Hospital, to meet the ever-increasing demand for doctors. A new school of public health was opened in 1948, offering a one-year course to medical graduates for the degree of Master of Public Health.

The Department of Health has a number of divisions, including vital statistics, health education, communicable diseases, tuberculosis, malaria-filaria treatment, leprosy, venereal diseases, yaws, nutrition, rural health, sanitary engineering, school health and maternal and child welfare. Furthermore, in the provincial health administration there are 71 offices of provincial health officers, and a number of district health officers.

The Division of Vital Statistics was created in 1936. Since that date it has been gradually improving and extending the scope of its work, and the accuracy of its data. The most recent rates are as follows:

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<th>1953</th>
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<th>1956</th>
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<tbody>
<tr>
<td>Birth rate</td>
<td>31.5</td>
<td>34.8</td>
<td>35.0</td>
<td>38.2</td>
</tr>
<tr>
<td>Death rate</td>
<td>9.5</td>
<td>9.8</td>
<td>9.4</td>
<td>10.0</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>64.9</td>
<td>63.6</td>
<td>56.1</td>
<td>55.3</td>
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The maternal mortality rate has been falling year by year, but still stood at 5.5 in 1955. The expectation of life at birth rose from 31.6 for males and 37.4 for females in 1929 to 48.5 and 51.4 respectively in 1947. The leading causes of death, as reported for 1955 are, in order of importance, certain diseases of early infancy, malaria and tuberculosis. The cardiovascular diseases also figure on the list.

The estimated numbers of health and medical personnel in Thailand are as follows: physicians, 3031; dental surgeons, 205; pharmacists, 771; nurse midwives, 4017; nurses, 4296; midwives, 138. There are also 64 dental hygienists and 2105 auxiliary midwives.

The Department of Medical Services deals mainly with the construction and supervision of hospitals throughout the country. From 1949 to the end of 1957, 72 provincial hospitals, five mental hospitals and one neuropsychiatric unit had been set up. In addition, hospitals for women and children, a priest’s hospital and 1 general hospital (Lert Sinn) make a total of 85 hospitals in the Department of Medical Services, and more are under construction. The total number of beds in these hospitals is 4000. In addition there are 19 municipal hospitals with a total of 1466 beds, and two Red Cross hospitals with 600 beds. The hospitals in Bangkok under the jurisdiction of the Department are used as postgraduate training centres for provincial doctors and nurses. The Women’s Hospital was opened in 1951 with a bed capacity of 150. As time went on, the needs, especially of young children, led to the construction of additional departments. A separate wing for sick children, containing 200 beds, was set up in 1954 and now there are over 13 different departmental activities, including a blood bank and departments of gynaecology, surgery and radiology, as well
as a cancer clinic. Approximately 17 per cent. of all babies in the Bangkok area are born in the Women's Hospital.

The school of nursing, which educates over 400 student nurses from the various provinces, is an essential part of the Women's Hospital. Each year it turns out 100 graduate nurses.

In order to improve and expand the rural health services the Department is setting up a number of health centres every year. These are of three different types:

1. The first-class health centre with a minimum of 10 beds and staffed by doctor, nurse midwife, midwife and sanitarian;

2. The second-class centre with, as a minimum, a sanitarian and a midwife;

3. A midwifery centre with a midwife in attendance.

It is estimated that each centre serves a population of about 5000. The provincial health officers, who are appointed by the Health Department, also supervise the activities of the health centres. One of the important and recent rural health activities is the development, as a working demonstration, of a modern health programme based on community organization and active citizen participation. Demonstration villages have been set up in many provinces. The local health committee, elected from village officials and lay people, takes charge of environmental sanitation under the supervision of the provincial health officer. At the end of 1956 there were 105 first-class and 655 second-class health centres and 153 midwifery centres.

Training courses for midwives are given annually, and at present 1194 midwives are employed by the health department. On account of the shortage of qualified nurses, especially in rural areas, grants have been given to young women to enable them to study nursing and public health. It is expected that 60 nurses will graduate annually. Training courses for mohtamye (indigenous midwives) have also been started. Two mobile units have been set up to help mothers and children in isolated areas which cannot be reached by midwives stationed at permanent health centres. It is hoped ultimately to assign one mobile unit to each province.

The school health service is under the general supervision of the Department of Health, and the work includes examination for the detection of disease, physical and mental defects, and psychological disorders, and general supervision of growth and development. The school health division serves about 200 primary and secondary schools. In Bangkok and Thonburi the school population under supervision is about 200,000. At the provincial level the school services are under the health officers, and attempts are being made to extend them to rural areas. Mobile units have been started and are attached to the provinces on a regional basis. Each unit consists of a physician, three nurses and one or two dental hygienists. The school health division assists the Ministry of Education in health education in schools. Health education has always been a part of the health work of the country and at present the subject is being introduced into the training courses for different categories of health workers. Efforts are also made to bring health education into the community development projects so that it may reach village communities, schools and health centres.

Various training courses are offered by the Health Department for their own staff. Up to 1955 more than 4000 health workers had been trained. A permanent health demonstration and training centre was established in 1951 at Cholburi.

An extensive programme of DDT spraying against malaria has now been in progress since 1949, and the results are reported to be highly satisfactory. Filariasis is restricted to the flat, low-lying eastern coastal belt, and the work of eradication has been placed in the hands of the malaria control programme. Yaws is prevalent in about 40 provinces of the Kingdom, and affects about one-tenth of the population. A scheme of control is now in operation. Similar action is being taken in the control of leprosy and venereal disease.

The tuberculosis hospital, situated close to Bangkok, was the first of its kind in the country. When it was established in 1941, it had 25 beds, later increased to 50. The tuberculosis control service of Thailand started with the opening of a chest clinic in Bangkok in 1949, as a demonstration centre for modern methods of diagnosis and treatment. Shortly afterwards the hospital was added to the service and a surgical unit was set up. A tuberculin-testing and BCG campaign was begun in 1951 and greatly extended two years later.

Rabies is a serious problem in Thailand, as there are about 200 deaths a year from this cause. A rabies control law, enacted in 1954, required owners to have their pets immunized. A large number of stray dogs are being destroyed each year, and there should be a considerable reduction of cases in the near future.

During the years 1951-55 a general survey was made to determine the incidence of parasitic infestations in rural areas, with the result that greater emphasis is being laid on environmental sanitation.
The major epidemic diseases are now being brought steadily under control.

The aims of environmental sanitation are to improve water supply and excreta and refuse disposal in rural areas. Most of the rural population make use of surface water for drinking, but rain-water is also used. Earthenware jars are sold in large quantities to encourage the practice of collecting and storing rain-water. A co-ordination board for groundwater research has been created, and studies are being made for the protection of supplies with the object of introducing piped water systems where possible.

The Department of Medical Sciences has, as its main object, the promotion of research. It deals especially with tropical diseases and also has a wide interest in food and drug analysis. Under its control a number of diagnostic laboratories have been organized.
EUROPEAN REGION
AUSTRIA

Austria lies in the heart of Europe, bounded by Germany, Czechoslovakia, Hungary, Yugoslavia, Italy and Switzerland. Its area—83 850 square kilometres—includes much of the Eastern Alps and, on the northern borders, the Bohemian Massif. Ninety-two per cent. of the country is mountainous and only 4.5 per cent. is true plain, mainly along the Danube. Forests cover about 40 per cent. of the productive area. The climate is predominantly mountain and semi-continental.

The last census year was 1951; at that time the population was just under seven million, of whom 1 766 102 lived in Vienna. Approximately half the population are still settled in rural areas. The people are predominantly of Alpine stock and are German-speaking. The educational level is high.

There are nine provinces (Länder), each of which has an elected Assembly.

Agriculture is still the most important activity, but there are also big heavy industries and mining. There is a great variety of mineral wealth. Hydro-electric power is now being developed and the potential supply is large. Forestry is an important industrial occupation. The natural food production is not enough to support the population. Austria is one of the world's largest producers of high grade magnesite.

The Danube carries a great deal of traffic, but there are also 30 722 kilometres of good roads and 6000 kilometres of State railways. The main centres of communication—Vienna, Graz and Innsbruck—are well served by airlines.

The social security schemes, which have been very fully organized in Austria, cover 80 per cent. of the population.

Health

The early health regulations, in force up to the end of the 17th century, dealt mainly with the control of epidemic diseases, the rights and duties of physicians and pharmacists and the provision of drugs. During the 18th century, owing to epidemics of plague, strict measures of quarantine were introduced. Provision was made for coroners' inquests; the first steps in the medical care of the poor were undertaken; and measures were introduced for the control of smallpox. In 1770, various sanitary rules were codified under a general sanitary law which was the basis of the whole health administration. By the end of the 18th century health officers were established by nearly every local authority. Smallpox vaccination was introduced early in the 19th century and several hospitals were founded, including maternity and mental hospitals. Schools for midwives were also founded and in 1850 a medical committee was established by every regional authority.

The health administration was reorganized under an Empire Sanitary Code in 1870, providing for three levels—a health department of the Ministry of Internal Affairs, regional authorities and local authorities. Post-graduate education for health officers was organized officially in 1872. In 1919, after a temporary health ministry, the Office of Public Health was established in the Ministry of Social Administration.

Today the principal health authority of Austria is the Federal Ministry of Social Administration. There is a Director-General of Public Health, and a number of specialists deal with the different sections, including social insurance and social welfare. A Central Sanitary Advisory Council has been established consisting of 23 regular and five extraordinary members. There are other advisory councils—e.g., for the pharmacopoeia and for the issue of a food control code. The main federal institutes are as follows: six bacteriological and serological institutes, in Vienna, Linz, Graz, Salzburg, Klagenfurt and Innsbruck; three institutes for food control, in Vienna (with a branch in Linz), Graz and Innsbruck; one chemico-pharmaceutical institute, in Vienna; one institute for biological products, in Vienna (producing smallpox and BCG vaccine); one institute for serum control, in Vienna; one institute for rabies control and the production of rabies vaccine, in Vienna; one institute for the production of therapeutic sera, in Vienna (producing tetanus serum, diphtheria serum, etc.); one institute for experimental pharmacology and balneology in Vienna. In addition to these, there are also three State-authorized institutes for food control in the Länder, at Salzburg, Klagenfurt and Bregenz.

The Federal Ministry does not exercise direct powers in relation to the sanitary services of communities, hospitals, health resorts, etc., as in this sphere the nine Länder are competent. The chief of each Land is bound by the directions of the Federal Ministry but has a supervising health officer under his direction with the necessary specialists, exercising executive powers. In each Land there is a sanitary advisory council.

The local district authorities which represent the lowest administrative levels are subordinated to the chief of the Land. Each of these district authorities has a health officer and has established centres for maternal and child health, tuberculosis, school dental service and general health examinations. There are also centres for mental health, the care of cripples and of the aged, and all these institutions are open to the general public. The cost of medical treatment of all kinds, including hospital care, is borne by social insurance institutes. Most of the population are insured but there is also a service for the poor who are not insured under the social welfare scheme. The district authorities supervise the communities in carrying out the powers of either the Federal Republic or
the Länders. Each community is obliged by law to engage a physician but several communities may combine for the purpose. It is the duty of the community physician to assist the mayor by advising on local health activities. The percentage of the national budget spent on the health service was 0.5 in 1954 and 1955 and 0.4 in 1956.

There is a central office for statistics, to which the local health officers send in all statistical material. There are no local statistical departments. The birth, death and infant mortality rates for 1954 were 14.9, 12.1 and 48.3 respectively.

There are 296 hospitals with about 67,000 beds. Among these are 181 general hospitals, including the university hospitals in Vienna, Graz and Innsbruck, which take patients of every age without regard to the type of disease. In addition there are nine special hospitals for children, 24 for tuberculosis (with an additional four for children), one special hospital for dermatology and venereal disease, 11 for orthopaedic or accident surgery, and 17 for neurology and psychiatry. There are also 12 convalescent homes, 21 charitable institutions for incurables and 16 special lying-in hospitals.

In the provision of domiciliary medical care the arrangement is that the physician may be consulted in his office or at the patient's home. The fee is paid by the patient. If the patient is insured and the physician has a contract, the fee is paid by the social insurance scheme. In the case of poor patients who are not insured the payment is made by the local welfare department. Health centres, established under the social insurance scheme, are known as ambulatories and are open to all the insured population. These health centres offer services in the whole range of medicine, including x-ray and laboratory work.

In 1953 there were 13,000 physicians, including 5,200 in general practice, 2,600 specialists and 1,300 dental specialists; the rest were hospital physicians. In addition to the 1,300 dental specialists there are still about 2,400 ungraduated dentists in Austria. The figures in the nursing profession are 14,800 nurses and 2,700 midwives.

Physicians and pharmacists are educated at the three universities of Vienna, Graz and Innsbruck. Midwives receive their training at six special Federal schools supervised directly by the central Ministry. Dentists are trained at a special institute, and there are schools for nurses' training. At the universities there are post-graduate courses for dental specialists lasting two years. All physicians must undergo three years' post-graduate training at a hospital before receiving licence to practice; for medical specialists this period lasts for six years. Health officers have to take a post-graduate course of one year ending with a special examination.

The control of communicable diseases is based on a law of 1950 and the regulations issued under it. There is a continuous programme of vaccination against diphtheria, tetanus and whooping-cough. Legal provision is also made for BCG vaccination. There are a great many medical diagnostic laboratories provided by universities, hospitals, social insurance companies, etc.

In Austria, where the idea of rehabilitation was developed as early as 1915 by Spitzy and extended in 1916 by Boehler, there are today four main centres of rehabilitation: at Stollhof, with 90 beds, at Tobelbad near Graz with 180 beds, at Wiener Neustadt and at Hermagor. These centres work in close co-operation with the accident hospitals. After-care is carried out either in the hospitals, in the health centres or in the physicians' surgeries. Some after-care is also carried out in convalescent homes or at health resorts under the social insurance scheme.

The dental service is provided by the dentists either at their own offices or at health centres. There is a special school dental service.

More than 1500 maternal and child health centres have been set up, most of them under the direction of the public health service. A few have been provided by the social insurance scheme. Maternity and children's hospitals also give maternal and child health services. The school health service is organized by the Board of Education but not so far on a co-ordinated plan in the various Länders. Reorganization is in progress to make the service uniform through the country.

Health education of the public has not so far been organized on any general plan. Preparatory work has now been carried out in co-operation with the Ministry of Education and local health officers, and some progress is being made.

Occupational health services are carried out by the Factory Inspectorate, supervised by a central department at the Federal Ministry for Social Administration. There is special industrial legislation regulating the supervision of workers and preventive services in relation to activities handling lead, benzol, silica, and so on. A list of prescribed occupational diseases recognized by social insurance is published under the general social insurance law. In addition, an Austrian Society of Occupational Medicine, an organization for the prevention of silicosis and other bodies, such as the Accident Insurance Institution, all deal with occupational health. Special services for the chronic sick are provided for limited groups, such as clinics for diabetics, local centres for tuberculosis patients,
advisory services for cripples, etc. In some cities there are special advisory centres for chronic disease under the public health service. Various communities have set up establishments for the home care of the aged; the larger ones are linked with special hospital departments.

The nutritional state of the population is satisfactory. Food production and marketing are controlled by the special department and the six institutes for food control already mentioned. Special standards have been set up and a new edition of the food code has recently been prepared.

In the larger cities the public health service also provides consultant clinics for mental disorder and, in some cases, epilepsy. The Austrian regulations of 1916 for hospital care are very advanced. Mental hospitals are open to voluntary patients as well as to those certified by a court of justice.

Austria's water supply is taken mainly from protected wells or ground-water springs. Most of the larger towns are equipped with a central water-supply system. The great majority of the towns also have a sewage-disposal plant and schemes must be approved by the health authority to avoid water pollution.

BELGIUM

Belgium is bounded by France, Luxembourg, Germany and the Netherlands. Its western coastline is on the North Sea. The area is 30,507 square kilometres, and the climate is west maritime. The country has two main physical regions—the northern plains and the southern plateau.

At the end of 1956, the population was 8,951,443, with a density of 293 per square kilometre. There are two main ethnic groups—Walloons, who are French-speaking, and Flemish, whose language is closely akin to Dutch. The general educational level is high.

For administrative purposes, Belgium is divided into nine provinces and 2,666 communes, which are to a great extent autonomous.

Although Belgium is a very highly industrialized country, industrial development has not taken place at the expense of agriculture; the two are closely linked in the national economy. In 1956 the national per capita income amounted to 44,000 Belgian francs (US $880).

Health

Although public health inspection was instituted in 1845, State concern with health problems as a whole was relatively slow in developing. It is for this reason that many of the public health services are in the charge of the communal authorities, and that many health problems of social importance, such as tuberculosis, venereal diseases, cancer, alcoholism, mental diseases, and even originally child welfare, were first dealt with by private organizations; it was many years before these organizations received financial assistance or even, in some cases, legal recognition from the State. The same was true of the mutual aid societies for relief in case of sickness. Private initiative continues to the present day to play an important part in the country's health programme, and this sometimes raises certain problems of organization and co-ordination.

The Ministry of Public Health was founded in 1936; its scope was widened to cover family problems, and from then on its title became Ministry of Public Health and Family Welfare. Apart from its general secretariat, which has supreme administrative authority and includes general and research services, the Ministry comprises the following six divisions, of which five are directly concerned with public health:

(1) The Public Health Division, including public health inspection (established in 1845 and strengthened in 1911); over-all control of laboratories (established in 1945, and incorporating the Institute of Hygiene and Epidemiology, which was set up in 1951, and various laboratories in the provinces); food control (established in 1891); control of pharmacies (set up in 1893); the public health works administration (successor to the public health works inspectorate instituted in 1903); and meat inspection and control (1945).

(2) The Social Medicine Division, of which the most important functions include the control of social diseases and the various branches of preventive medicine, and which is responsible for co-ordinating, supervising and subsidizing the activities of numerous voluntary organizations. One of the chief activities of this Division is to organize a network of integrated health centres, of which 40 are at present functioning and 40 more are in the process of being established. The Division is also responsible for training schools for auxiliary health personnel of all kinds (nurses, physiotherapists, infant welfare workers, and others).

(3) The Welfare Division, which is responsible for co-ordinating the local public welfare committees and for administering the special welfare fund through which the State assists the needy by bearing the cost of treatment of certain long-term diseases such as tuberculosis, cancer and mental diseases.

(4) The Housing and Family Welfare Division, which works in close contact with a number of paragovernmental organizations on housing problems, and
stimulates the training of family welfare workers, providing facilities for families—particularly in case of sickness—to take advantage of the services of these auxiliary workers.

(5) The Physical Education and Sports Division, which works through another para-governmental organization—the National Institute of Physical Education and Sports, which was set up in 1956.

(6) The sixth division, which may be mentioned in passing, is responsible primarily for dealing with people who have suffered war damage.

Three other Ministries are concerned with certain aspects of public health work: (a) the Ministry of Labour and Social Welfare, through its services for medical inspection of workers, technical and chemical inspection of working conditions, the Welfare Fund for victims of occupational diseases, the service for the physically handicapped, and the national sickness and disability fund created in 1945; (b) the Ministry of Agriculture, through its veterinary and stock-breeding sections, and the National Milk Office; (c) the Ministry of National Education, through its divisions of primary education (which is responsible for the school medical services), technical education (which includes, in collaboration with the nursing section, responsibility for nursing schools), and higher education (which is in charge of the medical faculties of Ghent and Liège, and the veterinary schools of Ghent and Cureghem. It may be mentioned here that Belgium has two other medical faculties—one at the Free University of Brussels and the other at the Catholic University of Louvain).

Provincial health services cover a wide field, of which the following are some examples: (a) the bacteriological laboratories of the provinces of Antwerp, Brabant (Pasteur Institute), Hainaut, Liège, and Namur; in the other provinces bacteriological analysis is carried out by government laboratories under the direct supervision of the laboratories section in the Ministry of Public Health and Family Welfare, as mentioned above; (b) the Health Museum of Mons; (c) many social health services, among them those of the province of Liège; (d) institutions for physically and mentally handicapped persons and others.

Communal autonomy in health matters has from the beginning been one of the fundamental principles of the country’s health organization. The communes have indeed a legal obligation to provide the following services: a public welfare committee for the alleviation of poverty and the organization of medical care of the needy; a school medical service; routine smallpox vaccination; collaboration with the health inspector for the treatment and prevention of communicable diseases; a communal meat inspection service; and one or more cemeteries in the locality. Apart from these minimum legal requirements, many communes have organized other important services, such as health offices, food control services, school clinics, health centres, and so forth. A continuous policy of fostering the association of communes has produced good results, particularly with regard to drinking-water supplies.

Vital statistics in 1956 were as follows: birth rate, 16.78; death rate, 12.07; infant mortality rate, 39.0. The health statistics section of the Ministry of Public Health and Family Welfare periodically undertakes special statistical studies on such subject as notifiable diseases, various aspects of tuberculosis prevention, activities of the Department and of the bodies which it subsidizes in the matter of housing, the health care of government officials, of schoolchildren, and of working adolescents, and on causes of death, etc.

The practice of medicine is free, whether in the doctor’s consulting room or in visiting the patient at home. The patient is also free to choose the hospital in which he wishes to be treated, although in the case of insured persons it must be an establishment approved by the Ministry of Public Health and Family Welfare.

At the end of 1956 there were the following medical and health personnel in Belgium: 10,358 physicians; 825 dental licentiates; 606 dentists; 4927 pharmacists; 3779 midwives. There is no permanent record of nursing personnel, and the only figures which can be given are the number of nurses of all kinds who qualify annually, including hospital nurses, public health nurses and psychiatric nurses; between July 1957 and July 1958 a total of 8800 qualified. Each province has a health inspector (except the provinces of Brabant, Western Flanders and Liège, which each have two) who is a qualified doctor with an additional public health degree.

The national leagues against tuberculosis and venereal diseases and the national league of Belgium for mental health all have their own dispensaries. There are also dispensaries for general care staffed by one or more nurses.

Hospitals and clinics are run either by the public welfare committees or by private bodies such as mutual aid societies, religious communities, etc. They are under the medical control of a section of the Ministry of Public Health and Family Welfare, which also ensures that they conform to the required standard with regard to the treatment of insured persons.

Preventive measures against communicable diseases were originally applied only to the “pestilential” or quarantinable diseases provided for in the international
sanitary conventions, but they were gradually extended, at the national level, to the other communicable diseases, including tuberculosis and venereal diseases.

Notifiable communicable diseases must be declared to the health inspector or the burgomaster, and the burgomaster must then take whatever preventive measures are prescribed by the health inspector or the Ministry of Public Health. In the case of tuberculosis, the declaration is made to the health inspector only; it is his responsibility to take the necessary preventive measures in consultation with the patient's own doctor. As far as venereal diseases are concerned, an anonymous declaration is made to the health inspector, and the patient is obliged to submit to medical treatment, which is a State charge. If he fails to do so, the consulting physician addresses a nominative declaration to the health inspector. Smallpox vaccination was made compulsory by Royal Decree in 1946. Considerable publicity is given to the benefits of vaccination against diphtheria, tetanus, whooping-cough and poliomyelitis.

Maternal and child health services are organized by the National Children's Society (Œuvre nationale de l'Enfance), a government-subsidized body established by law in 1919, and include clinics for pre-natal and post-natal consultations, infant welfare, care of premature infants and of children from three to six years, as well as holiday camps and homes for children of weak constitution.

Medical inspection of schoolchildren in kindergarten and primary schools is required by law, and is the duty of the communal authorities under the supervision of the Ministry of Public Health and Family Welfare. Treatment of sick children is not generally included, but the service covers systematic examination of schoolchildren, preventive measures against communicable diseases, and inspection of school premises. All pupils have health cards. Results of medical examinations are sent to the statistical section of the Ministry of Public Health and Family Welfare.

Health education of the public is carried out in many different ways. Systematic teaching is given in primary schools, teacher-training schools, technical schools (particularly to future nurses and midwives), and schools of higher education (to students who will be in touch with health matters in their professional life). Health education in various spheres is also carried out by the Ministry of Public Health and Family Welfare, by such institutions as the Health Museum in Mons and the health collections in Ghent and Liège, and by certain bodies subsidized by the Ministry. Apart from the usual media, such as posters, pamphlets, lectures, films, etc., these bodies publish periodical bulletins. Their activities have recently been coordinated under the direction of the Belgian Red Cross.

For preventive mental health work, there are mental health clinics in various towns, which are required by law to look after such cases as former mental patients, delinquents on conditional release, epileptics, alcoholics and drug addicts. For curative purposes, psychiatric institutions provide a total of some 25,000 beds, and there are also 7000 beds for abnormal cases, 1200 beds for the disabled, and some 2000 for the deaf and dumb, those with impaired vision, and the blind.

There are many hospices and homes for aged people in good health, and there is a growing tendency to establish homes for elderly couples so that their family life is not broken up.

Chronic and long-term patients were originally cared for in the same units as short-term patients, but nowadays chronic cases are accommodated separately. There are, for example, some 4800 beds for cases of pulmonary and bone tuberculosis; cancer control centres attached to the four universities for the treatment of malignant tumours; and special centres with iron lungs and physiotherapy equipment for the treatment of poliomyelitis.

Special rehabilitation services include sanatoria for the rehabilitation of tuberculosis patients, and units for poliomyelitis victims, injured persons, alcoholics, and handicapped people of various kinds.

The Laboratories Section of the Ministry, and its Institute of Hygiene and Epidemiology already mentioned, include units for bacteriology, virology, chemistry and physics, analysis of food, meat and drugs, and lymph production. The supervision of the provincial laboratories has been described above in connexion with provincial health services. The professional staff of this section are doctors of medicine and public health, licentiates or doctors of science, biologists or pharmacists.

Food control is mandatory by a law of 1890, and is undertaken by inspectors (who are pharmacists, doctors of science or agricultural engineers) and wardens. The inspector himself makes simple tests on samples, and if they appear suspect sends them either to the central laboratory under the Laboratories Section of the Ministry or to an approved chemist. Meat inspection of animals slaughtered in Belgium is governed by a law passed in 1952. Drugs must conform to the requirements of the Pharmacopoeia, which is regularly kept up to date by the Pharmacopoeia Commission; supervision is provided through inspectors of pharmacies who visit laboratories and may take samples, which are tested at the drug analysis
laboratory attached to the Laboratories Section of the Ministry.

Research is carried out in the universities as part of the teaching programme, and also by such bodies as the University Foundation and the National Fund for Scientific Research, both of which help to recuit research workers (either full-time or part-time, in conjunction with a university post), and to provide scientific institutions with particularly costly apparatus. Very recently a Fund for Medical Scientific Research was established with the special task of encouraging all research which aims at preserving and restoring human health. Research is also undertaken by government and provincial laboratories at the same time as routine work, and by the larger medical establishments, where it is carried out side by side with curative services.

The supply of drinking-water is controlled by the National Water Supply Company, and is made available either by inter-communal bodies or by the communes individually. In 1954 it was estimated that about 74 per cent. of the population were provided with safe water. Many of the communes have main drainage systems, and the disposal of sewage through water-courses is governed by strict conditions laid down in a law of 1950 and in various by-laws.

Special measures are taken against air pollution (particularly that caused by dangerous or insanitary premises or motor vehicles), jointly by the Ministry of Labour, the Ministry of Public Health and Family Welfare (through the Institute of Hygiene and Epidemiology), and the Royal Meteorological Institute. At the present time special attention is being given to the pollution of air and water by radioactive waste. A recent law in this regard empowers the Ministry of Public Health and Family Welfare to take necessary measures to safeguard the population.

BULGARIA

Bulgaria is situated in south-east Europe, separated in the north from Romania by the river Danube, and bordering in the west on Yugoslavia, in the south on Greece and Turkey, and in the east on the Black Sea. In the north is the Danube Plain, sloping gently from the Balkan mountains. South of the Balkan mountains lies the Thracian Plain, consisting of the basin of the Maritsa river. In the south-western part of the country are the Rhodope mountains. The climate is continental. The total area is 110,900 square kilometres and the population at 31 December 1956 was 7,613,700. According to the 1956 census, 33.5 per cent. of the population live in urban districts.

The country is divided internally into 12 administrative provinces called okrugs, and the capital Sofia. Okrugs are further divided into counties.

Bulgaria is an industrial and agricultural country; in the past ten years there have been great advances in industry, as demonstrated by the fact that in 1939 industrial production represented 33.8 per cent. of the country’s total production, whereas by 1955 it had risen to 69 per cent. New branches of industry have been established, such as the metallurgical, electrical, chemical and petroleum industries, machine construction, etc. Agriculture has been mechanized: in 1956, 85-95 per cent. of the agricultural work was done by machines.

Education in Bulgaria is free of charge, and primary education (up to 14 years of age) is compulsory. According to a report made in 1956, there are 20 institutions for higher education, including 32 faculties and 150 technical schools. The Bulgarian Academy of Science has eight departments, 39 scientific research institutes, museums, a botanical and zoological garden, and a staff of 56 academicians, 47 corresponding members, and about 650 scientific research workers who are attached to the Academy.

Health

The organization of public health in Bulgaria is based upon a number of fundamental principles: the Ministry of Public Health and Social Welfare is the supreme national authority in matters of health; free medical care, both curative and preventive, is guaranteed to the whole population by a Decree of the Praesidium of the National Assembly issued on 17 March 1951, and is made available through the vast network of health services covering both urban and rural areas. A characteristic feature of these services is their preventive aspect, which includes measures such as mass immunization, medical examinations of workers and schoolchildren, special care for mothers and infants, ambulatory services for a large proportion of the population in polyclinics, and specialized services for tuberculosis, psychiatric disorders, and a number of other conditions of social importance. The population takes an active part in the application of health measures through the standing committees on health attached to the People’s Councils, the Bulgarian Red Cross, the trade unions and the political organizations.

At the regional or local level, public health is directed by the local public health departments attached to the executive committees of the People’s Councils, which are responsible for the epidemiological and health establishments, as well as hospitals and maternal and child health centres.

Since 1944, the scope of hospital services has increased rapidly. Whereas in 1944 there were 174 hospitals with 11,082 beds, by 1956 there were 424 hospitals with 30,893 beds, and the staff included 4508 doctors and 914 dentists.
A vast network of health establishments has been set up since 1951 in rural areas. In 1944 there were 870 rural health centres. In 1956, for the rural population alone, there were 255 rural hospitals with 3885 beds, 704 maternity homes with 2224 beds, and 1677 health centres. The trend is towards eliminating the differences in medical care services between urban and rural populations, and with this in view the rural health services are receiving active assistance from the specialists in district and town hospitals, who make regular visits to the villages and thus ensure qualified medical care for the inhabitants of rural areas.

In 1956, medical care was provided by 92 dispensaries with 2923 beds, 100 sanatoria and preventoria for tuberculosis patients with 8563 beds, and 159 outpatient clinics in hospitals and special establishments for patients suffering from tuberculosis, cancer, infectious skin diseases and venereal diseases and mental disorders. There were nine clinics with 945 beds attached to medical research institutes; 33 balneological institutes and other medical establishments; and 125 communicable disease control centres, which supervise relevant public health matters with the assistance of all the medical establishments of the country.

In 1956 also, general hospitals provided 119 children's wards with 3250 beds, and 380 obstetrical and gynaecological wards with 3847 beds, in addition to 710 maternity clinics and hospitals, with 2655 beds. There were pre-natal and post-natal clinics in 317 town centres and 1201 village centres, as well as three children's hospitals with 260 beds, 759 crèches for infants with 20 920 beds, and 16 special homes with 1120 beds for mothers and children.

Maternity leave for working mothers has been increased from 90 to 120 days. Special care is taken of expectant mothers who are working; they are removed from any potentially harmful work and given other work to do without a decrease in salary. After delivery, they have two hours' paid leave a day to breast-feed their babies until the infant is eight months old.

Doctors, dentists and nurses working in kindergartens and schools take the greatest care of pre-school children and schoolchildren. The trend is towards eliminating the differences in medical care services between urban and rural populations, and with this in view the rural health services are receiving active assistance from the specialists in district and town hospitals, who make regular visits to the villages and thus ensure qualified medical care for the inhabitants of rural areas.

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Doctors, dentists and nurses working in kindergartens and schools take the greatest care of pre-school children and schoolchildren. Teams consisting of a dentist and a nurse are available for every 1200 schoolchildren, and they are assisted by specialists from the hospitals and polyclinics. Systematic control of the children's health is carried out by medical examinations once a year, and anthropometrical examinations twice a year (four times a year in the case of kindergarten children). The Bulgarian Red Cross works in cooperation with the medical staff in health education of the public. In 1955 alone, 451 847 schoolchildren underwent courses in health education. Altogether 17 960 health posts have been organized in schools. In 1956, 131 634 schoolchildren spent their holidays free of charge in summer camps.

Workers in industry, transport and building receive qualified and specialized medical care, apart from that provided through the general medical service, from centres established in factories and polyclinics. According to the terminology used in Bulgaria, there are at present: 41 medical health divisions (these are complete medical establishments) with 1269 beds; 116 health services with 365 beds; 21 crèches with 880 beds; 26 prophylactoria and night sanatoria with 495 beds. Furthermore, 188 rest houses, with 20 926 beds, provided facilities in 1956 for 218 028 workers to recuperate from their labours under medical supervision.

There are 14 dental clinics in Bulgaria. Preventive dental care of children and treatment of dental diseases have met with considerable success; 1394 dental centres and surgeries have carried out systematic and large-scale treatment of children and young people. Topical application of fluoride to teeth has been widely used, and in the rural areas alone, the teeth of 143 837 children were treated in this manner in 1956.

The following table shows the increase in numbers of medical and health personnel during the past few years:

<table>
<thead>
<tr>
<th></th>
<th>1944</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>3 516</td>
<td>8 020</td>
<td>8 642</td>
<td>9 271</td>
</tr>
<tr>
<td>Dentists</td>
<td>824</td>
<td>1 971</td>
<td>1 979</td>
<td>2 085</td>
</tr>
<tr>
<td>Medical assistants</td>
<td>826</td>
<td>1 037</td>
<td>1 283</td>
<td>1 560</td>
</tr>
<tr>
<td>Midwives</td>
<td>1 070</td>
<td>1 892</td>
<td>2 029</td>
<td>2 174</td>
</tr>
<tr>
<td>Registered nurses</td>
<td>372</td>
<td>6 942</td>
<td>7 796</td>
<td>8 574</td>
</tr>
</tbody>
</table>

Sofia and Plovdiv have institutes for higher medical studies, that in Sofia including a faculty of medicine, dentistry and pharmacy. There are also 17 schools for training auxiliary health personnel, such as medical assistants, nurses and laboratory technicians. University medical education lasts for six years; the training of auxiliary health personnel is of two or three years' duration.

All medical establishments and local health authorities draw up morbidity statistics and keep a record of the state of health of the population in their areas. Medical registration of causes of death is compulsory. Some vital statistics for the period 1955-57 are as follows:

<table>
<thead>
<tr>
<th></th>
<th>1955</th>
<th>1956</th>
<th>1957</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population at 31 December</td>
<td>7 542 300</td>
<td>7 613 700</td>
<td>7 688 800</td>
</tr>
<tr>
<td>Birth rate</td>
<td>20.4</td>
<td>19.8</td>
<td>18.7</td>
</tr>
<tr>
<td>Live births</td>
<td>20.1</td>
<td>19.5</td>
<td>18.4</td>
</tr>
<tr>
<td>Stillbirths</td>
<td>0.25</td>
<td>0.24</td>
<td>0.21</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>82.4</td>
<td>72.0</td>
<td>66.2</td>
</tr>
<tr>
<td>Neonatal mortality rate</td>
<td>35.5</td>
<td>32.5</td>
<td>27.4</td>
</tr>
</tbody>
</table>

Control of communicable diseases is carried out by the concerted efforts of all the health services with the
participation of the population. The last case of smallpox was recorded in 1927. Between 1954 and 1957 only one case of rabies has been known; since 1913 there has been no cholera, and plague is completely unknown to the present generation—the last case was during the 19th century. Malaria is steadily decreasing; between 1944 and 1950 there were several thousand cases, whereas in 1956 only 263 cases were recorded. In 1956, there were 2.6 cases of poliomyelitis per 100 000 population, 592.6 cases of influenza, 330.0 cases of scarlet fever, 8.9 of diphtheria, 170.9 of whooping-cough, 190.5 of measles, 161.0 of infectious hepatitis, and 1.6 of typhus.

In 1951 the Council of Ministers issued a Decree concerning tuberculosis control. Mass x-ray and fluorographic examination of the population is carried out, and BCG vaccination is compulsory; by 1956, 2,014,341 people had been vaccinated. Every Koch-positive case is immediately sent to hospital. Tuberculosis patients receive every facility for free treatment and drugs, not only in tuberculosis hospitals and sanatoria, but also for domiciliary treatment.

Throughout the country, the movement to raise the standard of hygiene in both urban and rural areas is organized on a large scale under the guidance of the People's Councils and with the competent assistance of the health authorities. The State makes considerable grants for the construction of piped water supplies, drainage systems and public baths. Widespread building of new houses is in progress, and the State gives long-term loans to those who wish to build their own homes.

The Bulgarian Red Cross takes a very active part in health work; in the past it was simply a charitable society, but it is now a country-wide health organization, which towards the end of 1957 had a membership of 840,594. The Bulgarian Red Cross is effective in developing the health consciousness of the people and encouraging their participation in public health activities. In 1957 alone, 278,500 people took a health course. Groups of the most active workers in the Bulgarian Red Cross are connected with medical establishments and give assistance to those in charge as need may be. The health education meetings organized by the National Front are also very popular. Health education work is directed by the National Health Education Centre and by the health education divisions in the health centres of the okrugs and counties.

CZECHOSLOVAKIA

Czechoslovakia is in central Europe and is bordered by Germany, Poland, the Union of Soviet Socialist Republics, Hungary and Austria. The country consists on the one hand of the "Czech provinces" of Bohemia and Moravia, and on the other of Slovakia. The total area is 128,000 square kilometres. Prague, the capital, is in central Bohemia.

In mid-1958 the population was 13,470,000, with an average density of 105 per square kilometre, and was divided almost equally between urban and rural areas. The population of Prague is about one million.

Czechoslovakia is a Democratic People's Republic; it is a unitary State of two nations, the Czechs and the Slovaks, possessing equal rights. For administrative purposes the country is divided into 19 regions, the populations of which vary between 340,000 and 1,200,000. The regions are in turn subdivided into districts, with an average of 15 districts in each region.

The majority of the people are engaged in industry and trades, which at the 1950 census employed 3,596,357 people, or 29.1 per cent. of the working population. The number and percentage of people engaged in other occupations at that time were: agriculture, forestry and fishing, 3,076,261 (24.9 per cent.); commerce and finance, 873,300 (7.1 per cent.); transport, 908,556 (7.4 per cent.); the building trade, 698,579 (5.7 per cent.). Industrial production in 1955 showed an increase of 240 per cent. over that of 1929, which was the peak year of pre-war production, and has risen continuously since 1945. There is no unemployment in Czechoslovakia. At the end of 1956, 36.7 per cent. of all wage-earners were women. Since 1953, when the rationing system ceased, salaries have increased by more than 13.5 per cent., and at the same time the cost of living has dropped by 16 per cent. The consumption of meat in 1956 was 55 per cent. greater than in 1936, and that of other foodstuffs had also increased considerably: flour by 60 per cent., sugar by 40 per cent., vegetables by 60 per cent., eggs by more than 30 per cent., and butter by 15 per cent.

In the scholastic year 1956-57, there were 12,445 primary and secondary schools in Czechoslovakia, with a total of nearly two million pupils. The general educational level of the population is high; more than 20 per cent. have completed primary and secondary school education, and only 0.5 per cent. have not been to school at all. In the academic year 1956-57, there were also 672 professional schools, with more than 200,000 students, and 40 institutions of higher education, with 106 faculties and nearly 78,000 students. There are universities and technical colleges in Prague, Plzeň, Hradec Králové, Brno, Olomouc, Ostrava, Bratislava and Košice. There are also six theological colleges.

In 1956, the country possessed 13,168 kilometres of railways, more than 71,000 kilometres of first-class roads, and nearly 50,000 kilometres of second-class roads. There were also 480 kilometres of navigable inland waterways, and 1,868 kilometres of domestic airlines.

Health

The right to health protection is guaranteed by the Constitution, and is ensured by State organization
of health care services, as well as by various legislative measures, the most important of which concern the integration of preventive and curative services, the organization of sanitary and epidemiological services, the provision of treatment at spas, the practice of medicine and allied professions, the production and supply of drugs, and, finally, the social measures included in the laws on national health insurance and social security.

Since their unification in 1951, all health services are directed by the State Public Health Administration, with the exception of the faculties of medicine and pharmacy (which are under the Ministry of Education and Culture), and the production of medical instruments and appliances (which is under the Ministry for Precision Mechanics). At the national level, leadership in all matters of health policy is provided by the Ministry of Health, or, in Slovakia, by the Public Health Commission. (The relationship between the Ministry and the Commission is laid down in the Constitution, which determines the authority of the Slovak national bodies, and the Slovak Commissioner is bound by the policy directives of the Minister of Health.) Specialized medical officers or other experts are in charge of the various divisions and units of the Ministry; all important medical questions are examined by the Ministry's Scientific Council, which is made up of the most eminent representatives of medical science in the country, and thus ensures that a high scientific level of direction is maintained.

At the regional and district or municipal level, the organization of health care is directed by national committees and administered, at regional level, by special departments of health, and at district level by departments of labour, health and social security. Both the regional and the district health services are in the charge of medical officers of health, who have the backing of an advisory council of experts drawn from the staff of hospitals and other health establishments in the area concerned.

Health facilities throughout the country are grouped into integrated regional and district National Health Establishments. The nucleus of the Regional National Health Establishment is the regional hospital, polyclinic, transfusion centre, sanitary-epidemiological unit, and health education centre, supported by other specialized institutions, such as tuberculosis sanatoria, psychiatric centres, rehabilitation units, cancer treatment centres, and paediatric clinics. The Regional Establishment supervises the district health services in the various medical specialties, and also guides (and to a great extent actually carries out) special training of the regional health staff.

The District National Health Establishment groups together all health services for the people in the district concerned, and works through the district hospital, which functions as a single organizational unit with the local polyclinic. (In some districts there is only a polyclinic.) Furthermore, each district has a sanitary-epidemiological unit, a transfusion centre and a health education centre. The District Establishment supervises the activities of other health services within the district, particularly polyclinics, dispensaries and medical and nursing posts, whether for the general population or attached to industrial concerns, as well as maternal and child health centres, crèches, homes for infants and children, and rest-homes. Within each district, health services are organized on a community basis, each community covering about 4250 inhabitants, in the charge of a physician, who provides (and in some cases organizes) all medical care for the people of that community and is responsible for their health. In factories, there are industrial medical officers with similar functions, responsible for groups varying between 800 and 1600 workers.

Apart from the network of services provided by the Regional and District National Health Establishments, certain establishments are administered by the central authority, such as the treatment centres at spas, research institutes, and institutes for post-graduate medical training.

In 1957, there were altogether in Czechoslovakia 215 general hospitals, with a total of 95,551 beds, or a ratio of 7.1 beds per 1000 inhabitants; a further 11,020 beds in special units for tuberculosis patients, and 57,070 beds in other specialized establishments, making an over-all ratio of 12.2 beds per 1000 inhabitants. There were also 403 regional and district polyclinics, 1564 community dispensaries, 60 industrial polyclinics, 603 industrial dispensaries, 690 regional and district medical posts, and 1013 industrial medical posts.

Such expansion of the health services has required a considerable increase in the number and quality of medical personnel, as well as extension of the facilities provided by health establishments. The great losses suffered during the war, when the medical schools were closed, have been made good in a comparatively short time. At the end of 1957 the total number of doctors in the country was 20,607, or one doctor for every 651 inhabitants, and the health services as a whole (including pharmacies) had a staff of 158,000, of whom 103,000 were professional personnel.

A great deal of health work is done by the Czechoslovak Red Cross, and there has been a striking increase both in the numbers of voluntary health
workers and in the scope of their work; similar developments have taken place in other organizations which play an important part in the health protection of the people, particularly the trade union movement.

Medical care (including drugs and curative and orthopaedic appliances) is provided free for the great majority of the population — workers, members of higher agricultural co-operatives, officials, office-workers, pensioners and their families, and others. Certain charges are made to a very small proportion (less than 8 per cent.) of the population — that is, those engaged in private enterprise —, but the payments are very much less than the cost of the services provided. The children of these people receive free medical care of all kinds until the age of one year, and generally later, and are also entitled to free inpatient care in hospital until the age of 15.

Institutional care during pregnancy, childbirth and the post-natal period, as well as treatment of infectious diseases, preventive care and other services, are free. All working women are entitled to 18 weeks' maternity leave, with benefits during this period which amount to as much as 90 per cent. of the salary.

Vital statistics for the years 1954-57 were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth rate</th>
<th>Death rate</th>
<th>Infant mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>20.6</td>
<td>10.4</td>
<td>37.6</td>
</tr>
<tr>
<td>1955</td>
<td>20.3</td>
<td>9.6</td>
<td>34.1</td>
</tr>
<tr>
<td>1956</td>
<td>19.8</td>
<td>9.6</td>
<td>31.4</td>
</tr>
<tr>
<td>1957*</td>
<td>18.9</td>
<td>10.0</td>
<td>33.4</td>
</tr>
</tbody>
</table>

* Preliminary figures

The principal causes of death in 1957, and rates per 100,000 inhabitants, were as follows: diseases of the vascular system, 335.6 (of which heart diseases accounted for 275.1); malignant tumours, 173.4; diseases of the nervous system and sense organs, 112.0; diseases of the respiratory system, 91.0; injuries and poisoning, 67.8; communicable diseases (including tuberculosis and parasitic diseases), 48.7. The last-mentioned group included: all forms of tuberculosis, 36.4; whooping-cough, 1.5; typhoid and paratyphoid fever, 0.4; diphtheria, 0.3; and scarlet fever, 0.0 (four deaths for the whole country during the year).

Morbidity rates for communicable diseases in 1957 were: measles, 475.2; whooping-cough, 397.8; scarlet fever, 206.1; infectious hepatitis, 184.4; respiratory tuberculosis, 174.2; dysentery, 85.8, and poliomyelitis, 8.0.

Maternal and child health services are provided through 2597 infant and child welfare clinics, 285 clinics for women, 1167 day-nurseries, with accommodation for 36,885 infants, 31 night-nurseries, with 2346 beds for infants up to one year, 68 homes for children from one to three years (2832 beds), and 31 children's rest homes, with 3468 beds. School health services cover more than two million children attending 19,000 schools, including nursery schools for children from three to six years.

There are nine medical schools in Czechoslovakia, with an average of about 1000 medical graduates each year.

Environmental sanitation is the responsibility of the communal health services, which are a part of the health and epidemiological care system. The dwellings of 41 per cent. of the population are connected to water-supply systems, which are submitted to bacteriological analysis at least four times a year, and in some cases daily. The wells which supply the rest of the population are also controlled regularly by health inspectors. Thirty per cent. of the people are served by a sewage-disposal system, and main drainage is installed in all new housing sites. In places where the buildings are older, the existing systems are being reconstructed.

The second five-year plan (1956-60) includes further expansion and improvement of health services, with special emphasis on control of infectious diseases, prevention of disease and injury, and promotion of healthy conditions for the growth and development of new generations.

DENMARK

Denmark is a kingdom of northern Europe, consisting of the peninsula of Jutland, several adjacent islands which are closely knit with the mainland, and the outlying island of Bornholm in the Baltic, extending from 54° 3' to 57° 45' north and from 8° 5' to 15° 12' east. Its former dependencies, which are now part of the country and have a considerable measure of home rule, are Greenland and the Faroe Islands. The area of Denmark proper is 43,042 square kilometres. The surface is uniformly low, and the climate is semi-continental.

The population at the 1955 census was 4,448,401, with a density of 103 per square kilometre; 69 per cent. were urban. The people are almost entirely Scandinavian. The general educational level is high. The main occupations are agriculture (employing 518,000), manufacture (590,000), and commerce (317,000).

Administratively, Denmark outside Copenhagen is divided into 22 counties, each of which is administered by a governor. Further, the county is a municipal division with a county council superintending the rural municipalities (about 1300). There are 89 urban municipalities, each with a mayor and a town council. Rural and urban councils are elected direct by universal suffrage. Copenhagen forms a district by itself and has its own form of administration. Production is normally in the hands of private enterprise. The chief exports are live
animals and meat, dairy produce and machinery. The principal imports include fuels and lubricants, metals and manufactured goods, textiles and machinery.

Elementary education has been compulsory since 1814. The University of Copenhagen has about 5000 students and the University of Aarhus, opened in 1933, has about 1800 students.

At the end of 1955, Denm ark had nearly 1.8 million registered tons of shipping. Copenhagen, Aalborg-Norre, Sundby, Esbjerg, and Aarhus are the chief ports. There were about 12,000 kilometres of roads and town streets, and 46,000 kilometres of byways. Railways extend nearly 5000 kilometres, of which over half belong to the State. The country is well served by international airlines.

In 1954, nearly 3 million people were covered for sickness and maternity benefits. The Social Reform Acts of 1933 included also public assistance and legislation dealing with unemployment and accident insurance. According to an Act of 1956, every person who has completed his 67th year is entitled to a minimum pension, regardless of his economic conditions. Old-age pensions beyond this minimum are received by persons below a certain income level.

**Health**

Denmark acquired its first supreme medical board, the Collegium Medicum, in 1740, and the present organization of the central health authority dates from an Act of 1909 creating the National Health Service. Its aim was not only to advise the local authorities but also to initiate reforms and advances in the health services. The Act was revised and brought up to date in 1932. The status of physicians and pharmacists has been established by law since as early as 1672, and the first law relating to epidemics was passed in 1782, followed by a series of enactments, with the introduction of compulsory vaccination against smallpox in 1810. The Hospital Act of 1806 laid on the local authorities the duty of building and maintaining a suitable number of hospitals. With the advances in bacteriology at the end of the last century, new demands were made on the hospital resources. A system of health insurance founded in 1892 provided for laboratory services, and hospitals were enlarged and modernized and new ones were built. The first Act in a campaign against tuberculosis was passed in 1905 and sanatoria were established. During the past quarter of a century the hospital system has been constantly adapted to the demands of new methods of medical treatment. Sickness insurance has been revised and brought up to date.

During the same period preventive legislation began to come into its own, together with the social and medical care activities. This applied especially to the supervision of the health of expectant mothers and of children up to their fifteenth year. At the same time industrial hygiene was growing rapidly and a revision of the existing laws took place, includ-
National Service vis-à-vis the local authorities, and within his own district each one is engaged in advisory, supervisory and administrative work, similar to that at the national level. The municipal councils elect health commissions which deal with all matters concerning drinking-water, sewage, foodstuffs, dwellings, etc. In a number of larger towns there is a special health police under the police force to assist the commission. The health commissions also receive assistance from veterinary surgeons in connexion with meat and milk control. An epidemic commission takes action against local outbreaks of disease.

The hospitals are maintained and run mainly by the county councils and the town councils, although some are owned and run by the State, such as the university hospital in Copenhagen and most of the mental hospitals. In some cases the State finances special departments; there are, for example, three of these for neurology attached to municipal hospitals, and their departments cover a district of such great size that it is far beyond the scope of the smaller municipal units. The hospitals are run with a regularly employed staff. The health authorities feel that in the future the research department of hospitals should be available for medical practitioners both in and out of the hospital and that in this way one of the most important gaps between the hospital and the general practitioner will be bridged. As a result of specialization in the larger hospitals, there is a trend towards using smaller units for after-care as this saves the great cost of keeping patients in highly specialized hospitals. A few hospitals are run by private societies and religious bodies, in some cases with public subsidies. Private initiative takes a great part in the fight against disease; the National Association against Tuberculosis, for instance, has played a major role in tuberculosis control, and similar associations are now in action against cancer, rheumatic fever and poliomyelitis.

At the end of 1954 there were 5332 physicians, of whom 4907 were in active practice in Denmark— one for every 898 of the population. At the same time there are 2300 dentists (of whom 1331 have independent practices)—that is, one for every 3310 inhabitants. The number of midwives was 728, or one for every 1817 women between the ages of 15 and 49. There were 13,650 authorized nurses in active work. Over 10,000 of these were occupied in hospitals and other curative institutions, 1250 in local government home nursing, 587 in infant and school health nursing, the remainder being engaged as private nurses or at children's institutions, etc.

The following table shows the number of active members in State-approved health insurance funds during the period under review, and the amounts spent on benefits (medical treatment, medicine, daily cash benefit, and reimbursement of hospital expenses):

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of active members</td>
<td>2,858,097</td>
<td>2,891,951</td>
<td>2,901,164</td>
</tr>
<tr>
<td>Expenditure on sickness benefit Kr.</td>
<td>208,000,000</td>
<td>223,040,000</td>
<td>236,610,000</td>
</tr>
<tr>
<td></td>
<td>(US $30,114,377)</td>
<td>(US $32,291,878)</td>
<td>(US $34,256,551)</td>
</tr>
</tbody>
</table>

The payment by the health insurance funds for hospital care of their active members averages about 10 per cent. only of the actual cost, the remainder being paid by the central and local government. Members of the public health insurance are as a rule covered also by disablement insurance.

The Disablement Insurance Fund, established under the disablement insurance legislation, grants sickness benefit to a certain extent, provided the benefit may contribute to preserve or improve the earning capacity of the person concerned.

Active members of the health insurance funds who are covered by the Industrial Injuries Insurance Act, and who are in need of sickness benefit owing to an industrial injury or an occupational disease, are eligible for benefits under the Industrial Injuries Insurance Act to the extent to which such benefit cannot be paid by the health insurance. If, as an exception, the injured person is not a member of a health insurance fund, assistance is paid under the National Assistance Act on the basis of financial need.

The steady growth of the health services in Denmark has not given rise to the need for any special health education programme.

Vital statistics in Denmark are arranged as follows: the Government Statistical Department collects and publishes the usual health and vital statistics, while a special section of the National Health Service deals with medical statistics proper, such as diseases and causes of death, medical personnel, hospitals, matters relating to hygiene, etc.

The birth rate is practically stable, the latest figure being 17.2 in 1956. The death rate in 1956 was 8.9, and the infant mortality rate—which has been declining steadily—reached the low figure of 24.9. In the same year neonatal deaths were 17.7 and foetal deaths after the 28th week were 17.7.

The first modern health legislation in Denmark, which dates from 1888, applied directly only to the major diseases such as cholera, smallpox and plague, but its provisions have steadily been extended. In 1943, a law providing for vaccination free of charge against diphtheria for all persons under the age of 18 years was introduced. Vaccination campaigns undertaken following this legislation have resulted
in the eradication of diphtheria from the country. Since 1950, combined diphtheria and tetanus vaccination has been given. The only epidemic disease which has caused trouble in recent years is poliomyelitis, but now every person has an opportunity to be vaccinated and it is hoped that epidemics will be limited accordingly. All persons under 40 years of age may be vaccinated free of charge and the immunization is carried out by all physicians.

Tuberculosis patients are treated mainly in sanatoria run by the National Association against Tuberculosis with subsidies from the State, or in communal tuberculosis hospitals, which are the centre of a system for chest clinics covering the entire country. These hospitals and clinics are run by county and town councils with State subsidies. BCG vaccination is offered free of charge to all negative reactors and it is carried out as a routine prophylactic measure in childhood. In 1954, Denmark had 64 institutions with 4021 beds (0.9 per 1000 population). There are now chest clinics in every county, numbering 102 in all. In most areas the head of the clinic is a specially trained physician who is also in charge of the local tuberculosis hospital. The effective work of control, which has been going on for many years, has resulted in such a considerable decrease in the incidence of tuberculosis that it has been possible to close a number of communal tuberculosis hospitals and some of the sanatoria. It is hoped that before long tuberculosis may be considered to have been eradicated from Denmark.

The treatment of diseases outside the hospitals is in the hands of general practitioners and specialists. The right to practise medicine is open to all registered physicians, but special approval is required for the title of specialist. As a rule the family doctor is entitled to send his patient to the district hospital for x-ray or laboratory examination, but the major consultative laboratory work is carried out at the State Serum Institute in Copenhagen.

General advances have been made in the care of the sick in their own homes. A large number of communes and private associations have arranged a system by which a qualified nurse may be called in. An Act has recently been passed which makes the communes responsible for satisfactory arrangements of this kind. Practically all the towns and half of the rural communes employ home helps, who may be assigned by doctors where illness prevents the housewife from attending to her ordinary work. Dispensaries have been established for the supervision of children under seven years but most of these duties are normally undertaken by public health nurses visiting the homes.

The National Health Service is responsible for the approval of dentists as practitioners, after examination by the Danish High School of Dentistry and two years' subsequent service with a qualified dentist. At the end of the school year 1954-55 free dental care for children was given in the capital, in all towns and in approximately 37 per cent. of the rural districts. Clinics have been established for free treatment of children below school age whose parents' income is below a certain level. For adults the sick clubs pay for their members part of the cost of dental treatment.

Since 1945 the health of expectant mothers can be checked free of charge by a physician at three consultations and by the midwife at six consultations during pregnancy and one after the birth. Increasing numbers have taken advantage of this, and in 1954-55, 95 per cent. of the mothers came for the first medical consultation, although only 72 per cent. completed all three visits. Fifty-eight per cent. used the opportunity to see the midwives. Midwives who have followed a three-year training course assist in home confinements. Some 60 per cent. are employed by the public authorities in order to ensure a proper distribution throughout the country. In about two-thirds of the deliveries at home a doctor is present. About 45 per cent. of all children are born in hospitals or other institutions. Where there are complications the birth takes place in hospital as a rule. The health funds pay the cost of medical aid in general but hospital charges are paid by the insurance only if complications are expected. A government committee in 1956 issued a report suggesting special measures for closer co-operation between doctors, midwives, clinics and hospitals and the establishment of new maternity departments. There are also maternity aid institutions established under an Act of 1939, amended in 1956, to provide advice and economic assistance to expectant mothers and mothers with young children. Today there are institutions in all parts of the country, and the majority of unmarried mothers and a growing number of married mothers avail themselves of this service. The cost of operating these centres is shared by central and local governments with the co-operation of private organizations. By an Act of 1946 every woman who fulfils the conditions of admission to a sick club (approximately 75 per cent. do so) may receive daily and free of charge half a litre of whole milk from the third month of pregnancy until six months after the birth of the child, for whom an additional half-litre is provided. The expenses are defrayed by the Government and the commune. For infants under one year the parents can obtain supervision by public health nurses, who pay between 12 and
19 visits to the home during this period. Up to the present time this service covers only about 60 per cent. of the new-born, chiefly owing to a shortage of fully trained public health nurses. Supervision can be supplemented by medical examination of the child at three consultations. This is generally done by the family doctor and can be continued until the child reaches school age. The doctors and midwives are paid by the State, which also shares with the communes expenditure on the salaries public health nurses. Free medical consultations are provided for healthy pre-school children, and about 50 per cent. take advantage of this service.

All schools, public and private, must appoint school doctors (normally one for every 1500-2000 children) and annual medical examinations are obligatory. One school nurse may be appointed for each doctor, and many schools have appointed school dentists as well. The school doctors are called in at intervals to give short courses of instruction on child hygiene and the diseases of children.

A revised law of 1954 provides, under the Ministry of Social Affairs, an all-round factory inspectorate with a special corps of physicians. The work includes the inspection of hygienic conditions and the investigation of occupational diseases; the treatment of patients who have contracted occupational diseases is given in the general hospitals.

Ten municipal nursing homes with a total of 570 beds have been established for the care of the chronic sick. If there are no public beds available the local authorities can admit patients to private nursing homes and pay the costs. As a general rule, old-age pensioners are members of a State-approved health insurance fund and are thus entitled to its benefits. In exceptional cases the local authority will grant special assistance to old-age pensioners without any obligation for repayment. Under the National Pension Scheme, old-age pensioners maintained in homes for the aged receive regular medical attention.

The average calorie intake in Denmark is about 3300 a day. Since the war the trend in the choice of food from the point of view of nutrition has been unfavourable. The consumption of fruit, milk and vegetables is decreasing and that of sugar is on the increase. Regular surveys are made to maintain the nutritional balance of the population and special surveys have extended to Greenland. Definite work on nutritional education is carried out in Denmark for both children and adults.

The care of mental defectives in Denmark is the responsibility of the State. Where the patient, or the person who is liable to maintain him, is able to pay, a charge is made for institutional care according to financial means. There are two subsidized private institutions. About 16 000 persons are subject to public care as mental defectives, of whom about half are maintained in institutions and the rest are boarded out in private families or supervised outside the institutions. There are also special residential and day schools as well as employment homes for the mentally backward. The great majority of hospitals for mental diseases are State concerns. They represent a separate section of the health system and come under the directorate of the State mental disease hospitals. At the end of 1954, there was a total of 11 287 beds divided as follows: seven State hospitals with 7458 beds; two municipal hospitals with 2785 beds; one private hospital with 212 beds; five psychiatric departments in general hospitals with 538 beds; beds in other general hospitals—20; one municipal sanatorium for nervous patients, with 117 beds; and two private clinics for nervous patients, with 29 beds. Mental hospitals in Denmark, as in so many other countries, are due for extensive modernization and reorganization.

The main sanitary laws date back to the middle of the 19th century. At present, sanitary regulations are in operation in all provincial towns and in almost all the rural districts. The regulations set out rules for water supply, drainage, and all the usual environmental requirements. Certain towns, especially Copenhagen, have houses and areas which are unfit for habitation according to modern standards, but it is generally recognized that slums as known in many countries do not exist in Denmark. Great attention is paid, especially in the cities, to the provision of light and air for dwellings and to the lay-out of both private houses and factories or business premises. The Town Planning Act of 1938, which applies to the whole country, makes it possible to separate industrial from residential areas to a greater extent than was formerly the case. It also contains powers to ensure the planning and siting of new houses.

The State Serum Institute is Denmark's central laboratory for bacteriological and serological tests, and it also produces sera and vaccines for use at home and abroad. Scientific research in many fields is carried out in the Institute. Serological tests for syphilis are made as a matter of routine for all persons admitted to Denmark's hospitals. In the State Vitamin Laboratory, instituted in 1931, scientific studies are made on vitamin preparations, as well as tests for safer foodstuffs, nutrition, drinking-water, etc. It is becoming more and more usual for the central laboratories to carry out tests for general practitioners, and this development is favoured by the local authorities.
FINLAND

Finland lies on the Baltic Sea between the Gulf of Finland on the south and the Gulf of Bothnia on the west. Its land boundaries are with the Union of Soviet Socialist Republics, Sweden and Norway. The area is 337,009 square kilometres, including the numerous inland waters. Of this area about 70 per cent. is forest, 9 per cent. is lakes, 9 per cent. is cultivated and 12 per cent. is unsuitable for cultivation. The climate is cold continental with severe winters.

At the 1950 census the population was a little over 4 million, and the annual rate of increase is stated to be 0.65 per cent. (4,315,100 in 1956). Approximately 3,700,000 speak Finnish; 350,000 are Swedish-speaking and 11,000 have other languages. About 65 per cent. of the population are rural. The capital, Helsinki, has 426,133 inhabitants (1956).

For local administration, the country is divided into ten provinces, each headed by a Governor appointed by the President. The unit of local government is the commune and each rural parish and each town forms a commune. There are 35 towns, 30 boroughs and 483 rural communes.

The economy is agricultural and industrial. The chief crops are potatoes, wheat, oats, barley and rye. Dairy products are also considerable. One of the main industries is forestry and sawn lumber; paper and board are exported.

Since the Second World War, the national economy of Finland has shown a continuous upward trend. The real per capita income has increased nearly 3.8 per cent. yearly, thus greatly improving the general standard of living. There has also been an intensive activity in social legislation, and although the problem of sickness insurance has not yet been solved, there is a sense of increased security which certainly reflects on the people's health.

The school age in primary schools is from 7 to 15 years.

Finland has a considerable mercantile marine, and the lakes, connected by canals, provide a remarkable system of inland communication, with a navigable length of about 4,300 kilometres. There are about 35,000 kilometres of high roads and 29,000 of other public roads. Railways, which are State-owned, extend to over 5,000 kilometres.

Since 1945 the Ministry of Social Affairs has contained six departments, dealing with such matters as research, housing, labour, insurance and welfare. The social insurance system provides family allowances, maternity allowances, vocational training and rehabilitation. In 1953, 139,000 were covered for sickness and maternity benefits and 2.25 million for old-age, invalidity and survivors' pensions.

Health

There was no centrally controlled organization of medical services in Finland before the 17th century. An association called the Collegium Medicorum was established in 1673 under private initiative, to create some order in health services. Twenty-five years later, this body was officially accepted by the Government, as the King in 1688 approved the Constitution of the Collegium and gave it authority to control all the medical services in the country. The separation of Finland from Sweden, and union with Russia in 1809 did not interrupt this development, since a State Medical Board was established in 1801 and officially recognized in 1816.

Lectures on medical subjects were given at the University of Turku, established in 1640, but the first full development came about a hundred years later, and it was not until the 19th century that a system of district doctors was organized. At that time the more important towns had their own doctors. In the second half of the 19th century, the first doctors for rural communities were appointed, and since 1885 these communities have received financial support from government funds for the employment of physicians. This service has gradually extended along the same lines, and at present each commune, rural or urban, employs one to three communal public health officers. In 1943, the former district doctors were replaced by provincial public health officers.

The history of modern hospitals in Finland begins in 1759, when the first public hospital in Turku was established. By the end of the 18th century there were six provincial hospitals in the country, with about 60 beds. In 1828 the University moved from Turku to Helsinki, and in 1833 the first university clinic was established to provide more beds and to function as a training institute for medical students. Progress was fairly slow, but several town hospitals were established later in the 19th century, and rural communities also started their own hospital programmes. Today, by far the most important part of the hospital service is in the hands of municipal and rural communities and the community associations.

The main principles underlying the health service in Finland are: (1) Local initiative: to a large extent the local population organize their health services within the frame of local autonomy. The main function of central legislation is to co-ordinate. (2) Government control: the Government, through its medical agencies, sees to it that the local authorities fulfil their health obligations. It is specially concerned with co-ordination and takes responsibility for special activities which cannot be properly decentralized. (3) Financial support: the Government generally covers 50 per cent. or more of the health service costs of local authorities. It also supports to some extent voluntary public health activities.

For administrative purposes, Finland is divided into nine provinces, and one autonomous province. To effect the governmental control of local health services there is a province doctor in each, appointed by the Government. He performs educational and
advisory functions in the communities, and at the same time maintains contact with the provincial administration of the State Medical Board. The highest professional authority is the State Medical Board, which acts under the Minister of the Interior and is responsible for health problems of nationwide importance. These responsibilities can be set out as follows:

(1) to supervise, develop and control the health services;

(2) to operate health services whenever decentralization is out of the question, as central laboratories, medico-legal work, training of health personnel other than doctors and professional auxiliaries, collecting health statistics on a national basis and developing international collaboration in the health services.

The health services can be divided, for the purposes of description, into three branches—prevention, care of the sick, and rehabilitation and care of the chronic sick.

On the preventive side, local authorities are responsible for maternal and child welfare, school health, the control of infectious diseases (including tuberculosis), mental health, environmental health, hygiene of foodstuffs, and the control of occupational safety and hygiene. For administration there is a public health board in each community which has to employ the necessary personnel, such as the community doctor, the nurse, the midwife and the health inspector. Doctors are appointed by the State Medical Board and the other personnel by the local authorities.

Communities are responsible for the care of the sick, and legislation requires them to cover the costs of a sufficient number of beds in general and mental hospitals and in sanatoria. At the present time, some part of the large general hospitals is still a government responsibility, but the trend is towards complete control by the local authority.

Chronic sickness often results in reduced income and impaired economic conditions. As the local Welfare Administration is responsible for the economically handicapped, the care of the chronic sick and of mentally or physically handicapped persons falls within the range of their services.

The great distances to be travelled, the unfavourable climate, the sparse population, together with the increasing rate of industrialization and urban development, dictate the obvious health problems of modern Finland. To some extent the after-effects of war can still be felt, especially in housing conditions.

In the matter of personal health, the following points are of importance:

(1) Although the mortality rate has been favourable in recent years, the prevalence of cardiovascular diseases, cancer and tuberculosis is still a major problem—especially as far as the rehabilitation and resettlement of patients recovered from tuberculosis are concerned.

(2) Both the absolute and the relative role of accidents is becoming increasingly serious; new problems are created—especially in rehabilitation and after-care.

(3) Sparse population and poor communications cause great difficulties in the transport of the sick.

(4) The number of hospital beds, particularly in mental hospitals, is still insufficient to meet the needs of the increasing population.

(5) The trained health personnel are too few for the operation of an effective system. It seems probable that the number of doctors and dentists would be far too small for several decades to come;

(6) Health services for the population of working age and for the aged are not developed to the same extent as services for children. Preventive services among those groups are mainly operated by voluntary organizations. No general sickness insurance system exists as yet in Finland, although plans are in preparation.

For general hospital administration there are 21 central hospital districts, of which six already have their central hospital. Where central hospitals do not exist, State-owned provincial and general hospitals provide general hospital care. In some districts where distances are great, associations of communities have regional hospitals. New central hospitals are being built, and it is expected that all the 21 central hospitals will be completed by about 1970. In 1956, hospital beds were distributed as follows:

<table>
<thead>
<tr>
<th>Hospital Type</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>General hospitals</td>
<td>13 148</td>
</tr>
<tr>
<td>Mental hospitals</td>
<td>11 496</td>
</tr>
<tr>
<td>Epilepsy sanatoria</td>
<td>212</td>
</tr>
<tr>
<td>Maternity hospitals</td>
<td>1 946</td>
</tr>
<tr>
<td>Tuberculosis sanatoria</td>
<td>6 399</td>
</tr>
<tr>
<td>Venereal diseases hospitals</td>
<td>227</td>
</tr>
<tr>
<td>Infectious diseases hospitals</td>
<td>1 158</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>34 586</td>
</tr>
</tbody>
</table>

For the care of tuberculosis patients, the country is divided into 19 districts, each of which has a central tuberculosis sanatorium. In addition, there are tuberculosis dispensaries in the districts, responsible for registration and, if possible, hospital care of new tuberculosis cases. In 1956, there were 48 such dispensaries.

In most health services, the municipal and communal health administration can be regarded as the health
unit, where preventive health service and the care of the sick are a single functional organ. This is the basic combined service.

There are two medical faculties in Finland, at the Universities of Helsinki and Turku. After a minimum of five terms, the medical candidate examination is taken and the candidate then serves for seven terms in different clinics and takes examinations in 14 different subjects in order to obtain the licentiate of medicine. For specialist’s title and rights the doctor generally has to serve four years in some university clinic or in another large hospital; this training is entirely controlled by the Finnish Medical Association, which also arranges annual post-graduate courses of two week’s duration for doctors, especially communal public health officers. Training for dentists is provided at the University of Helsinki. For the training of nurses there are 21 nurses’ schools in Finland, of which 15 are State owned, six being municipal or private institutions; the training period is two and a half years with additional specialization of one year. Nursing education is controlled by the State Medical Board. Midwives are trained at a State-owned midwifery school with a maternity hospital in Helsinki.

There are numerous voluntary organizations assisting in the health service at different levels. Their main function is to carry out health education but they often support research in the field as well, especially in the fight against diseases like tuberculosis, cancer, and rheumatism. Practically all these organizations enjoy State support, but the State authorities do not interfere with their internal affairs. Co-operation between voluntary and State authorities has always been good.

There is no regular health education system; this is provided in connexion with the practical work of the staff and is mainly based on individual contacts. Some health education is included in the school curriculum and various public efforts are made through the press and radio.

At the end of 1956, the health personnel in Finland was as follows:

<table>
<thead>
<tr>
<th>Total registered</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>2,501</td>
</tr>
<tr>
<td>Dentists</td>
<td>1,623</td>
</tr>
<tr>
<td>Veterinarians</td>
<td>318</td>
</tr>
<tr>
<td>Nurses</td>
<td>12,205</td>
</tr>
<tr>
<td>Midwives</td>
<td>4,328</td>
</tr>
<tr>
<td>Laboratory technicians</td>
<td>129</td>
</tr>
<tr>
<td>X-ray technicians</td>
<td>114</td>
</tr>
<tr>
<td>Medical gymnasts</td>
<td>283</td>
</tr>
<tr>
<td>Practical nurses</td>
<td>3,224</td>
</tr>
<tr>
<td>Psychiatric nurses</td>
<td>5,117</td>
</tr>
<tr>
<td>Children’s nurses</td>
<td>2,061</td>
</tr>
</tbody>
</table>

There are about six doctors to every 10,000 inhabitants.

The State Medical Board employs a small statistical unit which covers the statistics of the health services. It also maintains a national tuberculosis register. Statistics on mortality and causes of death are, however, compiled by the Central Statistical Office, as are the general vital statistics.

The birth, death and infant mortality rates for the period under review were as follows:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td>21.5</td>
<td>21.2</td>
<td>20.7</td>
</tr>
<tr>
<td>Death rate</td>
<td>9.1</td>
<td>9.3</td>
<td>9.0</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>30.6</td>
<td>29.7</td>
<td>25.7</td>
</tr>
</tbody>
</table>

Medical care in the homes of the people is provided mainly by the community doctors. Care of the sick is the major part of their work, but opportunities for preventive work are increasing. Private practitioners live mainly in the larger centres, and consequently the community doctors have to provide most of the medical care in rural areas. Nurses, midwives and assistant nurses play an important part in nursing care in the home.

In 1956 there were 1623 dentists in Finland, i.e., one dentist for every 2700 inhabitants.

The maternal and child health systems in Finland are identical in administration and organization, and they will therefore be described together. According to law, the communities have to establish one or more maternal and child welfare centres, taking into consideration the practical possibilities for mothers and children living at a distance to reach a centre. In 1956 there were 783 MCH centres with 2111 sub-centres, and 812 child welfare centres with 2953 sub-centres. Though visits to centres are entirely voluntary, only six per cent. of mothers and seven per cent. of children are outside the services. Though the communities alone are responsible for the organization of maternal and child health services, they are subsidized by the Government; the State Medical Board, however, supervises their activities. The health service in primary schools has been established by legislation. The communities employ part-time doctors, usually the community doctor, for the schools. The service is subsidized by the Government, and the State Medical Board as the highest authority supervises activities.

There is extensive legislation in Finland for the protection of employees. The protective measures cover, for example, the length of the working day, factory inspection (there is, however, no medical factory inspection), industrial accidents, and occupational diseases. For injuries and diseases due to occupational environment, the employee is entitled
to compensation according to detailed rules defined in the laws. Numerous relief funds are in operation, securing compensation for sickness and other hazards for some 250,000 industrial workers. For scientific research in the field of occupational health there is the Institute of Occupational Health at Helsinki, operating partly on government subsidy.

Health care for the chronic sick and for the aged in Finland belongs mainly to the sphere of the Ministry of Social Affairs, and is still in an early stage of development. The chronic sick and the aged benefit from local health services, such as the visits of the nurses, but they receive their most important aid from the Communal Welfare Boards. The communities are obliged to finance, separately or in association with neighbouring communities, homes for the aged, where a sufficient number of beds for the sick must be maintained. The role of voluntary and religious organizations in the care of the chronic sick and the aged is considerable.

The most notable trend in nutrition is the increasing use of milk and dairy products in Finland. The Government, using various measures, supports this development, and also pursues an agricultural policy in order to render the country self-supporting in the production of cereals as well.

The country is divided into 18 districts for the mental health service, each district being obliged to run a central mental hospital with a sufficient number of beds. There are about 10,700 beds in these hospitals, and about 500 beds in State-owned mental hospitals. For preventive activities, after-care and resettlement of patients there are so far only seven psychiatric centres in operation, but new centres are being built. For the care of chronically sick mental patients, recent legislation has drawn up a building programme for so-called B-hospitals, the need of which is estimated to be about two beds per 1000 inhabitants.

Primarily, both the prevention and the care of communicable diseases are the duty of local Health Boards. Each verified or suspected case must immediately be reported to the Board, which, in turn, has to investigate without delay the nature of the disease, its spreading, cause and source. The Board has to give such instructions and take such precautions as are considered necessary under the circumstances and may apply to the provincial health officer and the State Medical Board for assistance. The latter has an epidemiological department with an epidemiologist and a specially trained nurse. The cost of prevention and care of communicable disease is borne mainly by the communities.

For sero-bacteriological services the country is divided into six Laboratory Districts, each of which has a State-supported sero-bacteriological control laboratory, with a pathologist and a chemist on the staff. Some of them also have university and communal laboratories. The State Serum Institute in Helsinki is the most complete central laboratory, which functions at the same time as a salmonella, shigella and influenza centre. This institute comprises complete serological, bacteriological, virological and anaerobic departments, as well as blood grouping, hormone, and chemical departments. The work of other State laboratories is limited principally to serological and bacteriological investigations. In State laboratories, verification of communicable diseases, venereal diseases, and of tuberculosis, and determination of blood groups for maternity welfare centres are free of charge. In addition, the sero-bacteriological investigations for the State hospitals are provided free of charge.

Histopathological specimens are examined by the university laboratories and a few private pathologists at fixed fees. Clinico-chemical tests are conducted in hospital laboratories, some of which also provide these services for persons outside the hospital. Private practitioners have to resort to private laboratories for their tests, there being a network of such laboratories all over the country.

According to legislation dating from 1927, local authorities are responsible for environmental health services, though they are supervised by provincial authorities and several ministries.

About 80 per cent. of the urban population in Finland is supplied with piped water, most of the waterworks operating complete chemical purification systems. On the other hand, only about 8 per cent. of the rural population has the advantage of a public water supply. The situation in respect of sewage disposal is essentially the same, but an increasing number of rural households have access to sewers, though they may have no piping.

Industries are the most important factor in water pollution, in particular the paper and pulp industry with its vast quantities of waste. Purification of public sewage is also a problem, as septic tanks are practically the only means of purification. There are complete biological purification plants only in the ten biggest towns, and these plants are of insufficient capacity. Microbic pollution of water is, therefore, a difficulty in Finland, though natural purification in the large lakes and rivers is rapid, thus rendering the problem less acute.
FRANCE

France is in western Europe, with coastlines on the Channel and the Atlantic Ocean to the north and west, and on the Mediter-

nanean to the south. Its neighbours to the north are Belgium

and Luxembourg, to the east Germany, Switzerland and Italy;

to the south-west the Pyrenees separate it from Spain. Its

climate is temperate: maritime in the west, semi-continental

in the east, and Mediterranean in the south.

The country covers an area of 551 000 square kilometres.

At the last census, in 1954, its population was 42 777 174, of

whom 1 500 000 were residents of foreign origin. At the

beginning of 1958, the population was estimated at 44 289 000.

The average density is 78 per square kilometre.

The economy of France is both agricultural and industrial,

the latter having developed very considerably since the last

war. It is estimated that 7.5 million persons are engaged in agriculture,

4.5 million in industry, and 1.5 million in commerce. The urban

population represents about 56 per cent. of the whole; there are

24 towns with more than 100 000 inhabitants, and Paris, the

capital, has a population of 2 850 000.

There are 186 000 square kilometres of cultivated land,

123 000 square kilometres of pastureage, 15 750 square kilometres

of vineyards, 113 000 square kilometres of woodland, and about

56 000 square kilometres of moors and uncultivated land.

The main agricultural products are wheat, barley, rye, maize,

oats, potatoes and sugar-beet. Orchards abound and are

very productive, and vineyards are cultivated on a very large

scale. Livestock-raising, milk and dairy produce also constitute

important items in French agriculture.

France produces coal, copper, lead, silver, antimony, salt, etc.,

and petroleum production has recently begun to be developed.

The principal industries include metallurgy, chemicals, textiles,

glass and pottery, jewellery and cabinet-making. The chief

imports are crude petroleum, coke, machinery, untreated hides,

rubber, copper and coffee. Exports include chemical products,

textiles, motor vehicles, glassware, perfumes, soap, and wine.

There are about 82 000 kilometres of national highways,

267 000 kilometres of departmental or main (inter-communal)

roads, and nearly 300 000 kilometres of local roads. There are

about 42 000 kilometres of railways, of which more than 4000

kilometres are electrified. The national airline runs services

extending over 310 000 kilometres. Rivers and canals provide

9000 kilometres of navigable waterways.

Owing to the geographical characteristics, climate, and cultural

heritage of France, the tourist trade has been highly developed

and is today one of the primary factors in the country's economy.

By far the greater part of French economy is in private hands.

Nevertheless, this does not by any means apply to the national

economy as a whole, and many industries are nationalized,

including coal, gas, electricity, atomic energy, a large part of

insurance, and the largest company producing automobiles.

There are also undertakings run on a mixed-economy basis, in

which private capital is invested but in which the State is often

the most powerful share-holder—such as petroleum, railways,

shipping companies and airlines, aeronautical construction, arms

manufacture, etc. Present-day French economy is essentially

one of "controlled liberalism".

Since the French Revolution, education in France has been

"free and the same for all citizens". Nowadays, school attend-

ance is compulsory from 6 to 14 years of age. There are three

grades of schooling: primary, secondary and higher. Technical

education is also available. Schools may be public (i.e., belong-

ing to the State) or private; uniformity of teaching is maintained

by the fact that the State alone issues certificates and diplomas.

At the present time 6.5 million pupils and students are attending

the State schools, colleges and faculties, and 1.5 million are

attending private educational establishments.

Politically, France is a republic, based on the existence of

three separate authoritative bodies—executive, legislative, and

judicial—the President of the Republic being the supreme arbi-

trator. The President of the Council of Ministers, who is head

of the Government, holds the executive power; the legislative

power is in the hands of the parliamentary Assemblies, elected

by universal suffrage.

Administratively, France is divided into departments; there

are 90 metropolitan departments as well as those of Algeria,

Martinique, Guadeloupe, French Guiana and Réunion. In

each department the Government is represented by a prefect, who

exercises authority over all the departmental services attached

to the various ministerial administrations. An elected Assembly,

the Conseil général, is responsible for the management of depart-

mental affairs, and it is this body which votes the departmental

budget; its decisions are subject to the approval of the central

authorities. The departments are divided into districts (arron-

disements), each with a sub-prefect; districts are in turn sub-
divided into cantons, and cantons into communes. There are

about 40 000 communes, these being the smallest administrative

units; communal affairs are managed by an elected Assembly—

the municipal council—and are administered by a mayor elected

by the municipal council.

Health

The Ministry of Public Health and Population is the

supreme authority in health matters at the national

level. Although certain health services (such as

industrial health and school and university health

services) are attached to other administrations, the

Minister for Public Health and Population retains

responsibility for health conditions in the country

as a whole, and ensures technical supervision and

co-ordination of all activities connected therewith.

At the central level, the Ministry of Public Health

and Population comprises four departments or

services: general administration; public health ad-

ministration; the central pharmacy service, and general

administration of population and welfare. The

responsibility for administration of health affairs

rests with the Department of Public Health Administra-

tion and—in its more limited sphere—with the

Central Pharmacy Service.

The Department of Public Health Administration

has four main divisions which are responsible

respectively for: (a) the practice of medicine and allied

professions; (b) problems of hospital organization,

building, and maintenance; (c) public hygiene (control


1 See page 255 (Algeria); pages 182-183 (Martinique, Guade-

loupe and French Guiana); and page 132 (Réunion).
of communicable diseases, sanitary control of frontiers, environmental sanitation, thermal spas, and public health laboratories; (d) social hygiene (health protection of mothers and children; control of tuberculosis, leprosy, cancer, rheumatism, diabetes, venereal diseases, mental diseases and alcoholism; organization of blood transfusion services; health problems relating to old age and the aging of the population; functioning of the medical social welfare services). Furthermore, an Office for International Relations ensures liaison with international bodies concerned with health matters, and particularly with WHO. Within the Ministry of Public Health and Population are consultative committees which advise the Administration on technical questions; among these are the French Higher Public Health Council (Conseil supérieur d'Hygiène publique de France), the Permanent Social Hygiene Council (Conseil permanent d'Hygiène sociale), and the Higher Council for Hospitals (Conseil supérieur des Hôpitaux).

At the local level, health organization follows the administrative pattern outlined above; it is based on the department, and the prefect of the department is responsible for health administration. Under his authority, it is the departmental Director of Health who directs, supervises and co-ordinates the health services as a whole. This official, who is a physician, is a member of the Health Inspectorate staff, a body of State officials attached to the Ministry of Public Health and Population. The qualifications required in order to become a member of the Health Inspectorate staff are as follows: (a) to have followed a postgraduate university course leading to the Certificate of Special Studies in Hygiene, Health and Social Work (Certificat d'études spéciales d'hygiène et d'action sanitaire et sociale); (b) to have passed competitive recruitment tests organized by the Ministry of Public Health and Population; and (c) to have completed a year's practical course at the National School of Public Health and obtained the Public Health Diploma.

The Director of Health acts at the departmental level for the central administration; his extremely wide functions correspond to those described above in connexion with the Department of Public Health Administration, and he is assisted by one or more deputies of lower grade but with the same qualifications. The national consultative committees mentioned above have their counterparts at the departmental level in such bodies as the Departmental Health Council (Conseil départemental d'Hygiène) and others which assist the prefect and for which administrative services are provided by the Director of Health.

Although strictly speaking there are no health administration services at the regional level, certain functions of a regional nature are carried out (in addition to their departmental duties) by some high-grade Directors of Health — or Divisional Inspectors — residing in large towns in which there are faculties or schools of medicine and large hospital establishments. One example of such regional functions is the planning and putting into operation of the health equipment programme. In the same way, pharmacy inspectors supervise the application of laws and regulations relating to pharmacy under the authority of the Divisional Medical Inspectors and in liaison with the departmental Directors of Health. There are 16 regional areas, each comprising a number of departments, and corresponding to the Social Security areas — an arrangement which is essential for effective co-ordination of the two administrations.

In the towns, the mayor is responsible for ensuring public health protection, under the administrative authority of the prefect, and subject to the technical supervision of the departmental Director of Health. It is compulsory for a Health Office to be established in all towns with more than 20 000 inhabitants and in all communes with not less than 2000 inhabitants in which there is a thermal spa or a health resort. This office is directed by a physician, working on a full-time or part-time basis according to the size of the area and population, and technically responsible to the departmental Director of Health.

There are about 40 000 physicians in France, or an average of one physician for every 1100 inhabitants, although the ratio varies in different areas from one to 500 to one to 2000. Of the total number of physicians, some 11 000 are specialists in one or another of the branches of medicine or surgery. There are about 15 000 pharmacists, 15 000 dental surgeons, and some 10 000 midwives. The total number of nurses is 80 000, or a ratio of 1:550, but here again the proportion varies from one area to another.

Medicine is a liberal profession in France; it is governed by a legally constituted organization, the National Medical Association (l'Ordre national des Médecins), and only those persons who are registered with the Association may practise medicine. The Association has departmental councils, regional councils (disciplinary bodies), and a national council composed entirely of practitioners elected by their fellow-members. The Association acts as intermediary between the medical profession and the public authorities at both national and departmental levels. Similar regulations govern the practice of the para-medical professions, although there is no professional asso-
ciation for nurses, who are directly responsible to the Ministry of Public Health and Population.

Apart from the free practice of the medical and para-medical professions, a certain number of physicians, pharmacists, nurses and others are attached to national public services (such as the Health Inspectorate and the Pharmacy Inspectorate), to departmental public services (physicians attached on a full-time basis to the departmental social hygiene services), or to communal public services (medical officers in charge of municipal health offices), or hold salaried posts. The school and university health services and the industrial health services also employ a large number of medical and auxiliary personnel.

Health establishments provide some 428,000 beds in hospitals and hospices. Of this number, 346,000 beds are in government hospitals (198,000) and hospices (148,000), and 82,000 are in private establishments. It may be noted here that it has always been a tradition in France for old people’s hospices to be an integral part of the hospital system. Hospitals are classified, according to the size of the area they serve, in three categories with a greater or smaller number of services and degree of specialization. The smallest units are simply known as hospitals, larger establishments are called hospital centres, and the largest (which are set up in towns with a faculty or school of medicine) are regional hospital centres, providing facilities for treatment, teaching and research. For administrative purposes the smallest unit, the hospital, is based on the commune and is managed by an Administrative Committee under the chairmanship of the mayor. It nevertheless forms part of the departmental and regional health facilities, and it is at the regional level of the Divisional Inspector that all hospital equipment programmes are drawn up and competitive recruitment of medical staff for the hospitals takes place.

There are, furthermore, the following facilities for the control of diseases of social importance: 71,700 beds in tuberculosis sanatoria and preventoria, with an additional 4,000 beds for rehabilitation; 16 regional cancer control centres (with a total of some 2,000 beds) where case-finding, treatment, research and training are carried out; 471 mental health clinics and 100 psychiatric hospitals, with a total of 100,000 beds. Other specialized units include 110 blood transfusion centres and stations, and a very large number of establishments providing maternal and child health services, including 9,000 infant welfare clinics.

The problem of medical care was of first importance after the war, on account of the losses and damage sustained by the hospitals, and very considerable efforts were made from 1946 onwards; the first four-year equipment plan came into operation in 1954, to be followed by a second plan in 1958. The equipment plan is based on the following guiding lines: (a) reconstruction of hospital establishments which had been damaged or destroyed, modernization of old hospitals, and building of a certain number of large hospital units; (b) awareness of the problems of mental disease; (c) increase in the already considerable facilities for protection of maternal and child health; (d) concentration and improvement of facilities for cancer treatment; (e) complete organization of blood transfusion facilities; and (f) a new and large-scale effort to provide further facilities for care of the aged. This plan has ensured that the programmes are harmonized and co-ordinated at the national level, and has provided for State financial aid, which greatly encourages local communities. Furthermore, apart from its equipment aspect, much emphasis has been placed on matters which cannot be expressed in figures, such as the reception of patients, home care, and the human element in medical care.

An outline of health organization in France would be incomplete without mention of the social security system, whose influence on the health and social development of the country has been, and still is, very great. The most important feature of this system is that it covers, without distinction, all men and women who work for their living, as well as the dependent members of their families. Insurance covers first of all sickness risks; the insured person is entitled to reimbursement (up to 80 per cent., and in some cases up to 100 per cent.) of fees for medical consultation, in-patient care in hospital, dental care, laboratory examinations, and purchase of medicaments and orthopaedic appliances. In case of long-term illness (such as tuberculosis), the insurance covers all expenses without any time-limit; for the patient, it also includes the payment of an allowance equivalent to one-half of his salary for a maximum period of three years. Secondly, insurance covers maternity benefits, which are of a similar nature, and, finally, it covers invalidity and death.

French demographic policy has led to the inclusion in the social security system of important provisions for the assistance of families, such as maternity benefits, pre-natal allowances, single-wage allowances, family allowances and housing allowances; it also provides for assistance to aged persons, such as old-age pensions and allowances to aged remunerated workers. It is generally believed that family allowances have had a considerable influence on demographic evolution. Certain supplementary guarantees are provided with respect to accidents of employment and occupational diseases. All physicians
without distinction may attend socially insured persons, and the latter are free to choose their own physician. In this way the advantages of social security have been reconciled with the free practice of the medical profession.

The social security system is not limited to insurance against risks or expenses; the social security bodies also take an active part in preventive work and promotion of health from many points of view, and they are thus closely associated with the national health administration. In particular they provide financial assistance, in addition to that of the State, for the construction or renovation of establishments for medical and preventive care; they also devote large sums to such subjects as research, teaching, and health education.

During the past ten years there has been a decline in the general death rate and a rise in the birth rate. The death rate, which was 19.5 in 1944, has fallen to 12.0 since 1954; the birth rate fell from 14.6 in 1939 to 13.1 in 1941, but rose to 21.0 in 1947 and has remained high since then. The population of France has therefore been increasing regularly for the past ten years, and furthermore the population is on the whole younger in spite of the longer average expectation of life. This increase in life expectancy raises delicate economic, social and health problems in connexion with old people, but these problems will be easier to solve in view of the increased birth rate and the larger place in the age-pyramid which will be taken up by the active and productive elements of the population in the years to come. When the birth rate was at its lowest, infant mortality reached its highest level, rising from 61 in 1939 to 108 in 1945. It then declined gradually until in 1957 it was 29. In some areas even better rates have been recorded — 24, and even 19. These figures make it incumbent upon the public authorities to increase their efforts to obtain a further reduction of infant mortality in France in the future.

Morbidity and mortality from communicable diseases rose considerably as a result of the war, but here again the situation has completely changed in the past ten years. In 1936, mortality from tuberculosis was 118 per 100,000 population; in 1942 it had reached 158, but by 1956 it had fallen to 28.5. The decline has been rapid and continuous since 1946, at an average rate of about 8 per cent. a year. This development has been all the more remarkable in that tuberculosis mortality has decreased much more rapidly than general mortality; in 1943 it represented 9 per cent. of all deaths, while ten years later — in 1953 — only 3 per cent. of all deaths were due to this disease. Nevertheless, tuberculosis mor-
** Algeria is a constitutional part of the French Republic. It is situated in North Africa between Tunisia and Morocco, and extends for 1000 kilometres along the shores of the Mediterranean opposite the sea coast of Languedoc and Provence. Its total area is 2 205 000 square kilometres. For administrative purposes, Algeria is divided into a group of departments, each under the authority of a prefect. The population of the Algerian departments is 10 028 000.**

The economy of Algeria still rests mainly on the products of the soil, cereals being grown on more than half the arable land. The subsoil is particularly rich in iron, phosphate and petroleum. For the past few years a great effort has been made to modernize production methods and processing industries, and this has also had a very beneficial effect upon the health services.

Health services in Algeria are similar to those in the other departments of metropolitan France, with certain adaptations required for the organization of medical care and preventive services for scattered rural populations.

Facilities for medical care in Algeria in 1953 included 135 hospital establishments (of which 112 were general and 14 were specialized hospitals) with a total of 24 284 beds. Since that time emphasis has been laid primarily on the construction of establishments for the treatment of tuberculosis patients and mental cases.

It should be noted that there are certain endemic diseases in these departments which are not found in the other departments of metropolitan France, the most important being malaria and trachoma.

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** FEDERAL REPUBLIC OF GERMANY **

The Federal Republic of Germany is bounded on the east by the German Democratic Republic and by Czechoslovakia; on the south by Austria and Switzerland; on the west by France, Luxembourg, Belgium and the Netherlands; and on the north by Denmark and the North Sea, on which open the ports of Bremen and Hamburg. The northern plains rise gradually to culminate in the Bavarian Alps on the Austrian border. The area, including the Saar, is 247 946 square kilometres.

The Federal Republic covers ten states, or Länder, comprising North-Rhine-Westphalia, Bavaria, Baden-Württemberg, Lower Saxony, Hesse, Rhineland Palatinate, Schleswig-Holstein, Hamburg, Bremen and the Saar. West Berlin is not a formal member of the Federal Republic. By the end of 1955 the population of the Federal Republic of Germany was 50 000 000. West Berlin had 2 200 000 inhabitants and the Saar 992 000. The capital, Bonn, had a population of about 141 000. The population density of the Republic was 205 per square kilometre.

The net national production at factor cost in 1955 was reported to be equivalent to US $30 000 million, to which industry contributed 44.6 per cent., agriculture and forestry 9.0 per cent., and commerce and transport 8.4 per cent.

The cultural pattern of West Germany is Western European and the educational level of the people is high. All children between the ages of 6 and 14 must attend a recognized school. In 1954 there were some 30,000 primary schools, 2312 middle and secondary schools, 8440 technical and about 1000 special, training and higher institutions. In 1953 there were 17 universities with about 77 000 students, 12 Catholic training colleges and seven technical colleges. In round figures the total primary school population was five million, secondary 1 200 000 and technical over 2 200 000.

Public assistance is given to all who are unable to earn their living. There are also insurance pensions, war and widows' allowances, and unemployment relief. The total number of persons insured under social health insurance in 1954 was 23 800 000, and 23 500 000 persons were insured under accident insurance enforced by law.

Health

In 1919 a State Constitution came into force which gave the Central Government concurrent powers with the Länder on certain important matters, including health, veterinary medicine, population policy, maternal and child health and the health care of adolescents. The public health administration was completely reorganized by a law of 1934 which provided for the distribution of health departments in urban and rural districts in such a way as to secure much greater uniformity of the health services.

Under a basic law passed in 1949 in relation to the structure of the Federal Republic the major powers in health services were given to the Länder. The Federal Government retained rights of concurrent legislation in certain matters. Provisions for preventive medicine and health education are included in the basic laws.

The national health administration consists of a Federal Health Board, a Federal Health Office and a Health Division in the Federal Ministry of the Interior, with a Director-General in charge of the Division. The Federal Health Board is composed of 80 persons, whose duty it is to advise the Government on all public health matters. The Federal Health Office is responsible to the Federal Ministry of the Interior for carrying out research work in public health, medical statistics and narcotics control. The Robert Koch Institute, the Max von Pettenkofer Institute and the Institute of Water, Soil and Air...
Hygiene in West Berlin are also under the Federal Health Institute. In each of the Länder there is a Health Division attached to the appropriate Ministry—either the Ministry of Social Affairs or the Ministry of the Interior—with the exception of the City Ländere (West Berlin, Bremen and Hamburg), where a member of the city council is made responsible for public health. In addition, the Länder Health Services maintain close co-operation with other services, such as local education authorities, water economy boards, mining offices and social welfare and youth welfare offices, as well as medical bodies such as the German Red Cross Society, Caritas, the Home Mission Society and the workers' welfare organization.

The local health offices are integral parts of Stadtkreise (urban districts) or Landkreise (rural districts) which are the lowest administrative authorities. In some Länder such as Baden-Württemberg, Bavaria, Lower Saxony and Rhineland Palatinate, the health offices are directly subordinate to the state health officer of the Länder, while in the Länder Hesse, North-Rhine-Westphalia and Schleswig-Holstein all the health offices are communal institutions subordinate to Stadt or Landkreise administrations. The size of such districts varies, and the smallest comprises about 20,000 inhabitants. In 1956 there were altogether in the country 498 health offices, including 12 in West Berlin. According to the Law on the Unification of Public Health, promulgated on 3 July 1934, the local health offices have the following specific functions:

1. General health administration including supervision of the medical professions and hospitals, as well as of drugs and poisons, the control of epidemics, environmental hygiene, food hygiene, housing, industrial and school health;
2. Public health education;
3. The welfare of school children;
4. Maternal and child health;
5. Care of persons suffering from tuberculosis, venereal disease, physical disabilities, drug addicts and the care of the chronic sick.

The total health expenditure in 1955 of the Federal Government and the Länder (including West Berlin) was DM 2,017,254,000 (US $480,298,571), or 3.9 per cent. of the total expenditure. At the close of 1955 there were 70,902 physicians (of whom 84.2 per cent. were men) in the country, including those not in practice. The number of general practitioners was 42,382, including 5,793 women. The ratio of practising general practitioners to the population including those in hospitals was 1: 805. In 1955 the number of physicians employed full-time by public authorities or in scientific institutes, private business or in other institutions was 5,084. Of the 67,602 active physicians (3,300 were retired on account of age or marriage), 23,371 were qualified specialists. At the end of 1955 the total number of medical and health personnel, including auxiliary personnel, active in the country (including West Berlin) was 284,794.

At the end of 1955 graduate dentists numbered 29,180. Nursing personnel, excluding those in training, numbered 116,101, of whom 11,877 were men. Local authorities employed 13,598 nurses. The number of midwives was just over 10,000 and is declining. On the whole, there are about 23 nurses of both sexes per 10,000 of the population.

In the same period, 1,610 full-time physicians and 147 full-time dentists were employed in the 480 health offices of the Federal Republic. An increasing share in the health service is taken by the part-time practitioners, who numbered over 3,000 in 1955.

The number of hospitals at the end of 1955 was 3,353, with an additional 149 in West Berlin. In the 3,353 hospitals the total number of beds was 530,096, the rate being 10.5 per thousand population. The number of in-patients during the year was about 6.2 million, representing about 173 million patient days. At the same time, the hospitals were staffed with 20,097 full-time physicians, 6,892 general practitioners treating and attending their patients in the hospitals but not employed by the hospitals, 86,573 nurses (male and female), 5,060 midwives, 15,116 medico-technical aides, 17,967 personnel engaged in administrative work, and 105,048 in domestic duties. The student nurses, male and female, including midwives working in the hospitals, numbered 16,347. The ratio of trained nursing staff to number of beds was 16:100.

There are in the territory of the Federal Republic 16 faculties of medicine in universities, a medical academy for physicians and an academy of medical research. The annual number of medical graduates was 2,069 in 1954, 1,521 in 1955, and 941 in 1956. In the summer semester of 1956, there were 10,968 medical, 1,735 dental, and 2,723 pharmacy students in these institutions. Training facilities for allied medical and health personnel available in the country in 1956 were as follows:

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>Number of Institutions</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwifery schools</td>
<td>21</td>
<td>338</td>
</tr>
<tr>
<td>Maternity care training establishments</td>
<td>12</td>
<td>43</td>
</tr>
<tr>
<td>Infant and child nursing schools</td>
<td>127</td>
<td>3,389</td>
</tr>
<tr>
<td>Dietitian training schools</td>
<td>13</td>
<td>229</td>
</tr>
<tr>
<td>Clinical (sick) nursing schools</td>
<td>458</td>
<td>10,082</td>
</tr>
<tr>
<td>Schools of physiotherapy</td>
<td>34</td>
<td>1,026</td>
</tr>
<tr>
<td>Schools for medico-technical assistants</td>
<td>35</td>
<td>2,023</td>
</tr>
<tr>
<td>Schools for welfare and youth welfare workers</td>
<td>34</td>
<td>1,611</td>
</tr>
</tbody>
</table>
The birth rates during the years under review were: 15.7 in 1954, 15.7 in 1955, and 16.4 in 1956. The proportion of illegitimate births in 1955 was 7.7 per cent. Stillbirths have remained at 2 per cent. of the total births for some years. The death rate for all ages, which averaged 10.5 during the years 1950-54, rose to 10.8 in 1955, and 11.2 in 1956. The infant mortality rate shows a steady improvement: 42.8 in 1954, 41.5 in 1955, and 38.4 in 1956. Neonatal death rates during the same period were 28.9, 27.9 and 25.6. The maternal mortality rates were 15.0 in 1954 and 16.0 in 1955.

With the upward trend of expectation of life at birth there is a substantial increase in the number of old people in proportion to the total population; 10 per cent. of the population was over 60 years of age in 1956. This figure raises special problems of medical and economic care of the age-group in question, the provision of special employment and housing playing an important role.

The major causes of death in 1954 and 1955 were reported as follows:

<table>
<thead>
<tr>
<th>Disease Category</th>
<th>1954</th>
<th>1955</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malignant neoplasms, including neoplasms of lymphatic and haematopoietic tissues</td>
<td>92,350</td>
<td>94,729</td>
</tr>
<tr>
<td>Arteriosclerotic and degenerative heart diseases</td>
<td>80,675</td>
<td>87,867</td>
</tr>
<tr>
<td>Vascular lesions affecting central nervous system</td>
<td>79,665</td>
<td>83,816</td>
</tr>
<tr>
<td>Senility without mention of psychosis, ill-defined and unknown causes</td>
<td>41,805</td>
<td>43,279</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>17,596</td>
<td>18,697</td>
</tr>
<tr>
<td>Accidents</td>
<td>26,497</td>
<td>28,579</td>
</tr>
<tr>
<td>Unqualified diseases peculiar to early infancy and immaturity</td>
<td>16,738</td>
<td>16,054</td>
</tr>
</tbody>
</table>

During the period under review, the numbers of reported cases of certain communicable diseases were as follows:

<table>
<thead>
<tr>
<th>Disease Category</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>96,103</td>
<td>91,655</td>
<td>85,562</td>
</tr>
<tr>
<td>Whooping-cough</td>
<td>41,113</td>
<td>41,014</td>
<td>38,145</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>14,358</td>
<td>11,719</td>
<td>8,232</td>
</tr>
<tr>
<td>Typhoid fever (including paratyphoid fever)</td>
<td>5,857</td>
<td>6,594</td>
<td>4,980</td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td>2,713</td>
<td>2,869</td>
<td>4,109</td>
</tr>
<tr>
<td>Syphilis (not including cases in Länders of Schleswig-Holstein and Bavaria)</td>
<td>8,910</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of the 530,096 hospital beds available in the country in 1955, about 16,112 were allotted to cases of infectious disease (excluding venereal diseases), and 62,115 to tuberculosis patients.

Measures were taken to prevent certain infectious diseases through active immunization of the population. For example, smallpox vaccination was made compulsory for both first vaccination and re-vaccination, and during 1954 and 1955 immunizations were carried out against cholera, yellow fever, typhus, diphtheria, whooping-cough, typhoid fever, tetanus, rabies and tuberculosis (BCG).

Maternal and child health activities include the services offered by advisory centres for expectant mothers at the health departments in the large cities, frequently combined with gynaecological clinics. At the infant welfare centres all infants are given vitamin D preparations for the prevention of rickets. At a later stage, health supervision is undertaken in the kindergartens. The following figures give an indication of the extent of facilities at the end of 1955:

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Number of Establishments</th>
<th>Places Available (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant nurseries</td>
<td>348</td>
<td>15.7</td>
</tr>
<tr>
<td>Children's homes</td>
<td>1,045</td>
<td>71.5</td>
</tr>
<tr>
<td>Convalescent and recreation homes for children and minors</td>
<td>919</td>
<td>53.2</td>
</tr>
<tr>
<td>Crèches</td>
<td>294</td>
<td>14.3</td>
</tr>
<tr>
<td>Kindergartens</td>
<td>10,853</td>
<td>738.0</td>
</tr>
<tr>
<td>Collective nurseries (including day nurseries)</td>
<td>1,196</td>
<td>63.8</td>
</tr>
</tbody>
</table>

In the school health services, children are examined as a rule in the first, fourth and eighth (last) school years, and children who need medical treatment are referred by the school doctors to the family physician. In the larger cities school health consultative services have been created for boys and girls attending vocational centres. Many of the health offices have set up clinics for dental health care especially for schoolchildren. The main purpose is preventive, and children found to have defects in the teeth or jaws are referred to local dental surgeons for treatment.

The Federal Ministry of Labour is responsible for occupational health at the national level. At the Länders level the work is associated with either the Ministry of Labour or the Ministry of Social Affairs. Factory inspection work is carried out by State-appointed industrial physicians, who are mainly concerned with research and clinical work on occupational diseases. There is no special health organization for the care of the chronic sick, but the functions are distributed among the various branches of health care, such as tuberculosis and mental disorders. The local health offices have definite responsibility for organizing and financing the care of those patients who have to be admitted to hospital. In the case of old persons admitted to institutions the costs of accommodation, medical fees etc. are borne by the public welfare department. On the other hand, a considerable number of elderly people who require medical and financial assistance are dealt with in
their own homes. In many cases they are provided with a home nurse in order to avoid hospital admission.

Some health offices and clinics have established advisory centres, conducted by psychiatrists, for the care of the mentally ill. In 1955 there were 156 hospitals with 92,009 beds for psychiatric and neurological cases, including mania. The educational advisory centres, such as those for child guidance, are served by special educators including psychologists who work in close cooperation with parents or guardians.

Alcoholism and drug addiction have been dealt with by the German Centre against Alcoholism and Drug Addiction, and in 1956 the Länder of North-Rhine-Westphalia reported a total of about 30,000 alcoholics cared for by the advisory and welfare centres, compared with 24,000 in 1954. The number of known drug addicts in the Federal Republic is decreasing; in 1954 it was 5228; in 1955, 5106; and in 1956, 4784.

With regard to environmental sanitation it was reported that about 83 per cent. of the population were centrally supplied with water at the end of 1956. In 1954 over 61 per cent. of the people in the Federal territory were served by public sewerage systems, and a number of sewage plants which were destroyed during the war are under reconstruction. A law was enacted in 1955 to encourage the construction of purifying plants for industrial wastes. The Federal Government grants loans of up to 30-40 per cent. of the cost of building purification plants for household waste water for the purpose of further improving the sources of water supply.

Housing conditions have improved considerably as a result of intensive building activities. The number of dwellings showed an increase of 35 per cent. between 1950 and 1956.

Systematic investigation of soil, water and other elements for radioactive substances are carried out to a limited extent by the Max Planck Institute of Biophysics, and regular measurements of radioactivity in the atmosphere are undertaken by the meteorological stations of the German Weather Bureau.

GIBRALTAR

Gibraltar is a rocky promontory, 426 metres high at its greatest elevation, connected by a low isthmus to the southern end of Spain. It is about 23 kilometres from the coast of Africa. The area of the territory is about six square kilometres.

At the 1951 census the resident civilian population was 23,232. At the end of 1957 the estimate was 25,403.

Except for the Port Development Committee, there is no special economic machinery. Plans are under way for the improvement of port facilities. There is no land suitable for agriculture and no forests, fisheries or other natural resources. There is, however, a fish- and fruit-canning factory and some other small industries employing about 750 to 1000 people.

Primary-school education is free and compulsory from 5 to 15 years and teaching is in English. There are also secondary and technical schools.

The housing shortage, which began after the war, continues to receive the close attention of the Government. The total number of permanent dwellings erected between 1954 and 1957 was 1110. Temporary dwellings totalled 423, and this number will continue to diminish as demolition of temporary structures makes way for permanent housing.

Health

The Chief Medical Officer advises on medical matters apart from hygiene, sanitation and other public health measures which come under the control of the Medical Officer of Health, who is employed by the Municipality. In 1957, 12.6 per cent. of the total budget was spent on health.

The following were the health personnel in the territory in 1957: 34 registered physicians (seven government, two city council, and 25 private); nine dentists (one in government service); 22 nurses of senior training; 21 pharmacists (three in government service); 16 certificated nurses; 98 partially trained nurses; 23 midwives of senior training; seven sanitary inspectors; six laboratory technicians (all in city council service).

The vital statistics for the civil population in 1957 were: birth rate, 21.6; death rate, 9.84; infant mortality rate, 16.33.

There is no medical school, and the medical staff are trained in the United Kingdom. Nurses who desire to obtain the United Kingdom qualifications are sent to England for training, but there is a nurses' training school which trains nurses for local registration.

In 1955 there was one general hospital with 147 beds, one hospital for cardiovascular diseases, with 60 beds, a mental hospital with 60 beds, and an infectious disease hospital with 30 beds. There are no private institutions. Ante-natal clinics are held twice a week at the general hospital. There are three infant welfare centres, and clinics are held twice weekly at the town centre and once a week at the others.
The medical department provides child welfare, school medical and dental services. It is also responsible for a district medical service which includes free domiciliary and out-patient treatment for the poor and for government servants. In 1952 a scheme was started for free x-ray examination of prospective employees. There is an active branch of the British Red Cross Society which contributes to the welfare of patients. A successful blood transfusion service is also in operation.

Potable water is supplied by the City Council and is derived from wells and rain catchments on the Rock. Water for sanitary flushing is pumped from the sea.

**GREECE**

The mainland of Greece is a peninsula jutting out from the south of the Balkans into the Mediterranean; it is deeply indented in several places by long sea inlets, and is surrounded by many islands. The country is mountainous, with fertile coastal strips and wide plains, such as the plain of Athens, the two valleys of Thessaly and the Salonika plain in Macedonia. The area of the mainland is 107,000 square kilometres and that of the islands about 25,500 square kilometres. The climate is characteristically Mediterranean.

At the last census, in 1951, the population was 7,632,801, with a density of 60 per square kilometre. It has been estimated that 29.2 per cent. of the population over 10 years of age are illiterate. Approximately half the population are engaged in rural occupations and one-quarter are workers and artisans. Each department, or nomos, is under the charge of a prefect. Since 1950 local government has been considerably strengthened, especially in revenue policies, with the help of the Ministry of Finance. In the year 1950—for the first time since 1935—every commune in Greece elected a council, which in turn chose one of its members as mayor.

Only one-fifth of the country's area is arable land, but this has to support nearly 54 per cent. of its working population; and farming is concentrated on special crops such as tobacco, currants and olives in order to pay for essential imports such as meat, wheat and flour. Among the difficulties of agriculture are soil erosion and the insufficient use of fertilizers. There are many small industries and a great variety of mineral deposits. Production is generally in private hands.

All children between the ages of 6 and 14 must attend school, and during the past generation there has been a striking decline in illiteracy. In Athens there is a polytechnic school and a number of institutions for higher education, which teach such subjects as agriculture, political science, economics and commercial science. Greece has two universities, one in Athens with 4500 students, and the other in Thessalonike with 2200.

During the war Greece suffered great damage to its roads, railways, bridges and ports. Normally about 90 per cent. of its imports and exports are sea-borne. In 1951 there were over 22,000 kilometres of roads and the total length of the railway system was 2679 kilometres of which about half was owned by the State. A national airline provides services within the country, and many foreign airlines connect Athens with the principal cities of the world.

**Health**

Since 1833, when a service known as the “Sanitary Police” was set up in the newly-created Ministry of the Interior, the national health administration of the country has undergone numerous changes. It is an accepted fact that, owing to the economic conditions that have prevailed in Greece for over 40 years, it has not on the whole been possible to organize a programme which will meet fully and effectively the public health needs of the people. The continual influx of refugees as a result of war and natural disasters during this period has seriously undermined Greek economy and affected the health development of the country.

The latest change in the organization of the country’s health services took place in 1951, when a Ministry of Social Welfare was set up and made responsible for both social welfare and health. Since 1956 this Ministry has comprised three Directorates-General: Public Health, Social Welfare, and Housing. The Directorate-General of Public Health consists of a central service and district services.

The central service is divided into eight divisions and three sections, whose duties include public health, social health, hospitals and medical care, tuberculosis control, sanitary engineering, malaria eradication, supervision of the medical and para-medical professions, rural social security, venereal diseases, trachoma, and drug control. The district services comprise public health centres, training centres for health personnel and public health laboratories.

There are at present 52 district public health centres in operation, one in each department except Attica and the Dodecanese, each of which has two centres. Every centre is staffed by a public health officer, one or more health visitors and two or more sanitary inspectors. The staffs of the large public health centres (such as those in Athens, Piraeus and Thessalonike) also include a number of specialists.

The training centres attached to the district service of the Directorate-General of Public Health are: the School of Public Health of Athens, a school for health visitors, and three schools for midwives, three schools for nurses, three schools for auxiliary nurses. The School of Public Health of Athens was founded in 1929 and trains public health officers, sanitary inspectors and health visitors.
The Athens Public Health Laboratory is engaged in microbiological diagnosis and research, analyses of water, milk and other foodstuffs, as well as in the production of vaccines. In addition there are two centres in Athens, under the district service, for the production of smallpox and rabies vaccines. The health and microbiology laboratories in the Universities of Athens and Thessalonike, the Pasteur Institute of Greece and the microbiological laboratory of the veterinary service, also produce sera and vaccines and carry on research work.

There is no uniform system in the country for the provision of medical care. Medical care services are made available in the hospitals, health centres, and dispensaries, and in the homes by provisions from the State, local authorities, social security funds, the National Institution for Social Welfare and Assistance, the Red Cross, and other public and private organizations. In 1956, for instance, 133 organizations of all types provided hospital care with a total of 26,890 beds. There were also 538 private clinics with 8,741 beds, and 82 communal public health centres with six beds each. Thus approximately 36,123 beds were available for medical care services in establishments of all types, most of which are in Athens. All are under the supervision of the Directorate-General of Public Health.

At the end of 1956 there were about 9,500 medical practitioners in the country, almost half of whom were practising in Athens and Piraeus; most of the others were also concentrated in the larger cities. There is, therefore, a shortage of both hospitals and practitioners in most rural districts.

Out-patient medical care is provided in hospital dispensaries and in polyclinics in Athens and Piraeus as well as in certain municipalities and communes. Treatment is also given in the various special centres for the control of tuberculosis, venereal diseases, trachoma, etc. In accordance with the 1955 Act on Rural Social Security, medical care for the rural population (some 4,500,000 people) is being organized, with priority given to the establishment of dispensaries in remote mountainous and isolated regions. By the end of 1956, plans had been made for 1,402 communal and rural dispensaries, of which 830 were already in operation.

The Social Security Institution and various other health insurance organizations and funds provide domiciliary medical care for their members. In accordance with the Rural Social Security Act, the State, through the Ministry of Social Welfare, must provide the rural population with home medical care by general practitioners and the staff of rural and communal dispensaries.

The vital and health statistical services have been in the process of reorganization since 1945. During the period under review, birth rates were 19.2 in 1954, 19.4 in 1955 and 1956; death rates were 7.0 in 1954, 6.9 in 1955, and 7.4 in 1956; infant mortality rates were 42.3 in 1954, 43.5 in 1955, and 39.2 in 1956. The chief causes of death during the same period were: all types of heart and vascular diseases, malignant tumours, infectious diseases, accidents, and other causes of ill-defined origin.

Before the war Greece was classified among the countries with the highest morbidity and mortality rates for tuberculosis. In order to improve this situation, a tuberculosis division was established in 1951 in the Ministry of Social Welfare. The number of sanatorium beds was increased by 1,550, and a total of 7,729 beds for the care of tuberculosis patients was thus available in 1956, exclusive of the army's 650 sanatorium beds. During the past four years the dispensaries of the district public health centres have been giving care and treatment to indigent tuberculosis patients, and providing them with drugs such as streptomycin, PAS and dianicotyl. Between 1948 and 1956, 2,900,000 persons were tested for tuberculosis and approximately 1,680,000 were vaccinated with BCG. Mass x-ray examination of the population has been undertaken by the Athens Research Institute for Thoracic Diseases and by its branch in Thessalonike. From 1946 to the end of 1956 these institutions examined approximately 1,300,000 persons of different population groups, of whom approximately 106,000 were found to be infected with tuberculosis. The microbiological laboratory of the Athens Research Institute is also carrying out research work on thoracic diseases.

Trachoma is present in endemic form. Owing to the war and the influx of refugees, this disease increased very much fifteen years ago, when its index for the population as a whole was stated to be between 3 and 3.5 per cent. Fifty to sixty dispensaries were subsequently established to provide treatment for persons suffering from trachoma and other communicable eye diseases. A special hospital with 57 beds was opened for the treatment of trachoma among orphans and unprotected children. Although trachoma is still prevalent in some of the islands and in the northern districts of the country, where economic difficulties have prevented any measures from being taken as yet, the disease on the whole is believed to be on the decline.

Malaria was prevalent in the country before the war, but the large-scale control campaign with new insecticides initiated in 1946 has been most effective in reducing this disease. The number of cases reported
during the period under review was 16,000 in 1954, 12,000 in 1955, and 2700 in 1956.

Polio myelitis, typhoid and paratyphoid fever, leprosy, undulant fever, measles, encephal meningitis, diphtheria, scarlet fever, whooping-cough, mumps, infectious hepatitis and bacillary and amoebic dysentery are quite common in certain parts of the country.

The prevention of communicable diseases and the control of epidemics is one of the chief concerns of the Directorate-General of Public Health. Two hospitals for communicable diseases have been established in Athens and Thessalonike, with a total of 500 beds, and the various general hospitals have also set aside beds for such cases. There are, furthermore, four leprosaria, with a total of 687 beds, in Athens, Crete and the islands of Samos and Chios.

The 52 district public health centres are giving attention to the improvement of water supplies and sewage and garbage disposal, and to environmental sanitation in general. A section for health education of the public was set up in the Ministry in 1952 and is disseminating health knowledge among the population by means of pamphlets, broadcasts, films and lectures. Preventive inoculations and vaccinations have also been carried out on a wide scale.

Maternal and child health is to a great extent the responsibility of the National Institution for Social Welfare and Assistance (PTKPA), which was established in 1929 and is now under the administration of the Directorate-General of Social Welfare in the Ministry of Social Welfare. This institution has set up some 80 MCH clinics in different parts of the country. Mother and child health care during the ante-natal and post-natal period, and during infancy and pre-school and school age is also provided by the public health centres. There are four maternity homes in the country with a total of 682 beds; two of these homes are in Athens, with 520 beds, one in Thessalonike with 120 beds and one in Chios with 42 beds. Beds for maternity and obstetrical cases are also available in the general hospitals and in private maternity and gynaecological clinics. Five children's hospitals, with a total of 520 beds, provide treatment for sick children; two of these hospitals are located in Athens, and provide between them 360 beds.

The School Medical Service is under the administration of the Director of School Hygiene of the Ministry of National Education and Religious Matters. A school canteen programme has been in operation for the last two years, providing 600,000 schoolchildren yearly with a school breakfast consisting of milk, butter and cheese, which gives them 750 calories. Likewise, 135 school holiday establishments, well located and equipped, receive annually some 60,000 children selected on the basis of health and certain social considerations.

The number of beds available for persons suffering from mental diseases seems to be inadequate, although the number of cases of mental illness in Greece is not exactly known. The Ministry of Social Welfare has set up a committee of experts to study the various aspects of the problem and to draft legislation providing for the organization of mental health services on modern lines.

Other plans for the future development of the public health services include: reorganization of the Directorate-General of Public Health and development of the public health and preventive functions of the sections concerned; extension of hospital facilities; co-ordination of all public health work; speedier development of rural sanitation; and implementation of a large-scale programme for the eradication of malaria.

HUNGARY

The People's Republic of Hungary is a country enclosed in the centre of Europe, bordered by Czechoslovakia, the Union of Soviet Socialist Republics, Romania, Yugoslavia and Austria. It has an area of 93,030 square kilometres.

The largest river in the country is the Danube which divides it into two main regions: to the east, the Great Plain (Nagylfold), which is the most fertile part of Hungary; and to the west, the Transdanube (Dunántúl), a region of hills and mountains. Among these mountains lies Lake Balaton, which has many holiday resorts along its shores. The climate of Hungary is continental; winters are comparatively cold, and summers are hot.
to the capital, Budapest. The municipalities are further divided into districts, while the departments are made up of cantons and rural communes.

There are 10,272.2 kilometres of railways. Highway and river transport (the latter by the Danube) is also well developed throughout the country. A national airline runs civil transport services from Budapest airport.

Health

At the end of the war, the administration of public health services in Hungary was shared by several government departments, the Ministry of the Interior being the authority mainly responsible for health matters.

The health services in the People's Republic of Hungary are now directed at the central level by a unified national health administration — the Ministry of Health. The Minister of Health is the authority with supreme responsibility for the public health services of the country. In addition to the secretariat and personnel service, the Ministry comprises the following seven departments: medical and paramedical training establishments; curative and preventive medicine; maternal and child health; health inspection and epidemiology; planning, finance and investment; pharmaceutical and medical equipment services, and social affairs.

There is a Scientific Medical Council in the Ministry, composed of the leading scientists in medicine and public health, to advise the Minister on the planning, organization and administration of national health programmes.

Under the direct supervision of the Ministry of Health are the schools of medicine, the Institute for Advanced Medical Training, the specialized scientific institutes and various national establishments, such as hospitals, sanatoria, ambulance services, and biological and pharmaceutical production centres.

In addition, the services of the following 17 scientific institutes are available in the country: National Public Health Institute; National Occupational Health Institute; National Food Hygiene and Nutrition Institute; Korányi National Institute of Phthisiology; National Institute of Dermatology and Venereology; National Cancer Institute; National Institute of Neurology and Psychiatry; National Institute of Surgery of the Nervous System; National Institute of Rheumatology and Balneotherapy; National Institute of Physical Culture and Sports Medicine; National Institute of Radiology; National Institute for the Control of Trachoma; National Institute of Traumatology; Central Research Institute of the National Blood Transfusion Service; National Institute of Kinesitherapy and Mechanotherapy; Central Institute of Radiobiology, and Central Institute of Stomatology.

At the local level, the Health Offices, under the municipal or departmental councils, act as the local health administrations. Each Health Office is under the charge of a chief medical officer assisted by a second medical officer and a public health nurse. The chief medical officers work in close liaison with various social organizations and have a great variety of health functions.

Under the departmental Health Office there are various establishments, such as the departmental hospital, the polyclinic, sanitary and epidemic prevention stations, dispensaries for various types of specialist services (such as tuberculosis, venereal diseases, neuropsychiatry, and cancer), nurseries, training schools or courses, blood banks, centres for physical education and sports medicine, and social services.

In the districts there are Health Sections, under the direction of district medical officers assisted by medical hygienists and public health nurses, responsible for all health matters in the area. The district medical officer directs and supervises the work of hospitals, the occupational medical stations, the polyclinics, dispensaries and child and school health services within the area. Medical hygienists attached to Health Sections deal in particular with all matters relating to the control of epidemic diseases, environmental sanitation, town planning, and water supply. General curative and preventive services are provided by the medical officers in the divisions. There are 3000 divisions in the country, each with a population of between 2600 and 3500.

At the end of 1956, there were 13,332 physicians in Hungary (excluding those in the armed forces), of whom 7514 were specialists. Of the total number, 92.3 per cent. were in full-time government service, and 44 per cent. were resident in Budapest. There were also 29,850 para-medical personnel, including 15,711 nurses, 3498 midwives, 6239 medical and laboratory assistants and other auxiliary personnel.

Expenditure on cultural, health and social activities as a whole represented 27.3 of the total State budget in 1956, compared with 21 per cent. in 1954.

In 1956, there were in Hungary, 46 national hospitals of various specialties, 25 departmental hospitals and 77 municipal or cantonal hospitals, with a total of 63,752 beds. Most of these hospitals are directly under the supervision of the Ministry of Health. The 56 university clinics attached to the four medical faculties provide 7564 beds, which are included in the above total. The capacity of a cantonal hospital varies from 100 to 300 beds, that of a municipal hospital from 200 to 400, and that of a departmental hospital from 400 to 800. There are also five tuber-
tuberculosis sanatoria and eight convalescent homes for patients who still require some care after discharge from hospital. A total of 1 150 000 persons received hospital treatment in 1956; the case-fatality rate in hospitals was 2.1 per cent., and the average duration of hospitalization was 17.3 days.

At the end of 1956 there were 116 mobile health services for the rural population.

Some 6 300 000 inhabitants (64 per cent. of the total population) were entitled to medical assistance in 1956 under the social insurance scheme. All paid workers and their families participate in this social insurance, and the same applies to pensioned persons, students, apprentices, artists and priests. Members of agricultural and workers' co-operatives, as well as independent workers and their families, may also join the insurance scheme if they wish, but it is not compulsory. Persons insured under the scheme are entitled to medical treatment and to reimbursement of a certain proportion of the price of medicaments; some medicaments, however, are provided free of charge (in the case of communicable diseases, tuberculosis, etc.).

The following vital statistics were recorded in 1957: birth rate, 21.2; death rate, 11.1; infant mortality rate, 59.

The centre of tuberculosis control activities is the Koranyi National Phthisiological Institute. Any person suffering or suspected of suffering from tuberculosis in Hungary is required by law to undergo treatment, and physicians are required to notify such cases. Of some three million persons who undergo medical examinations in the dispensaries every year, about 0.3 per cent. are found to be suffering from tuberculosis. The dispensaries are also responsible for the organization of BCG vaccination. In 1956, 29 232 cases of tuberculosis were detected and registered, and a total of four million consultations were given in the 184 tuberculosis dispensaries.

The control of venereal diseases is centralized at the National Institute of Dermatology and Venereology. At the end of 1956, there were 129 dermatological dispensaries in the country, which dealt with about four million persons. Some 19 per cent. of these were treated for venereal diseases in special control units.

No cases of cholera or smallpox have been reported in Hungary for several years. In Budapest there is a special hospital for communicable diseases. In 1956, 3521 beds were available in the country for this purpose.

The following vaccinations are compulsory in Hungary: BCG vaccination, within six weeks of birth; triple vaccination (diphtheria/tetanus/whooping-cough), between 6 and 11 months; smallpox vaccination, between 12 and 17 months; a second triple vaccination, between 18 and 23 months; and anti-typhoid and paratyphoid vaccination, at 12 years. Re-vaccinations for smallpox, typhoid and paratyphoid are also compulsory.

The sanitary and epidemic prevention stations are also carrying out programmes for the control of brucellosis in agricultural undertakings, of helminthiasis among schoolchildren, and of ankylostomiasis among miners.

The National Cancer Institute is responsible for the organization of all cancer control activities; at the end of 1956 there were 32 cancer control centres in Hungary. In 1955, about 11 000 cancer cases were treated in hospital.

Persons suffering from trachoma in its infectious form are obliged to go to hospital, and treatment, as well as periodical eye examinations to detect this disease, is provided free of charge by the State.

At the end of 1956 there were 23 centres dealing with neurological disorders.

Medical supervision of students engaging in physical culture and sports is carried out by the National Institute of Physical Culture and Sports Medicine. Similar institutes exist in five large provincial towns.

Maternal and child health activities are the responsibility of the State, and maternity homes and health centres have been specially organized for this purpose. The Labour Code prohibits the employment of pregnant women in work which may prejudice the normal course of pregnancy; twelve weeks' paid leave spread over the period before and after confinement are stipulated, and various facilities are accorded to mothers feeding their infants.

At the end of 1956, 6443 beds were reserved for confinements and gynaecological cases in hospitals, and in the districts without hospitals there were 99 maternity homes, with a total of 1050 beds. At each health centre there are midwives and public health nurses who attend home confinements and give health care to the infants; in 1956, 3498 midwives and 200 public health nurses were employed in 1477 health centres.

Sixty-three per cent. of confinements in the provinces in 1956 took place in maternity homes; in Budapest the percentage of institutional confinements was 99.2, and the average for the country as a whole was 67.9. The maternal mortality rate in 1956 was estimated at 0.5. About 80-85 per cent. of infants are cared for in the special clinics attached to the health centres, and there is a special hospital for premature infants in Budapest. In 1956, every infant received an average of 11.5 visits by a nurse.
In 1955, 312,000 litres of mothers' milk were distributed free of charge from thirty-two milk stations. Day nurseries are provided for the children of working mothers and at the end of 1956 there were 716 such nurseries, accommodating 25,630 children, attached to the local councils and the factories.

The school medical service in Hungary employs 260 full-time physicians, and all schools with 2000 pupils or more are provided with a full-time school medical officer. At the end of 1956, there were 6369 hospital beds for sick children, excluding beds for contagious and tuberculous cases; beds for children suffering from tuberculosis during the same year numbered 1743. There is a school dental service with a staff of 250 dentists.

The Ministry of Health has a special department for health education. Among schoolchildren, health education is given by teachers and by the staff of the school medical services. For the general public, each medical officer is responsible for carrying out health education as part of the joint programme of the Ministry of Health and the Hungarian National Red Cross Society. Lectures and conferences on health education are also given under the auspices of the Society for the Diffusion of Natural and Social Sciences.

In Hungary, the State is responsible for industrial health services, and the National Institute of Industrial Hygiene is the technical authority established for this purpose. Factories employing 500 workers or more are provided with a regular medical service, and in the large undertakings specialized consultation services are also available. At the end of 1956 there were 630 occupational medical officers working at various industrial establishments. The Institute for the Health Protection of Apprentices carries out systematic medical examinations on recruitment and at regular intervals thereafter.

The Social Service concerns itself with chronic invalids, war invalids, physically handicapped persons, and the mentally disordered. All persons whose invalidity is due to occupational accident, and whose incapacity is 67 per cent. or more, receive an invalidity allowance or pension. Two hospices have been opened for tuberculosis patients, with 205 and 80 beds respectively, and there are hostels, with a total of 5000 beds, for chronic cases who have no family.

For children with mental disorders and for the blind there are five farm schools and six special establishments. At the end of 1956 there were 177 homes for the aged, with a total of 17,000 beds, catering for pensioned workers without families.

The National Institute of Neurology and Psychiatry is largely responsible for the care of psychiatric patients. There is a provincial neurological and psychiatric hospital, and psychiatric sections in departmental, municipal or cantonal hospitals, with 6243 beds in all. There are three mental homes and three treatment clinics for mild cases. For mental patients remaining with their families, regular surveillance is carried out by the neuropsychiatric dispensaries.

There are four faculties of medicine in Hungary, attached to the universities of Budapest, Szeged, Pécs and Debrecen. At the University of Budapest, in addition to the Faculty of Medicine there is a Faculty of Odontology and Stomatology and a Faculty of Pharmacy; the Szeged University also has a Faculty of Pharmacy.

In 1956 the four medical faculties had a total teaching staff of 1147, composed of 104 professors, 141 lecturers, 167 deputies and 735 assistants. Candidates for admission to the university must be in possession of a secondary school certificate and must pass an entrance examination. In the academic year 1956-57, 1041 students were admitted to the first year of the medical course, 74 to odontology and stomatology, and 248 to the pharmacy course; the total student body at all stages of the three courses was 5667. The medical course lasts six years, dental surgery five years, and pharmacy four and a half years. On completion of university training, students take a State examination. In the hospital services, appointments are made on a competitive basis.

It is possible to qualify as a medical specialist in three or four years, according to the specialty. In 1956, 609 students qualified as doctors of medicine and 608 as specialists. In addition to the specialist's diploma courses, there are short refresher courses in the various branches of medicine for medical and health officers in both clinical and public health work.

Para-medical staff are trained either in special schools or by in-service training. In 1956, there were the following schools for para-medical personnel:

<table>
<thead>
<tr>
<th>Type of school</th>
<th>Number of schools</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public health nursing</td>
<td>3</td>
<td>650</td>
</tr>
<tr>
<td>General nursing</td>
<td>10</td>
<td>1100</td>
</tr>
<tr>
<td>Paediatric nursing</td>
<td>8</td>
<td>470</td>
</tr>
<tr>
<td>Midwifery</td>
<td>6</td>
<td>300</td>
</tr>
<tr>
<td>Child care nursing (nurses for crèches and day-nurseries)</td>
<td>8</td>
<td>340</td>
</tr>
</tbody>
</table>

Certificates are issued to auxiliary personnel who have undergone in-service training; 1010 persons were awarded certificates in 1956.

The National Public Health Institute and the National Food Hygiene and Nutrition Institute are responsible respectively for the control of pharmaceutical and food products. The Department of
Health Inspection and Epidemiology, in the Ministry of Health, deals with all matters relating to environmental sanitation and hygiene. In the departments or municipalities, these matters are dealt with through the sanitary and epidemic prevention stations, of which there were 24 at the end of 1956, with 192 medical officers on their staffs. Each of these stations has a section for public health (environmental sanitation, food control and industrial hygiene) and epidemic prevention, a laboratory section and a disinfection section.

Forty-four towns are provided with water-supply systems, and in 1954 it was estimated that 56.1 per cent. of the urban inhabitants were served by conduits. The percentage in Budapest was 81.1. There are 49 water-distribution plants for villages, and 300 water-supply establishments in industrial undertakings. There are about 20 000 public wells of which some 20 per cent. are artesian. In 1954 an average of 16.6 per cent. of the inhabitants were served by drainage systems for the disposal of wastes, the percentage being 28.9 in Budapest and 11.4 in other cities.

There are 45 mechanical installations in the country for the purification of waste waters, and strict regulations are in force for the control and prevention of pollution of surface waters.

As regards achievements in town planning and housing, between 25 000 and 30 000 apartments have been built annually for the past few years.

All workers in the food supply industries and other establishments dealing with food, including restaurants, are required to hold a health certificate and to undergo regular medical examinations. The control of food supply establishments from the health standpoint is conducted by the sanitary and epidemic prevention stations. The laboratories attached to these stations carry out all chemical and microbiological examinations required, and in 1956 their staffs included 386 medical specialists and 748 laboratory assistants, in addition to auxiliary personnel.

**ICELAND**

Iceland is a large island in the extreme north Atlantic, one of the most volcanic regions of the world. With its tip just touching the Arctic circle, it extends from 63° to 67° north and from 13° to 25° west. Iceland is a plateau of volcanic rocks pierced on all sides by fjords and valleys. The lowlands—about one-fourteenth of the total—are almost the only habitable parts. Three-quarters of the area consists of elevated deserts, lava streams and glaciers; the glaciers and snowfields alone occupy 13 per cent. The total land area is 103 000 square kilometres.

The population at the 1950 census was 143 973, with a density of one per square kilometre, and the annual rate of increase at that time was about 2 per cent. The 1956 estimate was 162 700. Nearly 73 per cent. of the population is urban. The island has five divisions: the South-West (80 623 inhabitants—the most densely populated); the Western Peninsula (11 166 inhabitants); the North (28 632 inhabitants); the East (9705 inhabitants); and the South (13 847 inhabitants). Reykjavik, the capital, had a population of 65 305 in 1956. Iceland's traditions are Scandinavian and the general educational level is high.

Ministries in the Cabinet include Justice and Education, and Agriculture and Social Affairs. For administrative purposes Iceland is divided into 16 provinces, each governed by a chief executive. Each province forms one or two municipal districts with a council superintending the rural municipalities. There are also 13 urban municipalities, each with a town council, independent of the provinces.

The main industries are fishery and agriculture. There is a high production of electric power, most of it hydro-electric. The chief exports are fish, oils, sheepskins and mutton. Cereals and sugar are imported.

Primary education is compulsory for a period of nine years. There are three grammar schools, several public high schools, two girls' schools, and a school for primary school teachers. For technical education, there are two schools of agriculture and one of navigation, a commercial high school and several other specialized institutions. The University of Reykjavik was inaugurated in 1911.

Although possessing no railways, Iceland has over 5500 kilometres of roads, mostly fit for motor vehicles. Two companies provide regular air services between Reykjavik and other places in Iceland. There is also a regular air service to other countries in Europe and to the United States of America.

A new social welfare scheme came into force in 1947. In 1956 nearly 93 000 contributors (apart from children) were covered for sickness and maternity benefits, 149 000 for medical care, and (in 1955) 45 000 for occupational accidents.

**Health**

Organized medical services in Iceland date back to 1760, when the first medical officer was appointed. Before that time, however, from about the middle of the 17th century, small leper institutes had been established, one in each of the four main parts of the country. Leprosy was very prevalent at that time. Almost simultaneously with the appointment of the first medical officer, the first trained midwife arrived and shortly afterwards a dispensary run by a qualified pharmacist was established. The first task of the medical officer was to teach medicine to students who were to take office as physicians, one in each of the four parts of the country. Soon afterwards the training of midwives was begun and since then there has been a continuous evolution of the health service, although progress was slow for the first hundred years.
The Althing (parliament) took a great interest in health matters and made further progress in 1874, when it obtained legislative powers. A medical school was established in 1876 and in 1911 was merged into the University of Iceland as the Faculty of Medicine. Since Iceland obtained full constitutional independence in 1918 the development of public health and social welfare—especially social security, organized medical care and preventive medicine—has progressively advanced. This progress is demonstrated by a great improvement in health conditions. Leprosy and hydatid disease, previously very prevalent, have now been almost entirely eradicated and in the last 25 years the death rate from tuberculosis has fallen from about 200 to less than 10 per 100 000. Cardiovascular and malignant diseases now account for most of the deaths, but next in order come accidents. Expectation of life at birth has increased by more than 33 years in the past century. Its figure in 1946-55, was 69.4 for men and 73.5 for women.

The supreme authority in all health matters is the Ministry of Health, headed by a Minister who holds other offices in the Government. At the side of the Minister is the Director of Health, a medical expert who holds a permanent post and who is in charge of both medical and auxiliary personnel. Some branches of the health service, such as tuberculosis and school health work, are placed under the immediate supervision of a special medical director.

The State insurance institution (under the Ministry of Social Affairs) is directed by an executive council, the members of which are elected by Parliament. This institution is responsible for administering accident insurance, old-age and disablement pensions, unemployment insurance and, so far as health insurance is concerned, the supervision of local sickness insurance funds. All health matters are in the hands of medical experts on the staff. The Ministry of Social Affairs also deals, under a separate governmental office, with assistance to patients suffering from chronic diseases. Management of State hospitals is conducted by the State Hospital Office under a Board appointed by the Minister of Health. Among other bodies connected with health are a council of nutrition and a medical council, both of which function in a consultative capacity. The municipal and communal councils are responsible for environmental sanitation, supervision being carried out under local committees of which the district physician is a member and the expert adviser. These local authorities are also responsible for the municipal or communal hospitals and for any health centres. The Treasury, however, gives considerable financial support to hospitals and the running cost of health centres is shared equally by the Treasury, the local authorities and the local sickness insurance fund. The whole country is divided into 55 medical districts, each served by a governmental district physician. Reykjavik is the only exception: it has a full-time public health officer who is appointed and paid by the town council. District physicians have a dual responsibility; as medical officers they are in charge of all public health work but at the same time they carry on general practice. In the smaller districts the district physician is the only doctor and the care of the sick occupies the greater part of his time. In the bigger urban districts he is mainly concerned with preventive work and the curative services are taken over by private practitioners, specialists and hospital doctors.

The first general hospital was established in Reykjavik in 1866, the funds being raised by a voluntary body. Six years later another voluntary hospital was erected in Akureyi, the main town of the north. Both of these hospitals were subsequently taken over by their municipalities, and since then all general hospitals have become the primary responsibility of the communities. The State is responsible for special hospitals (sanatoria, psychiatric hospitals, etc.) intended to cover the needs of the whole country. One general hospital—the State hospital at Reykjavik, connected with the University—is, however, the teaching hospital for medical students, nurses and midwives.

In 1955 the total number of hospital beds was 1615, or 10.1 per 1000 of the population. Of this ratio, 6.5 were in general hospitals, 1.6 in sanatoria and 1.5 in a psychiatric hospital.

The situation with regard to health personnel in 1955 was as follows: 179 doctors in active practice; 44 dental surgeons; 19 pharmacists; 186 nurses holding a diploma; 80 student nurses; 168 midwives; and 14 veterinary surgeons.

The medical faculty of the University of Iceland includes schools of medicine, dentistry and pharmacy. The State hospital in Reykjavik also has schools of nursing and midwifery. The annual numbers of students attending these institutions are: medicine, 200-220; dentistry, 20; pharmacy, 10-15; nursing, 95-100; and midwifery, 12.

Population statistics are worked out by the statistical bureau. The Medical Director of Health issues an annual report containing morbidity and other statistics.

The birth rate in 1956 was 28.3, the death rate 7.2 and the infant mortality rate 17.3.

The cost of medical care is met by the sickness insurance system, either by special arrangements made with medical societies or on the basis of an official tariff.
In the case of chronic diseases, including tuberculosis, the State takes over responsibility after the first five weeks. Similar arrangements are made for the health care of the aged. There is as yet no mental health service. The patients themselves pay little more than a token amount for each consultation. There are 200 districts for midwives, and the intention is to appoint one to each district except in the larger towns where several midwives are appointed. As communications improve in the more remote areas, however, it becomes increasingly feasible for one midwife to serve two or more districts. Midwives appointed in towns receive their salaries from the municipality, whilst those in the rural districts are paid partly by the Treasury and partly by the county council. In addition to their fixed salary the midwives receive payment according to an official tariff for services rendered.

Practically all the qualified nurses in employment are working in hospitals or as health nurses in schools and at health centres. Local authorities in rural districts are entitled to a substantial contribution from the Treasury towards the cost of a district nurse's salary.

In Reykjavik and some of the larger towns, dental surgeons are employed at elementary schools but otherwise they are all in private practice. For veterinary work the country is divided into nine districts. In all towns and some of the larger villages, there are pharmaceutical dispensaries run by licensed chemists, but in the smaller areas where there is no dispensary the district physician undertakes this work. There are very few private health institutions and most of them are subsidized. For example, there are three hospitals owned and run by foreign Catholic orders, a rehabilitation centre for convalescent tuberculosis patients erected by an association of former patients, and a cancer diagnostic centre, a clinic for the after-care of poliomyelitis patients, and a rehabilitation home for alcohol addicts, all run by voluntary bodies.

Health education is begun in the primary schools and continued in the secondary. District physicians and the staff of health centres carry on health education of the public to a further extent, and health propaganda material, in the form of periodicals, for example, is published by the Red Cross; there is no centrally organized service.

Health centres have been established in most of the towns; their main activities are in the prevention of tuberculosis and in maternal and child care. The sickness insurance system provides medical care at home as well as in hospital. At the health centre in Reykjavik and in some other towns there are special departments for the examination of expectant mothers. Under the sickness insurance system every mother receives a specified sum after delivery, whether at home or in hospital. Every woman in official employment is entitled, after delivery, to 90 days' maternity leave with full pay.

Supervision of environmental and working conditions in factories, workshops and other work places is under the charge of a chief inspector, who is an engineer. Apart from this centralized supervision, the district physician is responsible for all matters concerning occupational health.

A central piped water supply serves all the towns and the larger villages, giving a total supply to approximately 80 per cent. of the population. In the rural districts where there is no communal water supply, the majority of households have their water carried in pipes into the houses. All the towns and larger villages have a closed sewerage system carrying the sewage out to sea. Apart from the small hospital laboratories, there are special laboratories in the medical institutes, serving the entire country.

IRELAND

Ireland lies on the north-eastern edge of the Atlantic Ocean immediately west of the island of Britain. It consists substantially of a central basin surrounded by mountains; this central plain extends to the sea in places, notably in the east between Dublin and Dundalk. It has many valleys with good fertile land. On the rugged western coast, however, agriculture is difficult because of the abundant rain and the shallow soil. The climate is maritime and mild but subject to heavy rains brought by the prevailing south-west winds.

The area of the Republic is 70 282 square kilometres and its population at the 1956 census was 2 898 264, with a density of 41 per square kilometre. The capital, Dublin, has a population of 539 476. About 59 per cent. of the inhabitants live in rural areas.
sanitary districts, including the four county boroughs, seven municipal boroughs, and 49 other towns.

The economy is primarily agricultural. The chief industries are grain-milling and baking, dairy products and bacon curing, brewing, sugar and confectionery, wool and worsted clothing, soap and candles, constructional materials, engineering and implements, and the manufacture of linen, cotton, jute and canvas.

Elementary education is free and compulsory and is given in national schools. The secondary schools are in private hands and many of them are run by religious orders with the aid of State grants. There are six State-aided training colleges. Vocational schools are controlled by the local vocational education committee and are maintained partly by local and partly by central grants. Winter agricultural classes for the sons of farmers are provided by statutory committees of agriculture. The centres of university education are Trinity College, Dublin, and the National University of Ireland. Founded in 1909, the latter has four constituent colleges—the University Colleges of Cork, Galway and Dublin, and St Patrick's College, Maynooth.

The principal ports are Dublin, Cobh, Dun Laoghaire, Cork, Galway, Waterford, Rosslare, Limerick and Dundalk. There are 900 kilometres of inland navigation. The length of railway in the Republic is 4390 kilometres of which 90 per cent. is standard gauge. In 1951-52 a total of 80,000 kilometres of road was maintained out of local funds, including 16,000 kilometres of main roads and 62,000 kilometres of county roads. There is a national air service which operates over a wide area. Shannon in the south-west is a starting and landing point for transatlantic traffic.

Social welfare services concerned primarily with income maintenance were unified in 1953 under the Minister of Social Welfare, whose Department deals with both insurance and assistance schemes. The Social Insurance Scheme, which is maintained by approximately equal contributions from the worker, the employer and the State, provides unemployment benefit, disability (sickness) benefit, marriage benefit, maternity benefit and widows' and orphans' pensions. Assistance services consist of non-contributory widows' and orphans' pensions, old-age pensions at 70, pensions for the blind, unemployment assistance and children's allowances. In 1954, 686,000 persons were covered for sickness, invalidity and maternity benefits, and 728,000 for survivors' pensions.

Health

The development of health services in Ireland proceeded during the 19th century along two parallel lines. The curative services for the poor were developed as part of the Poor Law system and at the same time preventive services were organized by sanitary authorities under the public health acts. The Poor Law Code of Ireland, as embodied in the Poor Relief (Ireland) Act of 1838, provided mainly for the workhouse system to cater for the sick poor; infirmaries were attached to the workhouses. In the course of time these formed the basis of the general hospital services throughout rural Ireland and in the latter part of the 19th and the early part of the present century separate hospitals for infectious diseases were built. In Dublin, because of the development of voluntary hospitals, the provision of hospital services by the local authorities was on a comparatively small scale.

The general practitioner service for the poor originated in the Poor Relief (Ireland) Act of 1852, which provided for a staff of medical officers and the establishment of dispensaries throughout the country. To this, a dispensary midwife service was later added. At first the keeping of registers of births, deaths and marriages became the responsibility of the dispensary doctor; in later years he was charged with public health duties—especially the carrying-out of vaccinations against smallpox.

The organization of health services by the sanitary authorities received its impetus mainly from the Public Health (Ireland) Act of 1878. This Act provided for the creation of local sanitary authorities throughout the country, for the notification of infectious diseases and for the supervision of food. The appointment of local medical officers of health was initiated. Later, these sanitary authorities became responsible for the provision of maternity and child care services. Other local authorities were given the task of setting up services to combat tuberculosis and to deal with the medical inspection of schoolchildren.

In spite of the restrictions imposed by so many different authorities and legal codes, there was considerable expansion of the services during the first half of the 20th century. The preventive services, especially, made headway, and their organization was encouraged by the appointment, under an Act of 1925, of county medical officers of health throughout the entire country. The dispensary medical service was also developed to provide a good general practitioner scheme for the lower income groups. In the years since the end of the Second World War considerable progress has been made in improving the services and in simplifying the administration. Many new hospitals have been provided and several existing ones have been extended. The service for the prevention and cure of tuberculosis has been greatly expanded and new laws have been introduced to control infectious diseases and to improve the system of food hygiene. Practically all the health work is now discharged by the county councils and city corporations. The categories of people entitled to avail themselves of hospital and maternity services have been widened and new services have been provided for the rehabilitation of the disabled. The general policy of the Irish Government in the matter of health services is, first, to provide adequate and efficiently organized services to prevent the spread of infectious diseases,
to safeguard food supplies and to avoid conditions harmful to the public health; secondly, to make curative and restorative services available, free of charge, to the people who cannot readily afford to pay for private medical care, and to encourage others to avail themselves of similar services on the basis of partial or full payment.

In promoting the second of these aims, the principle is to consider each type of service separately. For example, the general medical service provided by health authorities is limited to the lower income group because the expense of paying a private practitioner out of income is not a severe hardship for higher income groups; but hospital and specialist services and maternity care, which are more expensive, are provided on a free or subsidized basis to a much wider group comprising about 85 per cent. of the people. For persons outside these groups the State encourages services through voluntary health insurance.

The Minister for Health, who is a member of the Cabinet, is in charge of the health services at the national level. His responsibilities include the supervision of local authorities in carrying out their health functions, and the provision and administration of funds to meet part of the cost of building and maintaining hospitals, sanatoria, dispensaries and other institutions and of operating the services. Many detailed functions are conferred by statute on the Minister, including the regulation of services and appointments. Furthermore, the Minister, through his staff, must ensure that the services provided by each local authority are adequate and efficient. In discharging his functions he is assisted by a number of advisory bodies, the most important of which is the National Health Council, representing medical and auxiliary professions and other persons concerned with matters of health. The Council advises the Minister on general questions affecting health. On matters specifically related to hospital facilities and the expenditure of monies from the Hospitals Trust Fund, the Minister is advised by the Hospitals Commission. He may also set up from time to time a special consultative council or committee on any particular question. In recent years these councils have advised the Minister on such matters as tuberculosis, medical education and cancer. Special statutory bodies which are in some respects subject to control by the Minister deal with such subjects as the registration of medical practitioners, dentists, nurses and midwives, pharmacists and opticians. Other organizations established by the Minister deal with problems such as blood transfusion, rehabilitation, and mass radiography.

The responsibility for registration of births, deaths and marriages rests with the Registrar-General, who is an officer of the Ministry of Health. The central department also deals with health propaganda and the building of sanatoria.

There are no regional health authorities in Ireland. The local health authorities (the county and county borough councils) operate under the direct control of the Minister, each Council having a manager who acts as its chief executive officer. The staff of the health authority includes a county or city health officer, and various medical and auxiliary personnel. Each local area has a consultative health committee appointed by resolution of the county council; it consists of members of the council, the county medical officer, the county surgeon, two other medical practitioners and two other persons. The committee advises the manager on his functions in the health field. The county, which is the basic health unit, serves on the average a population of 84,000. Within each county there are an average of 22 dispensary districts, which are the units for the general practitioner medical services.

Local health authorities provide, free of charge, a general practitioner service including drugs, ophthalmic and aural treatment, and medical and surgical appliances for persons who are unable to meet the cost of these services themselves. In each area the names of those eligible are entered in a general register. It is estimated that about 23 per cent. of the entire population are catered for by this service. General medical services are based on the dispensary districts of which there are nearly 600 in the country. In each district there is at least one dispensary attended at fixed hours by a medical officer, who examines and treats eligible persons free of charge. Those who cannot go to the dispensary are visited at home and the service of a consultant may be secured if necessary. In some districts nurses with general training have been appointed to assist the dispensary medical officers.

A comprehensive hospital service, free of charge, is available for communicable diseases, including tuberculosis. Hospital services for other ailments are not provided for the entire population but are limited to:

1. Manual and other workers earning £600 (US $1680) a year or below;
2. Other adults at the same salary level, and
3. Persons whose means are derived wholly or mainly from farming, where the farm is below a certain valuation. It has been calculated that this covers about 87 per cent. of the farmers.

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Pupils of most elementary schools are entitled to free treatment for defects discovered at school health examinations. It has been calculated that about 85 per cent. of the population are included in the categories entitled to the above services. Hospital facilities are provided free to those entitled to general medical services and to others who may be accepted by the health authority. In other cases charges, generally not exceeding ten shillings (US $1.40) a day, may be made by the health authority. Most health authorities provide these services in their own hospitals, but in some cases, particularly in the Dublin area, the services of voluntary hospitals are used to a great extent, and the cost is reimbursed by the local authority. Out-patient specialist services are provided for the same groups of the population, and in some cases moderate charges may be made by the health authorities.

The following table gives particulars of hospitals of various kinds in Ireland at the end of 1956:

<table>
<thead>
<tr>
<th>Type of hospital</th>
<th>Local authority</th>
<th>Voluntary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>number</td>
</tr>
<tr>
<td>General and maternity</td>
<td>83</td>
<td>7 120</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>34</td>
<td>5 300</td>
</tr>
<tr>
<td>Mental</td>
<td>21</td>
<td>19 734</td>
</tr>
<tr>
<td>Infectious diseases</td>
<td>26</td>
<td>1 500</td>
</tr>
<tr>
<td>Mental deficiency and</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>epilepsy</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Health clinics</td>
<td>16</td>
<td>—</td>
</tr>
<tr>
<td>Psychiatric treatment</td>
<td>75</td>
<td>—</td>
</tr>
<tr>
<td>clinics</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Rehabilitation centres</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

* Data not available

The birth rate has not varied much for a number of years. The last figure given is 21.0 for 1956. The death rate for the same year was 11.7, and the infant mortality rate was 36.

The main public health problems of today are:

1. **Infant mortality**
   Although the rate has declined during the period under review (from 38.0 to 36.0), it is still high. It is hoped that improvements effected in the services under the Health Act of 1953 and their extension to a wider range of the population will accelerate the downward trend of the figures. A perinatal mortality survey is at present being conducted by the Medical Research Council of Ireland.

2. **Cancer**
   Mortality has increased from 1.56 per 1000 population in 1954 to 1.58 in 1956. The increase is most marked in cancer of the respiratory organs; in 1954 and 1956 deaths from this cause numbered 422 and 470 respectively compared with 224 in 1950. The Cancer Association of Ireland was established in 1950 to assist in the diagnosis, prevention and treatment of cancer, and in 1954 the Association opened a modern cancer hospital. Other activities include the proposed establishment of a national cancer register, and special arrangements for the training of physicians are under consideration.

3. **Tuberculosis**
   The tuberculosis death rate has fallen consistently during the past ten years, and the 1956 rate—24 per 100 000—is the lowest yet recorded. This is still high, however, by comparison with the rate in some other countries, and, moreover, the decline in morbidity has not kept pace with the decline in mortality. As adequate hospital accommodation is now available, more attention can be paid to preventive measures.

4. **Poliomyelitis**
   There was a high incidence of poliomyelitis in 1956 on account of an epidemic in the Cork area: 499 cases were reported as against 82 in 1954. Three main centres have been established for the care of patients, equipped with modern appliances and with experienced specialist and nursing staff. Seriously ill patients are transported to these centres as quickly as possible. Vaccination is now being provided by local health authorities.

5. **Mental illness**
   The major problem as regards mental illness is accommodation. Many of the district hospitals are seriously overcrowded mainly because of the increasing number of elderly people admitted.

6. **Rehabilitation**
   A number of voluntary associations are active in this sphere; generally speaking, each of these associations deals with a particular type of disablement. Until recently the importance of the problem had not been fully established, but the realization of its magnitude led to the creation, in 1955, of the National Organization for Rehabilitation, which was set up by the Minister for Health and is making recommendations to him on how the problem may be met.

Dental services are provided by local health authorities for persons in the lower income group, for pupils of national schools in respect of defects discov-
ered at school health examinations, and for children
under six years of age for dental defects discovered
at child welfare clinics.

These services are free of charge except that in
the case of school- or pre-school children a charge
may be made for the replacement of a dental appliance
if the need for replacement is due to negligence on
the part of the user. The dental services are provided
at dental centres operated by the local health authori-
ties. Dentists are employed on a whole-time or
part-time basis. The dental services have been
improved in recent years by the appointment of
additional dentists, the establishment and equipment
of additional treatment centres, and other measures.
A dentist employed by the local authority visits the
schools from time to time and examines the children’s
teeth. Parents are encouraged to be present during
dental examinations and their consent is obtained
for any necessary treatment. Health authorities have
also been urged by the Department of Health to
give more consideration to the prevention of dental
defects, especially in the matter of popular instruc-
tion in dental hygiene.

A free medical care service for mothers, with
choice of doctor, is provided for women in the groups
entitled to general hospital and specialist services.
This service includes attendance by a doctor before
and after birth and, if necessary, at the birth; for
the attendance of a midwife, and for any necessary
hospital and specialist service. Each health authority
makes prior agreements with medical practitioners
and a capitation fee is paid. The doctor may call
in a colleague for assistance at the expense of the
local authority. Health authorities are required to
provide, in any town of 3000 or more inhabitants,
child welfare clinics for the ascertainment of defects
and for the education of mothers in the care of their
children. This service does not include treatment.
A health examination and treatment service is provided
for schoolchildren. School medical officers are
employed by the health authorities and each child
is examined at three periods during school life.

The administration of the mental health service
is in the hands of 18 mental hospital authorities,
which are either county councils or joint bodies.
The categories of person eligible for free treatment
are the same as those eligible for the general hospital
service, while persons not entitled to free treatment
may be admitted to the mental hospitals on a paying
basis. The number of persons undergoing treatment
for mental illness, including those in private institu-
tions, was 21 242 at the end of 1954, 21 352 in 1955
and 21 720 in 1956. An out-patient clinic service is
in operation, and at present there are 75 such clinics
dealing especially with early cases. They are located
mainly in the county and district hospitals and in
suitable dispensary premises, and are conducted by
the medical staff of the district mental hospitals.

ITALY

Italy consists of a peninsula projecting into the Mediterrane-
and of a number of islands, of which Sicily and Sardinia are the
most important. It is bounded on land by France, Switzerland,
Austria and Yugoslavia, and its area is 301 191 square kilo-
metres. The Alps form the northern boundary, and the
Apennines are the backbone of the peninsula itself. To
the north stretches the wide and fertile valley of the Po; on the east
and west sides of the peninsula the mountains come down to the
sea, except in some places, where they give way to coastal
plains of no great width. The climate is warm, and is tempered
by the surrounding sea and cooled locally by the altitude and
the neighbouring mountains.

At the 1951 census, the population was 47 516 000, with a
density of 154 per square kilometre. At the end of 1957, the
resident population was estimated at 49 895 000, and at the
beginning of 1958 the population of the chief towns was estimated
as follows: Rome, 1 880 629; Milan, 1 389 158; Naples, 1 118 880.

From the administrative point of view, the Republic of Italy
is divided into 92 provinces. Furthermore, four of the 20 regions
into which Italy falls geographically have recently obtained a
measure of administrative autonomy; in these four regions,
Government Commissioner directs the regional administration,
and the administrative organs are the Regional Council and the
Giunta (executive). In the provinces, the Prefect supervises the

provincial administration, which is carried out through the
Provincial Councils and the Giunta.

The main occupations are agriculture, which employs 8 261 160;
industry, employing 6 289 733, and commerce, employing 1 652 589. The country’s mineral resources are in general poor,
only sulphur and mercury providing any surplus for export.
Hydro-electric resources are widely exploited, and in 1956 the
production of power from this source amounted to 31 307 million
kWh. Large supplies of natural gas have recently been developed,
especially in northern Italy, and satisfactory results are being
obtained in the search for mineral oil. The chief industries are
textiles of many kinds, iron and steel, chemicals, motor vehicles,
clothing and accessories (gloves, hats, handbags, etc.), ship-
building, and food-processing. If the index of industrial
production is taken as 100 in 1938, by 1956 it had risen to 212.
Furthermore, there are many different kinds of local craftsman-
ship, whose products are much sought after both inside and
outside the country.

Education is compulsory from 6 to 14 years of age, and there
are the following educational establishments: 14 865 kinder-
garten schools; 41 943 primary schools; 2361 secondary schools;
2458 professional schools; 570 technical institutes; 503 teacher-
training schools; 987 higher institutions, and 26 universities
with a total of 191 faculties.
The mercantile marine is now 4.5 million tons. The chief ports are Genoa, Naples, Trieste, Palermo, Venice, Leghorn and Savona. At the end of 1956, there were 21,824 kilometres of railways, of which 16,741 kilometres were government-owned, and nearly 6,000 kilometres have been electrified. There were also 176,984 kilometres of roads in 1956, of which 24,920 kilometres were State highways. Civil aviation is well developed, and a unified airline runs many long-distance services. There are five international and 20 national airports, as well as 33 club aerodromes.

Every commune has its own welfare body—the Ente comunale d'Assistenza—which provides assistance to the needy out of funds drawn partly from the assets of the provinces and communes and partly from special taxation.

Health

During the unification of Italy, a movement which spread from Piedmont between 1859 and 1870, the health laws in force in Piedmont were extended to the rest of the country. In 1888, a law was passed organizing the health services on a national basis, and the general structure of this legislation has been preserved up to the present time, although many other laws have subsequently been added to it. After the Second World War, the necessity for centralizing government activities in the various branches of hygiene and public health into a single organization led to the creation of the High Commissariat for Hygiene and Public Health under the presidency of the Council of Ministers. The establishment of this High Commissariat was the first step in the creation of the Ministry of Public Health, of which the constitutive law was approved by the Senate in February 1957 and by the Chamber of Deputies in March 1958, and came into force on 14 August 1958.

The duties formerly carried out by the High Commissariat for Hygiene and Public Health, and the health functions of other branches of the Government, have been transferred to the Ministry of Health, which is made up of the following departments: administrative matters and personnel; public health services and hospitals; social medicine; pharmaceutical services, and veterinary services. International and cultural affairs are the responsibility of a special office, directly under the Minister. The functions of the Ministry of Health have been fixed by law as follows:

(1) Responsibility for the health services assigned by law to the State civil administrations;

(2) Supervision and co-ordination of the health services carried out by independent State administrations and public institutions, including, if necessary, the adaptation of the structure and effectiveness of these services to meet the needs of the public health;

(3) The issuance of instructions to all public administrations which have health functions;

(4) Technical supervision of organizations and institutions (other than those mentioned above) which have health functions.

The Ministry has a Supreme Health Council, which acts in an advisory capacity for the national health administration. The chief technical body of the health administration is the Higher Institute of Health, which is responsible for undertaking research on health subjects, carrying out analysis of drugs and food products, and control of sera, vaccines and biological products in general. The Institute has a number of departments, including: microbiology and virology; parasitology (and entomology and insecticides); biology; biochemistry; pharmacology; physics; and sanitary engineering.

At the provincial level, the Ministry is represented by the Offices of the Provincial Medical Officer and of the Provincial Veterinarian, which are co-ordinated by the Prefect. The Provincial Medical Officer is an official of the central administration and is assisted in his many duties by one or more assistant provincial medical officers, two or more medical social workers, and in some cases, one or more midwives, as well as administrative clerks. He is also assisted by certain specialists, in particular the inspector of the venereal disease control service, the provincial malarialogist (in the provinces where malaria was formerly endemic), an ophthalmologist who helps to run the trachoma control campaign, and others. There is also a Provincial Health Council, under the chairmanship of the Prefect, which acts as an advisory body to the Provincial Health Office.

In the communes, the mayor is the chief health authority, and is assisted by the physician in charge of the communal health department, who is appointed by the mayor on a competitive basis. In communes with more than 20,000 inhabitants, the health officer works full-time, but in smaller communes a local practising physician with an adequate public health background may be appointed to take charge of public health work on a part-time basis. In some provinces, a number of small communes may join together to form inter-communal unions, and in such cases an inter-communal health officer is appointed to be responsible for the health services of the communes concerned. The Communal Health Department of the large towns usually provides the following main services: preventive care, social medicine, environmental sanitation, school health, medical care, veterinary medicine, and general health administrative services. In the smaller communes and in the inter-communal unions, more or less the same services are provided but on a more limited scale.
The communal medical service is based essentially on the *condotta medica* (one of the oldest of Italy's health institutions), a communal dispensary under the direction of a physician appointed by the communal authorities and responsible for care of the sick. There are more than 9000 of these dispensaries in the country, so that the services of a physician are available even in the smallest and most inaccessible mountain villages. In the large urban centres, these dispensaries are attached to the local health departments. The public health visitors of the health departments carry out home visiting and in some towns in the north there is a trend towards creating special “domestic help” services in the health department.

Although the law establishing the Ministry put all government public health activities in the hands of one body, other Ministries are concerned with health matters within the sphere of their own jurisdiction; in particular, occupational health and social welfare remain the responsibility of the Ministry of Labour and Social Welfare. Furthermore, certain health activities are entrusted to semi-official institutions which are supervised by the national health administration, and there are also some national associations which are engaged in health work and preventive and social medicine.

Since the First World War, a number of insurance systems have been set up under the authority of the Ministry of Labour with funds from compulsory contributions by workers and employers; the families of insured persons are also entitled to benefits. Insurance against tuberculosis, invalidity, old age and unemployment is administered by the National Social Welfare Institute, which covers more than 25 million workers. Most of the former mutual aid societies have amalgamated with the National Sickness Insurance Institute, which covers some 22 million workers in commerce and industry, including pensioners. The National Institute for Insurance against Occupational Accidents and Diseases, and the National Institute for the Prevention of Accidents administer the compulsory insurance, which covers workers in industry, the building trade, agriculture and transport. The former insures approximately four million workers a year, on the basis of a theoretical unit of work of eight hours a day, three hundred days a year.

At the end of 1956 there were 72,000 physicians (including dentists) practising in Italy. Of these, 15,400 were in the public health services at various levels and 20,650 were working in hospitals. Four thousand physicians were attached to insurance companies and sickness funds on a full-time basis and about 40,000 were contracted to the insurance institutes. There were also 7200 registered veterinarians, 200 being employed by the health authorities, 2000 attached to the communal veterinary services and about 1000 practising in the animal hygiene institutes and public slaughter-houses.

The public hospitals are run to a large extent by local voluntary organizations, subject to administrative control by the Prefecture and the Ministry of the Interior, and to technical supervision by the appropriate Provincial Health Office. In 1956 the total number of hospital beds was 362,053, with the heaviest distribution in the north; an effort is being made to increase their number in the south. Of the total number of beds, 78,964 were in psychiatric hospitals.

The Central Statistical Institute is responsible for collecting, analysing and publishing health statistics. A National Health Statistics Committee was set up in 1951 to provide liaison between the High Commisariat of Hygiene and Public Health and the Central Statistical Institute. This Committee undertook a survey of hospital morbidity in 1954 and, more recently, a random sample survey of the incidence of various diseases and disabilities among 75,000 families.

In 1956, the birth rate was 17.7, and the general mortality rate was 10.1. The infant mortality rate was 53.0 in 1954, 50.9 in 1955 and 48.4 in 1956, and the maternal mortality rate in 1955 was 1.3.

The principal causes of death in 1954 and 1955 were cardiovascular diseases, malignant tumours, accidents and pneumonia.

The specific mortality of acute communicable diseases has declined from 368 deaths per 100,000 inhabitants in 1900 to 38 in 1954. Nevertheless, salmonellosis morbidity is still high and calls for appropriate measures. Endemic helminthic foci—particularly of *ankylostomiasis*—still exist, and there is a need for intensification of case-finding and treatment of patients and carriers of this group of diseases. The reported cases of poliomyelitis numbered 3404 in 1954, 2685 in 1955, and 3485 in 1956 —mainly among children in the 0-5 years age-group. In 1956 a system of voluntary vaccination was introduced, using Salk vaccine manufactured in Italy. In 1955 there was an epidemic of *meningococcus encephalitis* in the Marches, probably due to a Coxsackie type A virus.

The successful malaria eradication campaign has resulted in a decrease in the number of cases of malaria from 210,828 in 1947 to 451 in 1951 and 43 in 1952. Since 1953, no primary cases of local origin have been found. Control measures are still carried out in certain areas to ensure that the disease does not
spread again, and a number of studies on the subject of anopheline resistance to insecticides and on the use of new substances have been or are being carried out.

In 1950-51 the tuberculosis mortality rate was just over half the lowest rate registered before the war (1938 — 79.7; 1951 — 42.2) and since the introduction of isoniazid therapy the mortality has dropped even further, to 27.7 in 1952 and 22.7 in 1955. The National Social Welfare Institute and the provincial anti-tuberculosis associations are responsible for the treatment and prevention of tuberculosis in the country. In 1956 there were 565 tuberculosis control dispensaries, 57 sanatoria, with 77,499 beds, and 11,882 beds in preventoria. There is also an extensive network of x-ray services which took 1,700,000 films in 1955. These services are not engaged exclusively in tuberculosis case-finding; they also detect cardiovascular diseases, lung tumours and other diseases of the respiratory organs.

In 1956 there were 413 cases of leprosy, including 221 hospital in-patients. There are 220 venereal disease control dispensaries, which record about 130,000 new cases each year.

The estimated number of trachoma cases varies from 250,000 to 350,000, and in 26 provinces provincial anti-trachoma organizations have been established with public and school clinics, specialized hospital services and a health visitor service attached to each of them. In 1955, 20,500 children were seen in the school trachoma clinics and 17,000 adults were treated in the general consultation services.

Veterinary services are part of the health administration, and important measures are being taken in the control of zoonoses, particularly canine rabies, haematological anthrax and glanders. A recent survey of bovine tuberculosis showed that about 11 per cent. of livestock are infected in the northern provinces, and a programme for its control has been drawn up. With regard to brucellosis, the results of bacteriological investigations carried out in 1955-56 revealed 1.38 per cent. positive in central Italy and 16.50 per cent. positive in northern Italy. Appropriate measures are being taken to control the disease.

Maternal and child health work is directed and co-ordinated by the National Maternal and Child Health Service, under the supervision of the Ministry of Health. This service is organized on a territorial basis, with provincial federations and communal committees, the latter under the chairmanship of the mayor. In 1956 there were 463 maternity homes, 5,285 paediatric clinics, 2,588 paediatric clinics with obstetrical consultations, 239 clinics for skin diseases and syphilis, 829 canteens for pregnant women, and 395 nurseries. The public welfare authorities also run a large number of institutions for pregnant women, orphans and abandoned children.

In order to develop the school health service, the health authorities set up, between 1954 and 1956, some 180 clinics staffed by school doctors and health visitors, and 81 school dental clinics. Legislation is being prepared to provide for a national school medical service, which will be under the Ministry of Health with provincial branches attached to the Provincial Health Offices, and services for the communities provided by the communal health departments.

The health authorities organize and co-ordinate health education activities through the Provincial Health Offices and encourage the production of audio-visual media for purposes of health education. In the province of Perugia they have sponsored a practical health education demonstration centre as a pilot scheme. In many provinces there are committees for health education of the public. In the communes the communal health departments and the communal medical officers carry out health education work in the community and in the schools. A National Health Education Committee was set up in 1955 to stimulate health education work among the various voluntary associations concerned with public health activities, particularly tuberculosis control, maternal and child health and cancer control. Refresher courses are organized yearly by the health administration for public health workers.

The responsibility for mental health services rests with the provincial administration. Between 55,000 and 60,000 mental patients have been admitted to hospital annually during recent years. A number of psychiatric dispensaries have recently been set up, and the hospitals and dispensaries now have the services of social workers at their disposal. For mentally retarded children and those suffering from behaviour disorders, special schools or classes have been established with psychiatric services attached to them. A number of organizations have recently set up child guidance clinics, and some rehabilitation centres for juvenile delinquents have been opened.

Medical inspectors of labour, working under the Ministry of Labour and Social Welfare, are responsible for safeguarding the health of workers and taking the necessary steps to prevent occupational diseases, as laid down by law. Many large industries have well-equipped medical services in which there is a growing tendency to deal with the mental health and the problems of family life of the workers.

With regard to chronic and degenerative diseases, increasing attention is being given to cancer control. Apart from three cancer institutes in Rome, Milan and Naples, there are cancer control centres through-
out Italy; their number increased from 36 to 62 between 1953 and 1956, and 18 others are about to be opened. For the control of rheumatism and heart diseases there were 29 rheumatological and cardiological centres in the country in 1956, mainly for the benefit of pre-school and schoolchildren, and 18 others are being built.

It is estimated that some 300,000 persons are at present suffering from diabetes in Italy, and many centres for the control of this disease have been established in recent years through the joint efforts of the municipal health departments in large towns, the university clinics and certain welfare institutions.

Rehabilitation services have been organized, particularly in traumatology and orthopaedics, but during the last few years they have been extended to other fields, such as tuberculosis. Thirty-four special centres have been established for the rehabilitation and re-education of persons recovering from poliomyelitis, as well as nine for the treatment of recent cases, 17 for the treatment of long-standing cases and eight mixed centres; in 1955 and 1956, five new centres were set up. For the rehabilitation of spastic cases 13 centres were opened between 1954 and 1956, and four more are being built.

As part of the nutrition programme, the health authorities have introduced the subject of nutrition and dietetics into the training curricula of physicians, health visitors, nurses and other health personnel. Furthermore, with a view to gaining knowledge of the effects of food habits on the health of the people, the National Institute of Nutrition (which is attached to the National Research Council) has recently carried out in one commune the first of a series of nutrition surveys on the dietary habits and nutritional status of the Italian population.

LUXEMBOURG

The Grand Duchy of Luxembourg, in Western Europe, has an area of 2586 square kilometres, and is bounded by Germany, Belgium and France. Much of the country is hilly and wooded but there is reasonably good agricultural land and important iron ore deposits in the south.

The population at the 1947 census was 290,992 with a density of 118 per square kilometre; more recent estimates of population are as follows: 304,963 in 1954, 307,700 in 1955, and 311,033 in 1956. The capital, Luxembourg, has a population of 62,000. The language of the country is Letzeburgesch, with French as the official language, and the people also speak German.

The general educational level is high. A rough estimate of the main occupations includes the employment of 35,000 people in agriculture, 54,000 in mining and industry, and 25,000 in commerce.

The Grand Duchy of Luxembourg has a Chamber of Deputies consisting of 52 members elected by universal adult suffrage for six years. There is also a Council of State of 15 members chosen for life by the Sovereign; it advises on proposed legislation and on other questions referred to it by the Government, and gives administrative decisions. Among the members of the Cabinet are Ministers of Education, Public Health, and Labour and Social Services.

Economically speaking the most important industry is iron and steel, the foundries being in the south of the country. There are also crops of oats, potatoes, and wheat, and yields of meat, butter and wine. Luxembourg belongs to a Customs Union (Benelux) with Belgium and the Netherlands. Production is mainly in the hands of private enterprise.

Education is compulsory for all children between the ages of 6 and 13.

In 1952, 78,000 persons were covered for sickness and maternity benefits, and 102,000 for occupational accidents.

Health

At the beginning of the century a "sanitary service" was attached to one of the ministries. The first modern administrative measures, taken between 1900 and 1906, put into practice the principles of bacteriology. In 1945, following the example of many other countries, a separate Ministry of Public Health was created, and from then onwards complete reorganization was undertaken. The functions of this Ministry have been gradually widened to include the various fields of general and social health. General health services are dealt with solely by the Government, while much of the social health work is carried out by semi-official and private organizations, which are placed under the control of the Ministry of Public Health.

The Ministry of Public Health is assisted by a medical body, which acts in an advisory and disciplinary capacity. The Director of Public Health is responsible for the administrative and technical direction of the health services. Medical inspectors work on a regional basis as far as general health services are concerned, but they are all specialized in some branch, such as paediatrics, hospitals, etc.

The main health problems at the present time are: reorganization of the school medical services; control of tuberculosis; control of medicaments; modernization of legislation on foodstuffs, water, and air pollution; medical and social assistance to the handicapped; and the organization of mental health services.

All statistical matters are dealt with by the Central Statistical Office, with the exception of communicable disease statistics, which are the concern of the health services. A law is being drafted to provide that
compulsory declaration of causes of death shall be under the jurisdiction of the public health services.

The following rates were recorded for the period 1954-56:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth Rate</th>
<th>Death Rate</th>
<th>Infant Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>16.3</td>
<td>11.4</td>
<td>43.8</td>
</tr>
<tr>
<td>1955</td>
<td>16.1</td>
<td>11.4</td>
<td>38.9</td>
</tr>
<tr>
<td>1956</td>
<td>16.3</td>
<td>12.5</td>
<td>36.7</td>
</tr>
</tbody>
</table>

The following medical facilities exist: a government public health laboratory; 3500 hospital beds, including a government maternity clinic with 70 beds and various smaller municipal or private maternity clinics; two sanatoria for tuberculosis patients, with 200 beds, and a psychiatric institution with an external social service.

The distribution of medical personnel is as follows: (a) 16 administrative medical officers—four in the central administration, three in the public health laboratory, four in sanatoria, four in the mental home and one in the maternity clinic; (b) 250 physicians; (c) 42 paediatricians; (d) 116 dentists; (e) 150 pharmacists; (f) 130 home-visiting and hospital nurses; (g) auxiliary personnel—69 midwives, 742 nursing aides, 34 laboratory assistants and 56 physiotherapists.

There is no university medical course, but there are two schools for auxiliary medical personnel which take in 50-60 students each year.

The organization of a special service for health education of the public is under consideration. At the present time health education is carried out by means of the press, radio, and special teacher training courses.

All dental hygiene is carried out under private initiative, although large towns have organized school dental services.

Pre-natal examinations are recommended for pregnant mothers. School health is partly the responsibility of the municipal authorities; the State organizes school medical services in the intermediate schools.

The problem of communicable disease control is dealt with by three medical inspectors, three sanitarians and three public health nurses. Vaccination against smallpox has been compulsory since 1916, and free vaccination against diphtheria, poliomyelitis and tuberculosis has been organized by the Government.

A plan for a compulsory industrial medical service is under consideration. A number of industries have voluntarily appointed industrial medical officers who work under the supervision of the public health medical inspectors.

A government institution with 400 beds is available for the chronic sick. There is a tendency to decentralize the medical care of chronic tuberculosis patients by creating small sections in the hospitals; there are at present three such sections with 25 beds.

For old people there are six government homes with 300 beds, one foundation with 170 beds and eight private institutions with 250 beds.

About 98 per cent. of the population are served by a piped water system. Programmes for the prevention of water pollution are being undertaken, and studies are being made for the control of air pollution. An urban housing service has recently been established, and the approval of the public health service must be sought for the construction of public and municipal buildings.

MONACO

Monaco is situated on the north-west coast of the Mediterranean, with land frontiers joining France at every point. The whole available ground is built over, and the only cultivation is that of public and private gardens. The area is 1.5 square kilometres, and the population at the 1951 census was 20 202. The annual rate of increase in 1951 was 1.01 per cent.

There is an excellent small harbour, and the main railway line from Marseilles to Italy, through Cannes and Nice, passes through the Principality.

The educational system is closely modelled on that of France.

Health

A health service was founded in Monaco in 1911, and since 1955 it has been directed by a Commissioner of Public Health. The services provided include the control of professional practice, supervision of pharmacies, pharmaceutical products and laboratories, control of establishments providing curative and preventive services, school health, industrial health, blood transfusions, and the control of communicable diseases (including immunizations).

Medical care in the home is provided by private practitioners and nurses and by three doctors of the government health service. There is one hospital with approximately 300 beds, and clinics for tuberculosis and venereal diseases. Regular specialist consultations are provided for mothers and children, and a medical inspection service for schoolchildren and athletes is conducted by a full-time doctor. The aged are cared for in the hospital and in a special home maintained by the Municipality in an adjoining commune.
The medical and health personnel in Monaco consist of 40 doctors, 14 dental surgeons, 14 pharmacists, two midwives, 24 nurses and six social workers. A midwifery school with a capacity for 20 students provides a three-year training course, and nursing aides are trained in the hospital. Tuberculosis and cancer are the two problems which are receiving special attention.

In 1956 the reported cases of certain communicable diseases were: diphtheria, 1; measles, 13; whooping-cough, 61. No cases of poliomyelitis occurred during the period under review.

The public health laboratory carries out regular control of milk and water. The entire population is provided with a water-supply system, and the annual water consumption per person in 1956 was 590 cubic metres.

**MOROCCO**

Morocco lies at the north-west corner of the African continent between 38° and 63° north and 1° and 12° west. It is traversed from the Atlantic coast in the south-west to the Algerian frontier by the five ranges of the Atlas mountains. Between these ranges are well-watered and fertile plains. The southern slopes are exposed to the dry winds from the desert and are generally arid. The climate is pleasant and healthy, especially on the Atlantic coast, which is sheltered from the hot winds of the Sahara by the Atlas. The Mediterranean coast is drier and less temperate and the plains of the interior are intensely hot in summer. The area is some 410 805 square kilometres.

The population of Morocco is about 9,176,102 according to the last census, taken between 1950 and 1952. The principal towns are Casablanca (682,388 inhabitants); Marrakesh (245,312); Fez (179,372); Rabat (156,209); and Meknes (140,380). In 1956, over two million people were employed in agriculture, 250,000 in manufacturing and 150,000 in commerce.

The economy is mainly agricultural. Large irrigation works have begun; a dam at Bin el Ouidane provides for the irrigation of 1390 square kilometres of semi-desert, and further works are in progress. Morocco has important deposits of iron ore, manganese, coal, cobalt, lead and zinc, which are being increasingly exploited.

Illiteracy is fairly widespread among the population, but there are many Koranic schools, which give an elementary education, and a few higher schools attached to the mosques. The best known of these is the Kairoueen University at Fez, which has a high reputation throughout Islam. A modern educational system is being developed.

At the end of 1957 there were about 1800 kilometres of railways, of which 760 kilometres have been electrified. The main lines run between Casablanca and the Algerian border and are part of a continuous line to Tunis. In 1957 there were over 12,600 kilometres of motor roads, of which 7300 kilometres were main roads and 5300 kilometres were secondary roads. Regular air services are provided by a national air company.

In 1956 the reported cases of certain communicable diseases were: diphtheria, 1; measles, 13; whooping-cough, 61. No cases of poliomyelitis occurred during the period under review.

The public health laboratory carries out regular control of milk and water. The entire population is provided with a water-supply system, and the annual water consumption per person in 1956 was 590 cubic metres.

**Health**

In 1913 a health service was established in Morocco, combining the military health service and the civilian Health and Public Welfare Service. In 1926 it became the Directorate of Public Health and Hygiene, and was later transformed into the Ministry of Health, under the Constitution of the first Moroccan Government, adopted on 7 December 1955.

In addition to inspectorate services, the Ministry of Health at present comprises three divisions: health, preventive medicine and administration. Directly under the Minister there is a Secretary-General. The Central Pharmaceutical Service, the Laboratory Service (which includes the Institute of Hygiene of Morocco), the National Blood Transfusion Service and the Professional Education Service are available to all the technical divisions of the Ministry. The Health Division is responsible for supervision of hospitals and medical care services, and attached to it is a national health council. The Division of Preventive Medicine is responsible for urban and rural health services; occupational health; sanitary control of frontiers; control of communicable diseases and cancer; psychiatry; maternal and child health; health education and school health. The Administrative Division includes all the general administrative services of the Ministry. A welfare service is specially responsible for all forms of social assistance, and for seeing that appropriate assistance is given, in case of need, to children, old people and invalids.

At the provincial and prefectural levels there is a chief medical officer representing the Ministry of Health and in charge of the health work throughout the territory under his jurisdiction. In the social field, the chief medical officer is advised by the provincial or prefectural chief social worker.

At the end of 1956, 4362 personnel (2672 Europeans and 1690 Moroccans) were employed by the Ministry of Health, including 659 physicians, pharmacists and dentists; 150 social workers; 2849 midwives, nurses and other auxiliary technical staff, and 704 administrative personnel.

A Professional Education Service was formed in the Ministry in 1956 with the object of adapting facilities for the training of male nurses, female nurses and midwives to the needs of the country and, in particular, of organizing a publicity campaign in order to attract to the professional training schools.
more young men and women with a constantly higher level of general education. In the seven schools for male and female nurses and midwives in the year 1956-57, 398 students were under training. The building of five schools of nursing (female) and midwifery was started in 1957. The following institutions were providing medical care in 1956: 13 general hospitals; 124 regional, municipal and rural hospitals and nursing posts; 27 specialized institutions for tuberculosis, ophthalmology and neuropsychiatry; 312 rural dispensaries (consulting rooms); and 125 health centres, dispensaries, mobile health units and medico-social centres. In tuberculosis control, emphasis has been placed on case-finding. For treatment of tuberculosis patients 2410 beds are available, of which 1480 are in hospitals, 930 in sanatoria, and 550 in preventoria. Since 1949, a mass BCG vaccination campaign has been in progress with vaccine supplied by the Pasteur Institute of Casablanca. The campaign against eye diseases has been proceeding in Morocco during the period under review, and the work has been carried out largely through the local health services and field campaigns. Six ophthalmological hospitals provide a total of 640 beds, and, in addition, there are 22 out-patient clinics distributed in the various towns. Mobile ophthalmological teams supplement the work of the central units. In 1955 a total of 2,521,508 ophthalmological consultations were given by the various services. This work, in addition to the effective control of seasonal epidemics of conjunctivitis, has reduced the incidence of trachoma by enabling the people to treat themselves. The total number of persons treated for trachoma and conjunctivitis in the three-year period was: 260,000 in 1954; 412,049 in 1955 and 1,320,283 in 1956. The total number of school-children treated for trachoma during the three years was 126,499. Under the venereal disease control programme, 346,782 serological tests were made and 76,828 patients were treated in 1954 and 1955. In 1956, the control methods were modified to operate on a family and community basis, including the treatment of detected cases. During the “family” campaign, 46,502 cases were found and 37,098 patients and contacts were treated. During the “community” campaign, 105,281 serological tests were made and 12,273 cases were treated. Maternal and child health is an integral part of the general policy of public health, which aims at health education of the public in every way possible. Originally the Ministry of Health laid much stress on health education of the female population; the emphasis has now shifted to awakening a greater interest among all sections of the population. A plan has been drawn up to this end, which includes the building of a certain number of rural and urban dispensaries, the latter to serve specified districts of towns. Maternal and child health activities are carried out in maternal and child health centres, which consist of a day nursery, an infant clinic and facilities for training mothers. The activities of the maternal and child health centres in 1954-56 can be tabulated as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-natal consultations</td>
<td>50,059</td>
<td>61,976</td>
<td>121,442</td>
</tr>
<tr>
<td>Infant consultations</td>
<td>320,480</td>
<td>442,663</td>
<td>651,148</td>
</tr>
<tr>
<td>Dietetic and infant care demonstrations</td>
<td>172,788</td>
<td>177,986</td>
<td>204,317</td>
</tr>
</tbody>
</table>

In 1955 a sampling survey of levels of living was carried out among the population. Owing to the rapid industrialization of the country, the health problems of workers have become urgent and the Ministry of Health has recently taken measures to establish occupational health services and has promulgated the necessary legislation. In the field of mental health, the Ministry of Health has set up a special mental health section and is undertaking the reorganization and expansion of the existing central psychiatric hospital and the development of regional psychiatric services in the principal towns. The most widespread form of drug addiction in Morocco is addiction to hashish; a thorough study has been made of this problem, and a control programme has been started.

NETHERLANDS

The kingdom of the Netherlands is a maritime country of Western Europe on the North Sea, lying between 51° and 54° north and 3° and 7° east. It is bounded on land by Germany in the east and Belgium in the south. The country generally is flat and low-lying—below sea level in places—and is intersected by many canals and connecting rivers. The principal rivers are the Rhine, the Maas and the Yssel, with the Schelddelta. The land area is 34,830 square kilometres and it is being steadily increased by reclamation from the Zuider Zee. The population at the 1947 census was 9,625,499 and was estimated in 1955 at 10,751,000. Approximately 54.6 per cent of the people are urban, and the largest city, Amsterdam, has a population of 803,847. The country is divided into 11 provinces and 1014 municipalities.
The ministries in the Cabinet include Social Affairs and Public Health; Education, Arts and Sciences; Agriculture, Fisheries and Food; and Social Work.

As a result of intensive cultivation there is a large yield of agricultural products of many kinds. On the industrial side, there are 12 coal mines in the province of Limburg, several oil refineries, and a substantial production of crude petroleum. The main industries are foodstuffs, metals, textiles, and chemicals; fishing is also a large industry on the North Sea. The Netherlands are joined with Belgium and Luxembourg in the Benelux customs union.

Primary and secondary education are given in both denominational and State schools: the former are eligible for State assistance on equal terms with the latter. Attendance at primary school is compulsory. Secondary schools for children from lower income-group families are numerous, well equipped and well attended. There is practically no illiteracy. The principal universities are at Amsterdam, Groningen, Leyden, Nijmegen (Roman Catholic) and Utrecht. There are technical universities at Delft and Eindhoven (polytechnics), Rotterdam and Tilburg (economics), and Wageningen (agricultural science).

The principal ports are Rotterdam and Amsterdam. There are 7000 kilometres of navigable inland waterways, of which 1616 kilometres can take shipping of over 1000 tons. The total length of railways in 1952 was 3210 kilometres, of which 1283 kilometres were electrified. In January 1953 there were 4000 kilometres of main roads, 4235 kilometres of secondary roads, and 5500 kilometres of third-class roads. A national airline maintains regular services to all parts of the world.

At the end of 1956, eight million people were covered by insurance schemes for medical care; five million for old-age, survivors' and invalidity pensions, and two million for accidents of employment.

Health

Modern health service in the Netherlands may be said to have begun in 1865, when an act was passed providing for State supervision of public health. At the same time various voluntary agencies, destined to take an important share in public health work, began to make their appearance. At first they specialized in home nursing, but gradually they spread over many other public health activities — maternal and child health, preventive services and the fight against tuberculosis. Indeed an underlying principle of public health care in the Netherlands is that the services are actually carried out by voluntary agencies while the central Government restricts its activities to supervision, regulation and adjustment. This principle means in practice that the public themselves are very deeply concerned in everyday health care through their membership of voluntary agencies. The central Government helps these agencies to carry on their work, mainly by subsidies under certain conditions. This relationship between private initiative and the authorities works most successfully when the subsidies are large enough to develop the service while leaving the enterprise of voluntary bodies unhampered.

The responsibility for national public health rests with the Minister of Social Affairs and Public Health, who is assisted by a Director-General with an administrative staff of well over 50 civil servants and a number of advisory boards, such as the Central Council for Public Health Affairs, the National Health Council, the Sickness Fund Council, the Nutrition Council and the Rehabilitation Council. On the technical side four Chief Medical Officers, in charge of State inspectorates directly responsible to the Minister of Social Affairs and Public Health, deal respectively with public health, mental health, pharmaceutical health care and veterinary health care. Certain health activities are undertaken by bodies other than the health authorities, such as: (a) social insurance under the Sickness Insurance Act and the Industrial Accidents Insurance Act; (b) inspection of factories and workshops and industrial health services attached to large industries; (c) the hygiene of housing (under the Ministry of Housing); (d) questions closely related to health, such as social care of the blind, the deaf, the handicapped and the care of old people (under the Ministry of Social Work).

The provincial public health authorities are mainly concerned with drawing up regulations and granting subsidies, and have few executive powers. The 1956 Health Act, however, provides for the establishment of provincial councils of health, which enables the provinces to participate in health care.

The municipal authorities are much more closely connected with health care, since they have far-reaching legislative powers and a good deal of executive responsibility, such as for carrying out the various acts (including communicable disease control, vaccination, and so forth). These authorities may keep public health care largely in their own hands, and this is done in a few of the larger municipalities where the voluntary associations have not developed to the same extent as elsewhere. However, since the end of the 19th century, the voluntary bodies known as the Cross Associations have taken a leading part in general preventive work, and the organization of health centres and advisory bureaux — especially in the small municipalities — rests with them. In the earlier stages emphasis was placed on health centres for infants and young children and for the care of the tuberculous. Nowadays there are also services for mental health, the care of the aged, as well as for rheumatism and cancer sufferers. In the smaller municipalities the local authorities often work in close co-operation with the local branches of the Cross Associations in such services as school health and dental health.
Certain services — food control, for example — are frequently undertaken jointly by a group of local authorities.

The collection of vital statistics dates from the 17th century or even earlier, but systematic administration began in Napoleonic times (compulsory registration of births, deaths and marriages dates from 1811). Local censuses have been taken since 1417, but the first regular census of the country as a whole was taken in 1829. Under the Chief Medical Officer, the Central Bureau of Statistics compiles all the data on health and vital statistics from medical certificates, and the system of registration is combined with the regular ten-year census. The vital statistics for 1954 were: birth rate, 21.6; death rate, 7.5; infant mortality rate, 21.1.

The Chief Medical Officer of Mental Health collects data on patients in asylums and similar institutions, including mental defectives. A large number of other services in the Netherlands also regularly collect data on their own subjects, including tuberculosis, cancer, the provision of maternity care, school medical inspection, and other matters.

Private initiative has also played an important part in the provision of medical care. Up to 1940 the general sickness funds (also dating from the 19th century) provided a voluntary sickness insurance which covered about 50 per cent. of the population. When in 1941 a statutory regulation providing for compulsory insurance was introduced, the earlier organization was used as its basis. All persons in paid employment earning less than 6900guilders (US $1816) per annum are, with their families, compulsorily insured. They are entitled to medical aid from a general practitioner, a specialist or a midwife, ten weeks' hospital nursing, pharmaceutical aid and assistance towards the cost of nursing in a sanatorium and towards dental treatment. For voluntary sickness insurance the income limit has now also been fixed at 6900 guilders (US $1816) per annum. About 75 per cent. of the population are now covered by sickness insurance, either compulsory (in which case employers and workers both contribute 2.1 per cent. of the salary), or voluntary. By this means the sickness funds have finances at their disposal; they pay for almost all curative services and are even able to share in the cost of preventive health care.

In the Netherlands there are 221 general hospitals, 42 specialist institutions and 43 sanatoria. Seven of these are State hospitals and 41 are municipal establishments; the others are private institutions. The medical care in these hospitals is as a rule provided by a specialist staff. Nursing aid for the people is represented by about 12 000 qualified nurses and 13 000 student nurses.

Medical care in the home is provided by family doctors either in private practice or in sickness fund practice. Doctors are assisted in home care by district nurses and physiotherapists as required. Specialist consultation may be carried out either in the home or in out-patient departments. At the end of 1956 there were 4527 family doctors, 2891 specialists, 910 midwives and 2258 physiotherapists in practice. Further, there were about 2700 local district nurses, 200 district nurses and 3500 maternity aides, as well as about 1000 private nurses under private employment bureaux.

For the various branches of health care there are dispensaries which to a small extent form part of health centres. These dispensaries are advisory and do not as a rule provide treatment. There are 44 for pre-natal care, 2095 for babies and 986 for young children. There are also special dispensaries for dealing with prevailing diseases such as tuberculosis, rheumatism and cancer. A number of consultation centres for marriage guidance have been established.

After-care is mainly given by family doctors and district nurses, but an organized rehabilitation service is in the course of development. Provincial rehabilitation services are being set up, and 84 units are now in operation. There are three special rehabilitation hospitals, but facilities for rehabilitation are being developed in several other hospitals and sanatoria. In addition there are about 150 sheltered workshops run jointly by the health authorities and private initiative.

The total number of dentists in the country is 2400, of whom about 1700 co-operate with sickness funds. Dental care of insured persons is generally provided by the dentists' practice rooms. In only six towns is it given in polyclinics. Patients who have neglected dental care must contribute to the cost of treatment; free treatment is given to 2095 for babies and 986 for young children; there are also special dispensary services for dealing with prevailing diseases such as tuberculosis, rheumatism and cancer. A number of consultation centres for marriage guidance have been established.

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At present 60 per cent. of all confinements are attended by physicians and 40 per cent. by midwives; both give pre-natal care to their own patients, and may send a woman to a pre-natal clinic run by the Cross Associa-
tions or by the local health services (as is the case in the large towns) for a single complete medical and obstetrical examination free of charge at the beginning of pregnancy. These clinics are subsidized by the Government and each has a team consisting of a gynaecologist, a tuberculosis doctor, a dietitian and a laboratory worker. About 25 per cent. of the con-
finements take place in hospitals or maternity clinics. Confinements at home are assisted by family doctors or midwives with specialist help if required. Of the 233 877 confinements in 1956, 95 648 were attended by midwives.

Some 60 000 families are assisted each year by maternity aides, of whom as already mentioned there are 3500. They receive 15 months’ training and work under the supervision of a “matron teacher” who is a qualified nurse and head of the maternity centre from which the aides are sent out to the families; their work comprises care of the mother and child as well as housekeeping. There are also district maternity aides who only attend to mother and child once or twice a day.

Vaccination against smallpox in the child’s first year is strongly recommended, as well as immunization against diphtheria, whooping-cough, tetanus and poliomyelitis. For organized vaccinations the serum is provided free of charge by the State. Some of the large towns have a separate epidemiological service, but a regional or national service does not exist.

The school health service consists of 144 units (with a staff of 320 school medical officers and about 150 nurses) and covers 1 500 000 schoolchildren. The school medical officers collaborate with the family doctors and the teaching staff and carry out regular examinations of all children during their school life. During the past few years, nursery schools and secondary schools have been included to an increasing extent in the school health services. Fifty per cent. of the school medical officers are assisted by a school nurse, and the remainder by an administrative assistant. In 1955 nearly 32 000 children were sent to health camps on the advice of school medical officers. There are 56 child guidance clinics in various parts of the country. There are also special schools for mentally defective and physically handicapped children.

For many years health education has been carried out by the various voluntary organizations, through direct contact between the physicians and the people and, more particularly, through the district nurses, who play a most important part in this respect.

Mental health care is the responsibility of the Minister of Social Affairs and Public Health with the assistance of the Chief Medical Officer of Mental Health; the latter is in turn assisted by a number of full-time regional officers who are qualified psychiatrists. The voluntary organizations, which are grouped together into the National Federation for Mental Health, play an important part in the mental health services and co-operate closely with the central, provincial and local government authorities. In most cases public funds are made available to them if the authorities, advised by the Chief Medical Officer of Mental Health, are convinced that the work is of importance and will be carried out to required standards. The mental hospitals and institutions for the mentally deficient are capable of accommodating about 33 000 patients (27 000 mental patients and 6000 mentally deficient cases), and the procedure for admission is similar to that of a general hospital. Apart from the mental hospitals, there are growing numbers of psychiatric patients in general hospitals, and the university clinics have also psychiatric in-patient and out-patient departments. There are, furthermore, polyclinic centres and — in some large towns — psychotherapeutic centres. Prevention and follow-up are carried out by the socio-psychiatric services; psychiatrists and social workers advise the family doctor and the families and maintain contact with the mental hospitals for the admission and discharge of patients. A centre for forensic psychiatry was established at Utrecht a few years ago.

There are 36 occupational health services in single factories or industrial concerns, employing a total of 122 physicians; 21 occupational health services covering more than one factory or industrial undertaking, employing 46 physicians; and seven municipal health services each with an occupational health branch, employing 15 physicians. These services employ altogether 492 250 workers.

The primary task of the Cross Associations in the care of the chronic sick is bedside nursing in the home. There are nursing homes for the bed-ridden, and many private homes; several municipalities run one or more nursing homes themselves. There are health services for the treatment of specific diseases such as tuberculosis, diabetes, poliomyelitis, asthma, cancer, rheumatism, and heart and vascular diseases. Most of them are run by private initiative and subsidized by the State or local authorities. There are 10 centres for polio patients and three centres for asthma patients.

Health care for the aged is also mainly in the hands of private associations. Since 1953 the Netherlands Federation for the Care of the Aged has acted as a co-ordinating body. The task of the Government in this field is still confined to allocating subsidies and stimulating study and planning.

About 88 per cent. of all premises were provided with drinking-water at the end of 1956, and the pro-
portion of those connected to a sewerage system was only a little smaller. The water supplied by each of the country’s 193 waterworks is controlled four times a year by the State Supervision of Public Health.

In the interests of public health, all slaughter animals (including those slaughtered at home for consumption in the owner’s household) are liable for inspection before and after slaughter. Condemned meat (including the carcasses of slaughter animals) is processed under the Destruction Act into animal meal and technical fat. There are twelve destructor plants, which are obliged to collect and process all such material for destruction in the districts assigned to them.

NORWAY

Norway forms the northern and western part of the Scandinavian peninsula. Its coastline is long and indented with many winding inlets (fjords) and is fringed with a large number of rocky islands. The surface is mountainous, consisting of elevated and barren tablelands, separated by deep and narrow valleys. The cultivated area is about one-fortieth of the country; forests cover nearly one-quarter; and the rest is highland pasture or trackless mountain. The influence of the Gulf Stream makes the temperature higher than the average for the latitude. The climate is maritime. The area is 324,000 square kilometres.

The population at the census of 1950 was 3,278,546, and in 1956 was 3,448,673. The population is uniform, apart from about 20,000 Lapps (called Finns in Norway), mostly in Finnmark in the north, and about 8,000 Finnish population. Almost 68 per cent. of the population are rural. The general education of the people is at a high level.

For administrative purposes, the country is divided into the cities of Oslo and Bergen and 18 Fylker, each of which is governed by a chief executive official (Fylkesmann). There are 44 municipalities, 22 towns and 680 rural communes.

The chief industries are agriculture and forestry, mining, manufactures, fisheries, whaling and shipping. Manufacturing industry is aided by the tremendous resources of water power, of which over two million kilowatts are utilized—rather less than one-quarter of the potential.

Education is compulsory and free between the ages of 7 and 14. The schools are maintained by local taxation with government grants-in-aid. Secondary schools are provided by the State, the local authorities and private initiative. There are universities at Oslo and Bergen, with nearly 4000 students in 1953. The Norwegian mercantile marine is very large. The Danish, Norwegian and Swedish airlines are electrified.

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The population at the census of 1950 was 3,278,546, and in 1956 was 3,448,673. The population is uniform, apart from about 20,000 Lapps (called Finns in Norway), mostly in Finnmark in the north, and about 8,000 Finnish population. Almost 68 per cent. of the population are rural. The general education of the people is at a high level.

For administrative purposes, the country is divided into the cities of Oslo and Bergen and 18 Fylker, each of which is governed by a chief executive official (Fylkesmann). There are 44 municipalities, 22 towns and 680 rural communes.

The chief industries are agriculture and forestry, mining, manufactures, fisheries, whaling and shipping. Manufacturing industry is aided by the tremendous resources of water power, of which over two million kilowatts are utilized—rather less than one-quarter of the potential.

Education is compulsory and free between the ages of 7 and 14. The schools are maintained by local taxation with government grants-in-aid. Secondary schools are provided by the State, the local authorities and private initiative. There are universities at Oslo and Bergen, with nearly 4000 students in 1953. The Norwegian mercantile marine is very large. The chief ports are Oslo, Bergen, Trondheim, Stavanger and (for iron ore) Narvik. There are nearly 50,000 kilometres of public roads, of which about half are main roads. The length of State railways in 1953 was 4390 kilometres, of which 1130 were electrified. The Danish, Norwegian and Swedish airlines are now combined into one service.

There is a comprehensive group of social security schemes. General unemployment insurance was introduced in 1938. Health insurance for all workers and employers has been in operation since 1911. Workmen’s compensation for industrial workers goes back to 1895 and the scheme for sailors to 1913, and for fishermen to 1909. Old-age pensions were introduced in 1936 and family allowances in 1946. In 1954 about 1,130,000 were covered for sickness and maternity benefits, three million for medical care and 770,000 for unemployment.

Health

Since 1913, the Ministry of Social Affairs has been responsible for health services, but in 1945 two separate offices, one dealing with legal aspects and the other with technical aspects of health services, were amalgamated to form the present Directorate of Health Services, with a medical expert as its chief administrator. The Director-General of Health Services plans the budget for the entire civilian health services. He has wide powers of appointment, and is the chief government consultant on all matters requiring specialized medical knowledge. At present the Directorate has eight bureaux:

1. Medical Personnel, employing about 500 district doctors, town physicians and chief city medical officers. All doctors outside the district system are licensed and supervised through this office, which also administers the nursing and midwifery services.

2. The Bureau of Finance and Employment.

3. The Tuberculosis Bureau, which controls the service throughout the country and runs eight sanatoria owned by the Government. The State also pays the operating deficit of a number of private sanatoria. A separate division of the bureau deals with x-ray programmes, tuberculin-testing and BCG vaccination. One of its most important tasks today is the rehabilitation of tuberculosis patients.

4. The Bureau of Psychiatry, which administers the mental hospitals operated by the Government. It is also in general charge of patients suffering from all forms of mental disorder, including epileptics and the feeble-minded.

5. The Bureau of Hygiene is primarily responsible for environmental services, and its work includes the supervision of houses, schools, hotels and industrial establishments (in so far as this is outside the sphere of State labour inspection). The bureau also supervises maternal and child health, and deals with communicable diseases and all preventive measures in the personal field. Inspection of the manufacture and sale of food is another important function.
Bacteriological and serological research is supervised by this department through the National Institute for Public Health in Oslo, and the National Bacteriological Laboratory in Tromso, as well as through the research laboratories of the hospitals. Finally, the Bureau of Hygiene handles all matters involving international health work.

(6) The Bureau of Dentistry was originally concerned primarily with schools, but it has now expanded to offer preventive and general care to the whole population.

(7) The Bureau of Pharmacy organizes and directs all Norwegian pharmacies and drug stores. It is responsible for the employment of pharmacists, and has an inspectorate to deal with poisons and other materials dangerous to health.

(8) The Bureau of Hospitals handles a nationwide plan for the development of the hospital system, including employment, remuneration and working conditions and fees for medical care, and central purchasing of food and equipment. A special consultant has been appointed to deal with technical aspects of the hospital service.

Norway is at present divided into 389 health districts, each of which includes on average two communes. The actual size of district varies greatly, with an average of about 5000 people in each. In the health district, when it consists only of a single town, the doctor is called the town physician; in the larger cities, he is chief city medical officer. In the provinces there is a provincial public health officer. In order to provide the doctors in remote areas with help, a provincial public health officer is also the local health officer. In the health department, when it consists only of a single commune, the doctor is called the commune physician. The provincial public health officer is the immediate supervisor of all the district health officers and town physicians. In addition they oversee doctors in private practice, dentists, midwives and other health personnel, and are also supervising officers for mental patients under public care in communal and private hospitals and other medical institutions. At the same time they are advisers to the provincial government on all health matters.

By July 1956 there were 18 provincial public health officers (13 full-time), 372 district health officers, 22 town physicians and 14 chief city medical officers. Every commune nominates a health board and its chairman is now in most instances the district public health doctor. Communal self-government in health matters was assured from the very beginning of modern medical development by a law passed in 1860 and still in force. This law gave local authorities in each commune responsibility for all health matters by providing for local boards of health which should be elected by the communal council and at least partly from their members. As a governmental institution, the local board of health is not subject to the control of the mayor or chief officer of the commune. Its decisions are subject to appeal to the Ministry of Social Affairs, and this Ministry or the King in Council can alter its rules. Affairs involving sanitary or health matters cannot usually be tried in a court of law.

There is a distinct tendency towards uniformity in communal health regulations. They usually consist of sanitary measures regulating such matters as drinking-water supplies, drainage and sewerage, housing standards and places of work. These local regulations are in effect applications of the national law.

With the increasing complexity of the health services, the larger areas have established departments of health with staffs of full-time trained specialists.

In Norway the public health officer is a physician who has comprehensive duties and a wide responsibility over a comparatively small geographical area. He not only represents the national medical administration in his district, but is also the local health officer in the widest sense, undertaking sanitary inspection and promoting social hygiene and all preventive health work. Many of these doctors are, in addition, in medical practice, having direct contact with the people in their homes. The doctor is paid directly by the State for his administrative and health work, and is also entitled to earn fees under the health insurance programme as a practising physician. In approximately one-third of all health districts in the country the public health doctor is the only physician.

The birth rate has been falling slowly and was 18.6 in 1954. The death rate has also been falling and reached 8.6 in the same year. The infant mortality figure, too, has been declining steadily and reached 20.6 in 1955.

Maternal and child health centres are maintained chiefly by voluntary health organizations, with State support usually by direct grants for establishment and the cost of maintenance. By 1 January 1956 there were 1325 of these health centres, 86.5 per cent. being maintained by voluntary organizations and the rest by municipalities. Of these centres 571 supervise expectant mothers and 117 give advice on birth control. The usual experience is that most women prefer to
consult their private doctor or midwife for health supervision in pregnancy and the post-partum period, and also in family planning. During the period 1954-56 an increasing number of health centres had extended their services to include physical training for expectant mothers and health supervision of housewives. Most health centres offer vaccination and immunization. The health supervision of children includes medical examination, advice on nutrition and home care, and, when necessary, referral for treatment.

In urban districts the school authorities are required to employ medical officers. In rural areas, the service depends on the funds available, but in all higher schools health services are compulsory. In the 1954-56 period, the health examination of pupils entering school was practically 100 per cent. Tuberculin-testing was universal, and BCG vaccination was carried out in the sixth or seventh year of primary school. In 1956 approximately 90 per cent. of the children in primary schools were given, on a voluntary basis, two injections of polio vaccine.

No specific organization has been set up for health education of the public. The National Directorate issues educational material mainly related to child health and the prevention of tuberculosis. Health education of the public forms a major part of the programme of voluntary organizations.

The Bureau of Vital Statistics within the National Central Statistics Bureau deals with all information concerned with the health services. An annual publication — "Medical Statistical Report" — is a most comprehensive source of information on these data. There is also a Norwegian Cancer Registry. Certain items, such as statistics on mental hospitals, accidents, etc., are published separately.

In the home, medical care is provided by general practitioners and specialists and by parochial nurses. No general scheme of home nursing has yet been approved. In dispensaries and health centres (which are institutions for diagnosis and health supervision) no significant amount of medical care is given. In 1956, Norway possessed 221 general hospitals, with 18,800 beds; 22 mental hospitals, with 6631 beds; 28 nursing homes for the mentally deficient; one nursing home for epileptics, with 101 beds, and one leprosarium, with 15 beds. In 1955 there were 76 tuberculosis sanatoria and nursing homes, with 4168 beds, but in 1956 the number of beds had been reduced to 3420. There are also about 450 beds in psychiatric in-patient clinics, the majority of them in Oslo.

For child guidance and the treatment of psychiatric disorders in children, four out-patient clinics (with 125 beds) were in operation by the end of 1956. These clinics co-operate with a number of small treatment homes, to which patients may be referred.

Patients needing medical supervision after being in hospital are referred to their private doctor, either directly or after a period in a convalescent home. Rehabilitation and resettlement are at present under consideration by a committee, with a view to re-organizing the system. Between 1954 and 1956 the number of such institutions was increased from four to five and the number of beds from 266 to 294.

The dental care programme, which is available in four provinces, offers free treatment to children between 6 and 18 years and treatment at fixed rates for the rest of the population. A school dental service is provided by law in urban areas. The Government refunds 12.5 per cent. of the salaries of dentists in urban districts and 25 per cent. in rural areas. By 1954-56 the programme covered approximately 80 per cent. of all schools.

Since 1945, health services in industry have expanded considerably, and by the end of 1956, 800 factories with more than 215,000 employees were covered. In recent years increasing emphasis has been placed on the rehabilitation of the physically disabled, but comparatively little is being done for the systematic health care of the chronic sick. Voluntary health organizations have been very active in this respect, introducing projects for health care and social services. One of the major voluntary health organizations, the National Association against Tuberculosis and for Public Health, has in recent years taken a great interest in the care of the aged. In co-operation with the Institute for Social Medicine in Oslo and the Society for Gerontology, this voluntary body has undertaken a comprehensive study of problems of old age. In Oslo there are now nine welfare centres for the aged, offering cheap meals, leisure-time occupation, help with personal hygiene, help in the home, etc. There is an increasing trend towards building apartment houses for elderly people, with all necessary medical facilities.

The National Institute for Public Health and the Bacteriological Institute at Tromso are the principal State laboratories. Facilities for diagnostic services are also available in the local health department in Oslo and Bergen, and to a limited extent in other cities. The University Institute for Hygiene and the Institute for Occupational Diseases are mainly engaged in research.

The medical faculties of the Universities of Oslo and Bergen have a student body of 550 and 100 respectively, and graduate an average of 95 doctors each year. Dentists are trained at the Norwegian Dental High
School, which has a student body of 200 and graduates approximately 50 students each year.

As regards environmental health, by the beginning of 1954 it was estimated that about 17 per cent. of the population did not have running water. By the end of 1956 this proportion was reduced to 12 per cent. Control of water pollution is the responsibility of the local health authority. Water plants serving more than 1000 consumers must be approved by the Ministry of Social Affairs.

POLAND

Poland is situated in Central Europe, most of the country being part of the great European lowland. It is bounded by the Carpathian mountains on the south (forming its frontier with Czechoslovakia), by the German Democratic Republic on the west, by the Union of Soviet Socialist Republics on the east and north-east, and by the Baltic sea on the north. The two main rivers—the Vistula and the Oder—flow into the Baltic. The total area of Poland is 311,730 square kilometres. The climate is semi-continental.

The population at the 1946 census was 23,930,000; in 1950 it had increased to 25 million, and by 1957 it was estimated to be 28.5 million. Warsaw, the capital, has a population of over one million. The average density of the population is 92 per square kilometre, though higher in the industrial areas—in Katowice voivodship (Silesia), for instance, it is as high as 331. Rural dwellers accounted for 68 per cent. of the population in 1946, but by 1957 this percentage had fallen to 54; the movement towards the towns is related to the comparatively rapid industrialization of the country.

Poland is a Democratic People’s Republic. Parliament is the supreme State authority in charge of legislation and with control over the activities of other State agencies. The State is represented by the Council of State, chosen from among the members of Parliament. The Council of Ministers is the supreme executive and administrative authority; the local authorities are the People’s Councils, elected directly by the citizens. The country is divided into administrative units, or voivodships, which in turn are subdivided into districts, and these into rural communes. There are in all 17 voivodships, 398 districts and 8,339 rural communes. The five largest towns—Warsaw, Łódź, Poznań, Kraków and Wrocław—have their own administrative authorities equivalent to a voivodship, and within the districts there are 76 towns which have a separate administration equal in rank to that of the districts.

Before the war, the economy of Poland was mainly agricultural; the present economic structure of the country, however, shows a continuous trend towards industrialization. The chief industrial region is Silesia, and heavy industry is the principal branch of production, including locomotives, rolling-stock, motor vehicles, aircraft, ships, agricultural machinery, machine-tools, etc. Other centres of heavy industry, apart from Silesia, are the voivodships of Kraków (Nowa Huta) and Kielce, and the cities of Warsaw, Lublin, Wrocław, Poznań, Szczecin, Gdańsk and Gdynia. Other industries are based mainly on Poland’s raw materials, such as hard and brown coal, petroleum, natural gas, salt, potassium salts, timber, limestone, sulphur and gypsum. There are several centres of the textile industry, the chief one being the town of Łódź. Agriculture is based on four grain crops—rye, wheat, barley and oats—and on two root crops—potatoes and sugar beet.

The development of industry has its parallel in the development of transport. In 1957 there were 27,211 kilometres of railways, and about 280,000 kilometres of public roads, of which some 100,000 kilometres were hard surface. Air transport is developing steadily; in 1949 the national airline carried 64,547 passengers, while in 1957 the number had increased to 224,276. The merchant marine, in 1948, consisted of 45 ships with a total tonnage of 159,277; by 1957 it had 84 ships (including 23 of 5000-10,000 tons), with a total tonnage of 295,412. The three main ports on the Baltic are Gdynia, Gdańsk and Szczecin, and smaller ports include Kołobrzeg, Darłowo and Ustka.

Education is free and compulsory up to the age of 14. In the 1957-58 school year there were 24,502 elementary schools, with a total of 3,924,179 pupils. Secondary schools, vocational schools and schools of art are being developed. There are 76 institutions for higher education, including seven universities—in Warsaw, Łódź, Poznań, Kraków, Lublin, Toruń and Wrocław—which had a total student body of 162,680 in the academic year 1957-58. Pupils of secondary and vocational schools as well as college and university students benefit to a large extent from State scholarships, and school and students’ hostels are also provided for them.

Health

The characteristic features of the Social Health Service in Poland are: (a) responsibility of the State for the health of the population; (b) uniform supervision by the Ministry of Health of the essential public health problems, while at the same time the independence of the local health service authorities is maintained; (c) the principle of planning the development of the health services in accordance with the co-ordinated programme for economic development of the country; (d) correlation of the organization of the health services with the achievements of science; and (e) increasing emphasis on preventive medicine. The health programme has been carried out along these lines since 1944.

Before the war, health problems were included in the activities of the Ministry of Labour and Social Welfare, the Ministry of the Interior and the Ministry of Education, and were also dealt with by voluntary agencies. The Ministry of Health was established as the supreme authority in health matters in 1945, and the final structure of the present health service organization was worked out during the period of the three-year plan, 1947-49, and of the six-year plan.
At the local level of the voivodships, districts and urban districts, responsibility for health is in the hands of the health service departments of the People's Councils. These departments are under the administrative control of Boards of the People's Councils, and under the technical control either of health departments of higher rank, or of the Ministry of Health. Professional supervision of the health service institutions is also carried out by voivodship specialists (of whom there were 197 at the end of 1957) appointed by the Minister of Health. In certain specialties there are also national specialists (of whom there were 25 at the end of 1957), who co-ordinate the work of voivodship specialists and also act as advisers for the relevant departments of the Ministry of Health. Furthermore, there is an advisory Scientific Council at the Ministry of Health.

Special institutes have been established to plan, organize and carry out research work in various branches of medicine. There are at present 14 such institutes, including the State Institute of Hygiene, the Institute of Maternal and Child Health, the Tuberculosis Institute, the Institute of Oncology, the Institute of Occupational Diseases in the Textile and Chemical Industries, the Institute of Occupational Diseases in the Coal and Metallurgical Industries, and the Institute of Haematology. There are also 28 medical associations.

All forms of health service are available to everyone, either free of charge (to insured persons, who form about 60 per cent. of the population) or at reduced or full fees. All preventive facilities and all provision for treatment of communicable diseases are free of charge to all, whether insured or not. Out-patient care is organized by the local health units to cover their respective areas, and includes basic services such as internal medicine, paediatrics, obstetrics, gynaecology, dentistry and sanitary-epidemiological questions, as well as specialized services.

The number of hospitals and sanatoria is continuously increasing, although it is not yet sufficient to meet the needs of the population. The number of beds in health establishments (including those for mental care) has increased as follows between 1938 and 1957:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of beds</th>
<th>Index per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1938</td>
<td>69,361</td>
<td>2.01</td>
</tr>
<tr>
<td>1949</td>
<td>93,048</td>
<td>3.76</td>
</tr>
<tr>
<td>1957</td>
<td>148,963</td>
<td>5.22</td>
</tr>
</tbody>
</table>

Climatic treatment is also developing; there are 24 health resorts, with a total of some 12,000 beds. Among the largest may be mentioned Krynica, Ciechocinek, Busko, Cieplice and Szcawno.

In 1957, there were 3,679 general out-patient clinics, of which 1,906 were attached to institutions; 1,401 health centres (1,033 of them in rural areas); 2,573 health stations (or sub-centres); and 3,351 maternity stations (of which 1,938 were in rural areas). Emergency assistance is being organized to an increasing extent: in 1950, there were 178 first-aid centres, while in 1958 there were 361 centres and 20 air transport teams.

The birth rate in Poland is high: in 1957 it was 27.5. The death rate was 9.0 in 1957, and the infant mortality rate, although still high, has decreased from 136 in 1937 and 111 in 1950 to 77.0 in 1957.

The control of communicable diseases and sanitation, food control, housing, school hygiene, occupational hygiene and public utilities are under the supervision of a State Sanitation Inspectorate which is directed by the Ministry of Health. The General Sanitary Inspector, who is in charge of this unit, acts as deputy to the Minister of Health in sanitation and epidemiological questions. Every voivodship, district, town and urban district has a sanitary-epidemiological unit in the charge of a sanitary and epidemiological inspector, and about one-third of these units have fully equipped public health laboratories. The State Sanitation Inspectorate cooperates with all other government departments and other bodies whose activities come within its sphere of influence; it enforces legislation connected with public hygiene and epidemiology on the basis of a decree which gives it extensive powers, and it works out standards and sanitary regulations.

Vaccination against typhoid, smallpox and diphtheria is compulsory for children up to seven years of age; vaccination against tuberculosis is compulsory for the new-born, children and young people up to 18 years of age.

Among communicable diseases which are significant problems in Poland are typhoid, common infectious diseases of childhood, and infectious hepatitis. Poliomyelitis has been fairly prevalent, particularly since 1951; immunization is practised to an increasing extent, and the production of poliomyelitis vaccine began recently.

Tuberculosis control is one of the foremost problems of the Social Health Service. In 1957, 600,000 patients were registered at the tuberculosis dispensaries; of these some 400,000 were active cases. These dispensaries are the basic units in the tuberculosis control organization; in 1957 there were 509 of them. In the same year, there were 10,470 beds in hospitals and 22,686 in sanatoria for tuberculosis patients. There were also 8,402 preventorium beds for children up to 14 years of age; 1,285 beds for students, and
337 beds in night sanatoria for workers. The tuberculosis mortality rate is decreasing steadily: in 1949 it was 113 per 100,000, while in 1956 it was 51.0. The number of newly detected cases is also decreasing: whereas in 1949 the rate was 496 per 100,000, by 1956 it had fallen to 327. Attention is turning more and more to the problem of the handicapped, and medical and vocational rehabilitation of tuberculosis patients is gaining in importance.

Venereal disease control consists of compulsory treatment of patients and contacts. Between 1948 and 1950, a mass campaign carried out by the Social Health Service resulted in a considerable decrease in the syphilis morbidity rate, which was maintained until 1954. In recent years, however, the rate has been found to be rising again; for example, in 1947 the number of registered newly discovered cases of syphilis was about 100,000, or a rate of 500 per 100,000; in 1955 the number fell to 2681 (a rate of 9.7), but in 1957 it had increased to 5515, or a rate of 19.1 per 100,000. The incidence of gonorrhoea shows a tendency to decrease; 39,039 cases were registered in 1955, and 27,979 cases in 1957.

Other diseases which are important problems include the rheumatic diseases and malignant tumours.

A special department in the Ministry of Health is in charge of maternal and child welfare, and the local health authorities also have corresponding departments. The Institute of Maternal and Child Health deals with the scientific and organizational aspects of this subject. Great emphasis is laid on preventive care; there is a wide network of prenatal clinics and of clinics for both healthy and sick children. In 1957 there were 18,681 beds in obstetrical and gynaecological wards of hospitals, including special beds for premature infants. There were also 10,316 hospital beds for children.

Crèches for infants between six weeks and three years of age are organized to provide proper care for children whose mothers are working. The number of places in these crèches has risen from 18,866 in 1949 to 50,559 in 1957. There are also homes for small children who are abandoned or orphaned, or whose parents for justifiable reasons cannot provide for them; in 1957 there were 73 such homes with accommodation for 5,476 children. Special rehabilitation centres have been organized for children between the ages of 3 and 14 years who require either a special climatic cure or rehabilitation after certain diseases, such as poliomyelitis or rheumatic fever.

The health services are responsible for the provision of medical and health care at educational institutions for children and young people between the ages of 3 and 18 years. The school health services are mainly preventive in character, but general out-patient clinics also have sections devoted to school hygiene. The organization of voivodship dispensaries for school hygiene is planned for the near future.

The care of mothers and children is regulated by law. Special legislation on family questions and regulations for social insurance determine, inter alia, the hours and conditions of work of expectant and nursing mothers, the granting of maternity leave (12 weeks), and maternity benefits. In 1956 a law was passed laying down the conditions under which induced abortion is permissible.

With the growing industrialization of the country, great attention is being paid to the industrial health service, which, although essentially preventive, also provides medical care. Special emphasis is laid on work safety and hygiene. In 1957, the number of hours worked by physicians in the industrial health services amounted to 3,178,215, not including dentistry; 687,922 initial medical examinations, 959,283 periodic examinations, and 14,270,442 consultations were carried out. The industrial health service is being organized mainly in such key industries as coal mining, foundries, chemical factories, engineering works and textile factories.

Mental care is in the charge of the Section of Mental Diseases Control in the Ministry of Health and the corresponding sections at the local level. There are 26 psychiatric hospitals, four neuro-psychiatric sanatoria for children, and three sanatoria for adults; the total bed capacity is about 27,500. Institutions for chronic mental patients not requiring treatment and for mentally backward children are run by the Ministry of Labour and Social Welfare, the Ministry of Education, and the Caritas Association. The increasing morbidity of mental diseases and neuroses is probably related to growing industrialization and the stress of present-day life.

Great importance is attached to health education of the public. There is a special Health Education Section in the Ministry of Health, and the scientific basis of the programme is elaborated at the State Hygiene Institute. Numerous publications dealing with health education are issued. The propagation of health education is also one of the tasks of the Polish Red Cross.

In spite of continuous though slow improvement in every respect, the general level of environmental sanitation in the country is still not satisfactory, and much progress is needed in health education of the population and in the general standards of hygiene.

Development of the health service depends on having a sufficient number of professionally well-qualified
staff. As the following table shows, there has been an encouraging increase in health personnel in recent years:

<table>
<thead>
<tr>
<th></th>
<th>1938</th>
<th>1949</th>
<th>1955</th>
<th>1957</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>12,917</td>
<td>8,735</td>
<td>18,373</td>
<td>22,405</td>
</tr>
<tr>
<td>Dental surgeons</td>
<td>3,686</td>
<td>1,756</td>
<td>6,876</td>
<td>8,011</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>3,787</td>
<td>3,455</td>
<td>6,276</td>
<td>7,023</td>
</tr>
<tr>
<td>Nurses</td>
<td>6,674</td>
<td>11,238</td>
<td>49,278</td>
<td>53,672</td>
</tr>
<tr>
<td>Midwives</td>
<td>9,356</td>
<td>6,896</td>
<td>7,689</td>
<td>8,359</td>
</tr>
<tr>
<td>Feldshers</td>
<td>1,403</td>
<td>591</td>
<td>5,447</td>
<td>6,656</td>
</tr>
</tbody>
</table>

The training of physicians, dentists and pharmacists is undertaken at 10 schools of medicine (in Białystok, Gdańska, Katowice, Kraków, Lublin, Łódź, Poznań, Szczecin, Warsaw and Wrocław). Apart from teaching, these schools of medicine also carry out research work. Studies at the medical faculties last for six years, and the courses in dentistry and pharmacology last for five years. In the academic year 1957-58, a total of 28,391 students attended the medical schools. Post-graduate courses for physicians are also organized.

The training of para-medical personnel is carried out in special schools. There are at present 59 schools for nurses, 17 for midwives, eight for laboratory technicians, and some other institutions. In spite of the very considerable increase in the number of trained nurses in recent years, the shortage of this type of staff is still most acute.

Future plans include the development of the preventive aspect in every branch of medicine.

PORTUGAL

Portugal occupies the western part of the Iberian peninsula; it is bounded on the north and east by Spain and on the south and west by the Atlantic Ocean. The Azores and the Madeira Islands in the north Atlantic are politically integrated with the Republic. The physical features of the country vary greatly, from the mountainous region of the Sierra da Estrela and the extensive moorlands below, to the wide plains which slope down to the sand dunes and lagoons of the coast. The climate is equable and temperate, though severe inland towards the north. The area of the mainland is 92,161 square kilometres.

The population of Portugal at the 1950 census was 8,441,312, and in 1956 it was estimated at 8,836,850. About 70 per cent. of the people are rural. The chief occupations are agriculture, stock-breeding and fishing (in which 1,569,120 people, or 49 per cent. of the working population, are engaged), followed by industry and commerce (1,117,460, or 34 per cent.). Other occupations engage 509,902 people, or 17 per cent. of the working population. Lisbon, the capital, has a population of 800,000. In 1950 it was estimated that 58.2 per cent. of the population over 10 years of age were literate.

For administrative purposes the country is divided into 11 provinces, 18 districts (four in the islands), 304 communes, and 3956 parishes, including 186 in the islands.

The economy is predominantly agricultural. The chief products are cork, wheat, maize, rice, fruit, timber and wine. The six-year development plan, 1953-58, provides for important hydro-electric development, irrigation, expansion of agricultural lands, afforestation, a steel and tinplate industry, and extensions to the petroleum refinery near Lisbon.

The chief ports are Lisbon, Oporto and Setúbal. Portugal has a large merchant marine, and a very considerable amount of trade is carried on through the ports. In 1955, the total length of railways was 3,589 kilometres; there were 29,709 kilometres of roads on the mainland and 1,840 on the islands. Lisbon has an international airport through which about 19 airlines operate services. There are two civil airlines, an inter-island service, and other services in Portuguese East and West Africa.

Health

At the national level, the health services are directed through the Under-Secretariat of State for Social Welfare, which was established in 1940 in the Ministry of the Interior. The Under-Secretary is in charge of four central divisions, which are the supreme authorities in matters of health and social welfare: the Higher Council of Hygiene and Social Welfare; the Directorate-General of Health; the Directorate-General of Welfare; and the Social Welfare Inspectorate.

The Directorate-General of Health is made up of the following technical sections: sanitation, prevention of infectious and social diseases; rural health and malaria control; industrial and occupational health; food hygiene and bromatology; child health; sanitary control of ports, frontiers and public transport; pharmaceutical practice and control of drugs. There is also an Administrative Services Office to which is attached a Supplies and Equipment Section; the latter is a public health depot where equipment is kept for disinfection and insect control, for setting up isolation centres and for other public health purposes, as well as cars, ambulances, disinfection vehicles, tank lorries and so forth. Although not sections in the administrative sense of the word, there are also units for sanitary engineering, medical inspection of medicinal mineral water, and health education.

In addition to activities of a purely social nature and those relating to the administration of hospitals, the Directorate-General of Welfare is also responsible, through the Maternity Institute, for all medical and social assistance to mothers and to children up to the age of seven years; through the National Institute for the Welfare of Tuberculosis Patients, for assistance in the prevention and treatment of tuberculosis and attention to its social aspects; through the Institute for the Welfare of Leprosy Patients, for assistance...
in the treatment of leprosy patients and their rehabilitation and subsequent follow-up; and through the psychiatric centres, for medical and social assistance to persons suffering from mental disorders.

The Ministries of Labour and Social Insurance, of Economy, and of Education are responsible for social insurance and industrial hygiene, the control of zoonoses, and school health and sports medicine, respectively. The Portuguese Cancer Institute and the Camara Pestana Bacteriological Institute are under the Ministry of National Education, and the Institute of Tropical Medicine is under the Ministry for Overseas Territories.

At the regional or provincial level, regional health authorities represent the Directorate-General of Health in the chief towns of all the districts in the country; there are also State and regional hospitals, bodies delegated by the National Institutes under the Directorate-General of Welfare, and provincial social welfare committees.

At the local level, there are communal health services under the district health authorities, local hospitals under voluntary organizations, communal medical officers (who give free medical care to the needy), and communal and parish social welfare committees. The communal medical officers are members of the communal health services and, as such, assist the communal health officers in carrying out their duties and responsibilities.

Voluntary and charitable associations play a very important role in health and social welfare in Portugal. The services in the charge of the Under-Secretary of State for Social Welfare, operating at the various levels, are responsible for directing, co-ordinating and supervising all the medical and social activities carried out by these voluntary agencies.

There are government health centres or dispensaries in all the major towns, financed by the Directorates-General either of Health or of Welfare. There are also health centres, commonly known as “social welfare posts” run by voluntary societies but financed in whole or in part by the Directorate-General of Welfare. These centres, which usually provide medical care services, are scattered throughout the country, including the rural areas. There is a growing tendency nowadays to convert the hospitals into effective health centres.

In 1953, insurance covered nearly one million people for sickness and maternity benefits, 1.5 million for medical care, and 173,000 for industrial accidents.

In 1956, there were 20,043 medical and auxiliary personnel working in the country’s health services, including 272 local health officers, 805 communal medical officers, 2,898 physicians under social insurance, 7,006 nurses and 870 midwives and health visitors.

Mortality statistics are collected and published by the National Institute of Statistics in close collaboration with the Health Department. Data relating to communicable diseases, vaccinations and special surveys undertaken by the health services are collected by the Health Statistics Section of the Health Department for compilation and analysis. The birth rate has changed very little during the period under review, being 22.7 in 1954, 23.9 in 1955, and 22.9 in 1956. The general mortality rate was 10.9 in 1954, 11.3 in 1955, and 12.1 in 1956. Infant mortality rates for the same years were 85.5, 90.2, and 87.8, respectively.

Among the principal causes of death registered during the years 1954, 1955 and 1956, were diseases of the heart and vascular system, pneumonia, tuberculosis, malignant neoplasms, gastro-enteritis, and diseases of early infancy. Typhoid fever, diphtheria and whooping-cough head the list of notifiable communicable diseases.

The control of communicable diseases is the responsibility of the Directorate-General of Health in the Ministry of the Interior, but tuberculosis and leprosy control work is under the direction respectively of the National Institute for the Welfare of Tuberculosis Patients, and the Institute for the Welfare of Leprosy Patients. Control of malaria, yellow fever, kala-azar, bilharziasis and relapsing fever is in the charge of the technical section for rural health and malaria control in the Directorate-General of Health. The local health services, the health centres and the communal medical officers carry out vaccinations and other preventive measures in outlying areas. Dispensaries and health centres under the local health authorities provide services for the control of venereal diseases and trachoma.

There are communicable disease hospitals in Oporto, Coimbra and Lisbon, and many other general hospitals have special wards for the isolation of infectious cases. Only smallpox vaccination is compulsory; during the years under review, 633,833 persons were vaccinated and 1,914,637 were re-vaccinated.

Although tuberculosis is not compulsorily notifiable, available data show that the tuberculosis mortality rate has fallen considerably during recent years; in 1941 it was 160.5, decreasing to 133.1 in 1951, and since then there has been a marked decline to 62.2 in 1956. Tuberculosis control services are provided through three centres for prevention and diagnosis in the north, centre and south of the country, with supporting services consisting of 12 mobile x-ray units, 13 mobile vaccination teams, a number of district centres and vaccination posts, 85 health
centres and 58 out-patient clinics. Furthermore, there are 7422 beds in sanatoria for pulmonary tuberculosis and 1261 beds for tuberculosis of the bone, 739 beds in preventoria, and 395 beds at the thoracic surgery centre. The tuberculosis control campaign was considerably intensified in 1956, and during the first quarter of that year 379 101 tuberculin tests, 148 960 BCG vaccinations and 732 632 x-ray examinations were carried out. The rehabilitation of tuberculosis patients is receiving active consideration, and certain pilot studies are in progress.

A most successful campaign against Aëdes aegypti undertaken between 1950 and 1956 resulted in the eradication of this vector and the suspension in 1957 of the quarantine measures relating to yellow fever.

Malaria control measures resulted in the protection of some 225 000 persons in 1954, 141 125 in 1955, and 230 250 in 1956. The number of confirmed cases of malaria, including relapses, dropped from 483 in 1954 and 255 in 1955 to 130 in 1956. In some areas, malaria eradication has been or is about to be completed.

Kala-azar is still fairly prevalent in the north, where 214 cases were reported in 1956. On the other hand, the only focus of bilharziasis in the country has been practically eliminated. Relapsing fever remains localized almost exclusively in the Upper Alemtejo and only three cases were reported in 1956.

The usual diagnostic laboratory services are available in different parts of the country. For the public health services, more-specialized analysis and research work is undertaken by the Ricardo Jorge Higher Institute of Hygiene in Lisbon, under the auspices of the Directorate-General of Health.

Maternal and child health services are provided through the local health centres, and in many places maternal and child health clinics have been established under either public or private auspices. It is recognized, however, that these services are not yet sufficiently developed to meet present needs.

Medical inspection in primary schools is carried out by the communal medical officers. In the secondary schools the services of doctors are made available by the National Ministry of Education. A school canteen system has been instituted in recent years, and has helped to improve the nutritional status of children from needy families.

Health education of the public is carried out principally through the annual organization of health exhibitions in the large towns and rural centres. With regard to occupational health, legislative provision has been made for the protection of the health and safety of workers, including medical care and compensation in cases of occupational accidents and diseases. Other ministries in their respective fields also provide certain services in this connexion. In regard to chronic diseases, the activities of the Portuguese Rheumatological Institute are noteworthy.

There are four universities in Portugal, three of which have medical faculties with a total of about 200 graduates each year. The fourth is a technical university in Lisbon, which has a School of Engineering and an Advanced School of Veterinary Medicine. There are also the Institute of Tropical Medicine, the National Institute of Physical Education, and the Ricardo Jorge Higher Institute of Hygiene, which provides general courses on public health for the benefit of candidates for the posts of health officers or communal medical officers.

Among the private establishments, the Lisbon Social Service Institute and the Coimbra Training School both train social workers. For the training of nurses there are, among other institutions, the Technical School of Nursing and the Artur Ravara School. The Maternity Institute operates schools in Lisbon and elsewhere which provide specialized training in maternal and child health.

During recent years the Government has continued its policy of improving water supplies in towns and villages. It is estimated that 96 per cent. of the urban population is supplied with water. Work has begun on the construction of more complete sewerage systems — either through the renovation of old systems or through the installation of new ones.

ROMANIA

The People's Republic of Romania is in south-east Europe and is bordered by Bulgaria, Yugoslavia, Hungary, Czechoslovakia and the Union of Soviet Socialist Republics. To the east it has a coastline of 245 kilometres on the Black Sea. The main physical regions of the country are the plain of Wallachia, the mouth of the Danube, Transylvania (for the most part a fertile plateau, bounded by the Carpathians on the north, east and south), Moldavia, which is heavily wooded, and the Dobruja steppes. The total area is 237 500 square kilometres, of which 40.9 per cent. is arable land and 27.1 per cent. is wooded. The climate is continental.

At the 1956 census, the population was 17 489 450, with an average density of 73.6 per square kilometre; 31.3 per cent. of the people were urban and 68.7 per cent. were rural. Bucharest, the capital, had a population of 1 236 908.

Romania is a socialist people's republic, divided for administrative purposes into 16 regions, with populations varying from 500 000 to 1 500 000. Each region is subdivided into districts
technical body responsible for planning, organizing and supervising all activities for health protection. The main departments in the Ministry are: Department of Health and Prevention of Epidemics (sanitary and epidemic prevention units, sanitary control and regulation); Department of Curative and Preventive Medicine (hospitals, polyclinics, health units, maternal and child health centres, tuberculosis control dispensaries); Department of Social Welfare (social welfare and pensions); Pharmaceutical Department (distribution units for drugs and other medical products); Division of Personnel and Training, and Division of Balneo-Climatic Treatment. There are further divisions in charge of planning, statistics, organization of work, building, equipment and supplies, organization of production of medical appliances and instruments, and questions concerning financial planning in health programmes.

A number of scientific research institutes, whose work is co-ordinated by the Ministry’s Scientific Medical Council, assist the Ministry of Health and Social Welfare; among them may be mentioned the Cantacuzino Institute of Microbiology, Parasitology and Epidemiology; the Institute of Hygiene and Public Health; the Institute of Physiology; the Institute of Paediatrics; the Cancer Institute; the Institute of Haematology and Transfusion; the Institute of Medical Appraisal of Working Capacity; the Institute of Chemical and Pharmaceutical Research; the Institute of Balneo-Physiotherapy; the Dermatology and Venereology Centre; the Institute of Pathological Anatomy, and the Institute of Forensic Medicine. Scientific institutes of the Academy of Science of the People’s Republic of Romania, and their branches throughout the country, also carry out an active research programme in medical science.

The Ministry of Health and Social Welfare is also directly in charge of a State publishing firm (“Editura Medicală”), a medical documentation centre with branches in the chief towns of the country, a technical health film service, and two firms producing medical instruments, prosthetic appliances, and other equipment. The five faculties of medicine and pharmacy, the auxiliary training schools, and a number of large sanatoria and other health establishments are also under the direct technical and administrative supervision of the Ministry.

At the regional level, each of the 16 administrative regions (as well as Bucarest) has a health and social welfare section which operates within the framework of the People’s Councils and which is headed by a chief medical officer, with a staff of three medical officers and the necessary administrative establishment. These medical officers are members of the public health services.

Health

The Ministry of Health and Social Welfare is the technical body responsible for planning, organizing...
Each administrative region has its own health budget and is financially responsible for all health activities within its boundaries.

The regional health and social welfare sections ensure that the health policy within their respective areas is in accordance with the standards laid down and the instructions issued by the Ministry. With the help of medical and social welfare units, they are also responsible for medical and social assistance to the population. There is a social welfare office in each region to deal with problems of pensions and social welfare, and a regional pharmaceutical office, which deals with the supply of drugs and medical instruments; these offices are under the regional health and social welfare sections.

The regional health and social welfare sections are assisted in their work of direction, co-ordination and supervision by a medical scientific council, made up of high-ranking specialists in the different branches of medicine, who act in an advisory capacity, giving their opinion on various health problems and on specific methods of approach applicable to local conditions.

The chief medical officer is generally also appointed chairman of the regional Red Cross committee in order to ensure close co-operation between the health services and the Red Cross. The latter organizes health education activities in factories and schools, as well as special courses in hygiene and domestic science for girls, to prepare them for the future with an understanding of the basic principles of health. The Red Cross also makes up teams, headed by doctors, to help the population carry out their own programmes of health improvement, and teams of volunteers who assist in various health activities such as vaccination, mass case-finding surveys, environmental sanitation, and so forth.

Within the framework of each district People's Council there is also a health and social welfare section, directed by a district chief medical officer, and assisted in its work by a social welfare office and a sanitary and epidemic prevention unit (which may serve one or more districts), as well as by the physician in charge of the district hospital.

A wide system of health establishments provides the population with medical and health care. Since 1950 a specialized technical network of sanitary and epidemic prevention units has been set up. The task of these units is to prevent and control infectious diseases, supervise environmental sanitation, and deal with all matters concerning industrial and school health, food control and nutrition. The units have their own statistical services and bacteriological and chemical laboratories; in some cases they also have serological and helminthological laboratories. Regional units are generally staffed by 15 doctors, three chemists, and 16 auxiliary personnel; district units usually have a smaller staff of seven doctors, one chemist, and six auxiliary personnel. Medical care of the urban population is provided through hospitals with a "unified" organization—that is, working in close co-operation with, and under the same direction as, the polyclinics and health units of a clearly defined area; by this means, both curative and preventive needs are met. Each urban district is served by two general medical practitioners (one for adults and the other for children), and by nurses, social welfare workers, midwives and sanitarians; the polyclinics and hospitals have medical specialists on their staff, appointed in accordance with official standards on the basis of the number of inhabitants.

Medical care of workers is provided through industrial dispensaries (served by from one to three practitioners) and polyclinics (served by medical specialists). Larger factories have their own medical and health services consisting of a polyclinic for specialist consultations and a medical station (which is attached to the polyclinic) with a few beds for temporary in-patient accommodation.

In rural areas there are district dispensaries, each serving about 5000 people, staffed by a physician, nurses, midwives, technicians and sanitarians; many rural districts have also added two paediatricians and a dentist to the staff. In future years it will be possible to increase this staff, since within the next four years there will be 6000 more doctors. Almost all districts have one or more small maternity clinics with five to 10 beds, and many have their own medical station where patients may stay either for treatment or while awaiting transportation to hospital.

Health centres generally provide, apart from medical care, services in maternal and child health, health education, environmental sanitation (including sanitary installations), control of communicable diseases, vaccinations, and other matters. In certain rural districts there are, in addition, either dispensaries with special services for children or hospitals with departments for internal medicine, surgery, paediatrics, infectious diseases, etc. In small districts the hospitals may have between 80 and 120 beds, whereas in larger urban districts they may have from 300 to 400 or more according to the number of inhabitants.

Other health establishments include institutions for the chronic sick, for psychiatric patients, for children with various affections, and for disabled adults; there are also special training schools for the
blind and the deaf and dumb, and social welfare units for the aged.

In 1938, Romania had 8234 doctors, or one for every 1900 inhabitants; by 1957 this number had risen to about 22,500, or a ratio of 1:800. At the present time about one-third of the doctors are general practitioners and the remainder are specialists. There are also many auxiliary personnel; in 1955 there were some 60,000 nurses, midwives, and technicians, as against 17,000 in 1944.

The cost of social insurance is borne entirely by the State, and includes not only medical care but also State family allowances, invalidity and old age pensions, and climatic and spa treatment. With regard to the last-mentioned benefit, some 270,000 citizens a year profit from a stay in a State rest-home, and 181,000 from treatment in State sanatoria at spas. Apart from insured persons, the entire population is entitled to free medical care at health centres, and specialized establishments provide care free of charge for children up to 16 years of age, for women during pregnancy and childbirth, for the chronic sick, for cases of infectious disease and venereal disease, and for patients requiring the urgent attention of physicians or surgeons. The cost of preventive medical care is borne entirely by the State.

There has been a noticeable improvement in the state of health of the population in recent years, which is reflected in the vital statistics for the past decade:

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<tr>
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<th>1947</th>
<th>1957</th>
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<tr>
<td>Birth rate</td>
<td>23.4</td>
<td>22.8</td>
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<tr>
<td>Death rate</td>
<td>22.0</td>
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The infant mortality rate, which remained very high for a long time (between 170 and 190), and which accounted for more than 30 per cent. of all deaths, is now declining at an increasing pace; in 1957 it was 81.0. The neonatal death rate dropped from 66 in 1948 to 27 in 1957; this mortality is reported to be due chiefly to acute diseases of the respiratory system.

The main causes of death, in order of importance, are: diseases of the cardiovascular system (excluding cerebral haemorrhage), diseases of the respiratory system, cancer, diseases of the digestive tract, tuberculosis, and accidents. Deaths from most causes have decreased during the past ten years, with the exception of deaths from diseases of the cardiovascular system (which had first place in 1954, with a rate of 270.2 per 100,000) and from cancer (which had third place, with a rate of 81.2).

The tuberculosis mortality rate, on the other hand, dropped from 180.3 per 100,000 in 1948 to 41.2 in 1957. The organization of a tuberculosis control service, including mass x-ray case-finding surveys, has made it possible to discover and follow up a large number of hitherto unknown sufferers, and has resulted in a reduction in case incidence (to 315.6 in 1957) as well as a decline in the death rate.

The study of medicine, paediatrics, dentistry and pharmacy is carried out in the five universities of Bucuresti, Cluj, Jassy, Timisoara and Tg.Mures. During the academic year 1956-57 there were altogether 7003 students in general medicine, 1462 in paediatrics, 819 in dentistry and 865 in pharmacy. The division of the Ministry of Health and Social Welfare which is in charge of training of medical and health personnel determines the number of students needed for medical studies and for training in other health subjects. The present tendency is to limit the number of students in the five faculties and to introduce improved methods of teaching, particularly by increasing practical training. On completion of their studies, graduates do a one- or two-year internship in hospital before taking up their duties. Promotion is based on seniority and competitive examination; a doctor may become a junior physician after three years of medical practice, a medical specialist after five years, and a chief medical officer after ten years on passing competitive examinations. The salaries of doctors are determined by seniority, experience, type of work and location; higher salaries are given to those working in the preventive services and in rural areas. Post-graduate specialization or refresher courses (the duration of which varies according to the branch of study) may be undertaken; in such cases the institution in which the doctor is employed bears the cost of his salary during the training period.

There are at present 22 training schools for auxiliary health personnel in Romania, which admit students who have completed secondary school education; the number of students training as auxiliary health workers is still not considered sufficient.

The Ministry of Health and Social Welfare is at present drawing up a long-term plan for the development of the medical and health services, the training of health personnel of all types, and the production of drugs and medical equipment.
Spain

Spain lies in the south-west of Europe, surrounded on the south and east by the Mediterranean, on the west by Portugal and the Atlantic Ocean, and on the north by the Bay of Biscay and France, from which it is separated by the Pyrenees. The interior of the Iberian peninsula is an elevated tableland surrounded and traversed by mountain ranges. There is a great variety of climate: equable on the Atlantic and northern coasts, with a fair rainfall well distributed through the year; arid in the interior with extremes of temperature, and on the Mediterranean coasts warm summers and temperate winters. The area is 503,492 square kilometres.

At the last census, in 1950, the population was 27,976,755, including that of the Balearic and Canary Islands. The estimated population for 1955 was 29,089,142. Approximately 63 per cent. of the population are rural. Madrid, the capital, has a population of 1,792,961. Agriculture employs about 5.3 million workers, industry 1.9 million, and commerce 700,000.

The provinces are made up of municipalities or boroughs, of which there were 9,212 in 1950. All municipalities are autonomous in their own spheres and are directed by the Ayuntamiento. Municipal councils are elected by heads of families; the mayors and councillors are appointed by the Government. Each of the 50 provinces of Spain has its own Assembly, the Diputación Provincial, which has entire jurisdiction over the province and is its sole administrator.

The economy of Spain is mainly agricultural. The country is generally fertile and well adapted to agriculture and the production of fruits such as olives, oranges, lemons, almonds, pomegranates, apricots and grapes. Agricultural products include wheat, barley, maize, oats, rice and high quality flax and hemp; there is also a large production of wine. Agricultural exports amount to some 60 per cent. of the foreign currency earnings. The mineral resources are variously exploited, and include coal, iron, tungsten, copper and lead. In 1954 the coal mines produced 20 million tons of bituminous coal and nearly two million tons of anthracite. The production of Spanish and Rif iron ore was 5,767,000 tons, and that of pyrites was nearly two million. The fishing industry is important—mainly sardines, tuna—fish and cod. The principal manufactures are textiles, leather goods and ceramics and light engineering products. Spain imports cotton, jute, cereals and a considerable amount of foodstuffs, machinery, motor cars and petroleum products. The principal exports are iron and wolfram ores, cork, hides, perfume essences, fish, fruit, vegetables, wine, potash, olive oil, mercury and lead. Production is mainly in the hands of private enterprise.

Primary education is free, but compulsory attendance cannot be enforced because of the insufficient number of schools. The country is divided into 12 educational districts, centred round the universities. There are universities in Barcelona, Granada, Madrid, Murcia, Oviedo, Salamanca, Santiago, Seville, Valencia, Valladolid, Saragossa, and in La Laguna in the Canaries.

In 1953 there were over 13,000 kilometres of broad gauge railway lines and 5,032 kilometres of narrow gauge lines. In the same year, 12,000 ocean-going vessels—with a tonnage of about two million—entered the chief Spanish ports of Barcelona, Seville, Malaga and Santander. In 1950, the total length of roads was 111,000 kilometres, of which 82,000 kilometres were macadamized. Civil aviation is under the control of the Air Ministry; several internal and international services are operating.

There is a comprehensive range of social schemes, including those which come under the Labour Charter, whose object is to achieve better distribution and remuneration of workers and to give holidays with pay and family allowances. In 1953, 3,719,000 persons were covered for maternity and sickness benefits, 8,708,000 for medical care, and over 5 million for accidents of employment. Under the family allowances scheme, employers contribute 6 per cent. and employees 1 per cent. of their earnings.

Health

The origin of the Spanish health administration can be traced back to 1735, when a Supreme Health Junta was formed with a view to preventing the importation of communicable diseases. Since then the health organization of the country has undergone numerous changes. It its present form, the national health administration—the Directorate-General of Health—is under the Minister of the Interior. Closely associated with the Directorate-General of Health are a national health council (a consultative body), the School of Public Health (which is also part of the University), and various semi-official consultative bodies—the national Patronatos—in which the Directorate-General of Health and official and semi-official consultative bodies as well as private agencies are represented. So far only three national Patronatos have been established; one for tuberculosis control, one for mental health and one for the care of the physically handicapped.

There are three other categories of central services in the Directorate-General of Health—namely, inspectors, institutions and sections. The inspectors cover pharmacies, veterinary public health, training and research, provincial health and international health. There are institutes for haematology, cancer control and cardiology, and a hospital for communicable diseases. The sections deal with epidemiology and statistics, maternal and child health, nutrition, malaria control, chronic diseases and geriatrics, communicable eye diseases, sanitary engineering, occupational health, mental health, hospitals and sanatoria, social welfare and health education.

In each of the 50 provinces, the health organization is under the supervision of a provincial director of health, who is in charge of a provincial health institute located in the capital of the province, and also of a certain number of secondary and primary health centres. The provincial health institutes are divided into sections dealing with epidemiology, diagnostic laboratory work, dermatology and social hygiene,
malaria control, mental health, mobile teams, haematology, tuberculosis control, maternal and child health, control of chronic diseases, geriatrics, provincial specialists and veterinary public health. Some of these sections have dispensaries at their disposal, and sanatoria and preventoria are available to the tuberculosis sections.

Hospital care for assisted persons (that is, those not included in compulsory health insurance) is the responsibility of the Diputaciones Provinciales, which are also in charge of establishments for mental care, maternity care, and homes for the destitute and for old people. These services are autonomous, but as far as health matters are concerned, they are under the supervision of the provincial director of health.

The various branches of the social insurance administration are under the Ministry of Labour and they administer health insurance. The persons covered by health insurance are also entitled to make free use of the preventive services offered by the State.

The local services are administered by the Ayuntamientos. Their chief duties are in connexion with environmental sanitation, water supply, disposal of excreta, food control, housing and town planning. The larger municipalities have services covering both social assistance and curative and preventive medical care, and many of them provide domiciliary care, medical care in case of accidents, and admittance to municipal hospitals. They may also have laboratories and well-baby clinics. In a certain number of municipalities there are health centres administered by the State; there are secondary centres in the larger towns, and primary centres of varying size in the smaller towns. There are at present 51 provincial health institutes (tertiary health centres), 257 secondary health centres, 560 primary health centres and 1115 elementary primary health centres.

The minimum services provided by the secondary health centres include maternal and child health, control of tuberculosis and social diseases, odontology, ophthalmology, and care of ear, nose and throat diseases. These centres are essentially for educational and preventive purposes, and a great number of them have rural maternity centres associated with them which afford obstetrical care. The primary centres work in close co-operation with the secondary centres, and although in principle they provide the same services, they are smaller in size, have fewer staff and afford no specialized services.

The elementary primary centres include a residence for the physician, a dispensary and a ward for the isolation of infectious cases or for surgical cases before they can be transferred to hospital. The various categories of centres are connected by a transport system which includes an adequate number of ambulances and other vehicles.

The Directorate-General of Health, through various co-ordinating bodies, endeavours to ensure close co-operation between its own services and the many private and semi-official organizations and other governmental agencies engaged in health work.

Reported death rates were 9.2 in 1954, 9.4 in 1955 and 9.8 in 1956; live birth rates were 20.0 in 1954, 20.6 in 1955 and 20.7 in 1956; and infant mortality rates were 49.2 in 1954, 50.2 in 1955 and 45.5 in 1956.

The most important communicable diseases notified during the period under review were measles, typhoid fever, dysentery and diphtheria. The control of communicable diseases is the responsibility of the relevant central, provincial and local health services already described. Cases of malaria have decreased considerably, the latest reported figure (for 1957) being 420 as compared with 380 000 in 1943.

Measures taken for maternal and child health care have reduced the infant mortality rates during the last 20 years from 180 to 50 per 1000 live births and maternal death rates from 4 to 0.4 per 1000 total births. The maternal and child health services are staffed by 300 physicians, 100 paediatric nurses, 135 health educators and 50 auxiliary midwives.

There are ten medical faculties in Spain, and specialized post-graduate training is available to students who have completed their basic medical studies. Refresher courses are held each year under the aegis of a special organization—the Obra de Perfeccionamiento Sanitario de España.

The School of Public Health, which was founded in 1932, organizes various courses in hygiene, microbiology and public health for physicians, pharmacists and veterinarians. A diploma of public health is awarded to those who have followed the theoretical and practical training for several months and have passed a final examination. Holders of a diploma of public health may follow an additional, essentially practical, training course organized by the School, which leads to a further diploma qualifying its holder for the position of public health officer. Courses for auxiliary health personnel are also organized by various special schools attached to the different faculties or under the Directorate-General of Health and affiliated with the School of Public Health.
SWEDEN

Sweden occupies the eastern half of the Scandinavian peninsula and is bounded by Norway, Finland, the Gulf of Bothnia and the Baltic Sea. There are four main divisions: the northern mountain and lake region; the lowlands of central Sweden; the Småland highlands in the south and south-east; and the plain of Skåne in the extreme south. The coasts are fringed with many islands. The climate is cold continental in the north and semi-continental in the south. The area is 449,000 square kilometres.

The population was 7,041,829 at the 1950 census and was estimated to have risen to 7,341,122 at the end of 1956. Stockholm, the capital, has 794,113 inhabitants. The population is distributed almost equally between rural and urban areas. The general educational level is very high.

Sweden is divided into 28 constituencies. Each county (län) has a county council (landsting), elected by universal adult suffrage and chiefly responsible for the administration of the health service and vocational schools. Some of the large towns are independent of the landstings. Each rural district, borough and town forms a commune or municipality, whose council is also elected by universal adult suffrage. In 1954 the number of communes was reduced from 2,500 to 1,037.

For economic purposes the country may be divided into three districts: the northern forest area, the central area, which includes mining, industrial and agricultural work as well as forestry, and the southern area, which is mainly agricultural and industrial.

Mining and forest products have been for centuries the chief industries of Sweden. The industries are spread fairly well over the country. Metal manufactures include several highly specialized products, ball-bearings, telephone supplies and electrical machinery. Excellent porcelain and glass are also manufactured. Sweden is self-supporting in food production and has a certain amount of surplus.

Primary education is maintained by the State and by local taxation. It is compulsory and free, and illiteracy is so rare as to be a curiosity. Secondary education is highly developed.

There are three State universities - at Uppsala, Lund and Gothenburg. There is also a State Faculty of Medicine, as well as a number of other educational institutions at university level, in Stockholm. The total number of students in 1956 was 23,817, including 2,688 medical students.

In 1956, the mercantile marine had 1,608 vessels totalling nearly 3 million gross tons (excluding fishing craft and other vessels under 20 tons). The largest ports are Gothenburg and Stockholm, both of which have a very large amount of foreign shipping. At the end of 1956, there were 16,085 kilometres of railways, of which about 15,000 kilometres were State-owned. There is a national airline which operates services within Sweden and to other parts of the world.

Sweden has a very comprehensive scheme of social benefits, financed by housing increments, insurance and taxes. Since the beginning of 1955, the whole population has been covered by a compulsory health insurance system which includes the cost of medical attendance, hospital treatment, travel to and from doctors and hospitals, medicines free or at a reduced price, daily allowances and maternity benefits. In 1955, 1,243,000 persons were covered for unemployment.

Health

The Royal Medical Board, subordinated to the Ministry of the Interior, is the supervisory authority for the health and sickness services. Mental hospitals, certain teaching institutions and some laboratories are directly responsible to the Board. Teaching hospitals have a comparatively free status. A free central institution of great importance is the State Institute of Public Health, set up in 1938 for experimental and research work in social hygiene. Lectures in hygiene are given to medical students and health inspectors, and courses are arranged for medical officers. The National Public Health Nursing School is part of the Institute. The Central Board for Hospital Planning and Equipment is responsible for the medically and economically sound planning of hospitals, for the standardization of their equipment and for the rationalization of their administration.

Responsibility for public health and medical care rests with (1) the State, (2) the county councils and the cities (Stockholm, Gothenburg, Malmö, Norrköping, Hälsingborg and Gävle), and (3) the municipalities. Each county has a senior medical officer, who is a civil servant and who supervises public health and medical care.

The county councils and the cities are responsible for most of the hospitals for somatic diseases. The State manages some teaching hospitals and certain sanatoria. The mental hospitals are State-managed, with the exception of those in Stockholm, Gothenburg and Malmö, where they are managed by the cities with State grants.

The county councils and cities further control the district health service (district public health nurses), dispensary care for tuberculosis patients, maternal and child health centres, delivery wards, the public dental service, and other activities. Some towns and districts have their own doctors and some have small sick-care institutions.

Private practitioners play an important part in medical care; many of them are employed in the school or military health services in addition to their practices. Certain voluntary associations, foundations and private persons also run sick-care institutions in such fields as tuberculosis and rehabilitation of the handicapped. All activity of this kind is, however, supervised by the health authorities.

Municipalities are responsible, through the local health boards, for the public health in their areas.

1 In 1956 a new State University was founded in Umeå.
Their activity is regulated by the Public Health Act of 1919, which requires the local health board, inter alia, to provide for water and sewerage systems, refuse disposal, and on the whole to maintain a high level of hygiene. The local health boards also have important tasks in supervising the control of epidemic diseases and tuberculosis and are responsible for smallpox vaccination.

Other organizations which provide some form of health service are the Swedish State Church, the Royal Workers' Protection Board, the Royal Board of Education, the Swedish Red Cross, the Royal Pensions Board, the Royal Social Board, the Royal Board of Roads and Waterways, the Swedish National Association against Tuberculosis, and the Association for Public Health.

During the fiscal year 1954/55 the State costs for health and sick care were 332 million Swedish crowns (US $64,179,393), or 3.9 per cent. of the total State expenditure.

The birth rate, which has been falling slightly since 1950, was 14.8 in 1956; the crude death rate was 9.6, and the infant mortality rate, which has been falling very steadily, was 17.0.

Various measures are taken by the Royal Medical Board in health education, both for medical and public health personnel and for the general public. Pamphlets, posters and other material are issued on epidemic diseases and general health education, venereal diseases, maternal and child welfare, food hygiene and dental hygiene. The Swedish Red Cross also plays an important part in health education of the public.

Tuberculosis dispensaries are active throughout the country for the control of tuberculosis and for the outpatient care of tuberculous patients. Each county has one or more central dispensaries, the total for the country being 62. Under the central dispensaries there are district dispensaries, mainly carrying out field investigations and preventive measures. Mass radiography has been performed on all conscripts since 1941, and the whole adult population of Sweden was screened during the years 1946-54.

The hospital care of somatic diseases rests with the county councils and the cities outside the county councils. As a rule, every county has a central hospital, and in most counties there are also other hospitals with or without specialist departments for internal medicine, surgery and radiology. There are also cottage hospitals, of which the medical officer of the district is often in charge in addition to his other functions. Special hospitals and cottage hospitals have been established to deal with infectious diseases. The institutional treatment of tuberculosis is given in sanatoria, which are either hospitals with complete equipment or hospitals for convalescent and chronic cases.

After-care is provided by most hospitals in convalescent departments, or in special convalescent homes. There are also a great number of privately owned convalescent homes.

An occupational care division was established by the Royal Employment Board in 1952 to care for those partially incapacitated for work. Sections for occupational care exist in county employment offices, and a great number of partially disabled persons are placed in gainful work suited to their special conditions. Where special measures are required, occupational care generally takes the form of work trials in work-clinics or training shops, vocational training and financial assistance for education or the starting of some kind of business.

The Public Dental Service came into being in 1939, and is managed by the county councils and the six free cities, with the approval of the Royal Medical Board. Each county is divided into dental districts with at least one dental clinic staffed by one or more dentists in each district.

In 1938 a law granting State aid for maternity and child welfare services came into force. The county councils and the municipal councils in the six cities are responsible for the welfare services within their areas, and the Royal Medical Board is the supervisory body. Maternity welfare centres and child welfare centres are established in the six cities, capital county towns and in small towns, where they are sometimes combined. In rural districts the local medical officer attends to the maternity and child welfare work at maternity and child welfare stations. In 1954 there were 84 maternity welfare centres, 178 child welfare centres and 35 combined maternity and child welfare centres in towns. In the rural districts there were 553 stations and 805 branches. The whole population has access to this service.

School health is the responsibility of the central school authority of the State, and is the concern of the Head Doctor for Schools, employed by this authority in full collaboration with the Royal Medical Board. The service covers all the higher schools throughout the country, and elementary schools where local authorities have applied for it; at present it covers about 99 per cent. of children in elementary schools. Both school doctors and school nurses must be employed in the schools if the work is to be supported by State subsidy, and their work covers a wide range of activities.

The Workers' Protection Act of 1949 is the main statute governing the protection of workers, and
general prescriptions for the prevention of ill health and accidents stipulate the hygienic and social measures to be taken. The Royal Workers’ Protection Board is the supervising authority for the observance of this legislation. The country is divided into 11 districts, each with a factory inspector in charge and a staff consisting of a social inspector, a first district engineer, a district engineer and sub-inspectors. Special inspections are made in such spheres as forestry, traffic over land, mining, explosives, electricity and stowage.

Mental care in Sweden is a State responsibility, although Stockholm, Gothenburg and Malmö organize their own mental health services. The State service includes 19 mental hospitals with their own admittance areas, three secondary hospitals and five hospitals for mental defectives. Parliament has passed a bill for the establishment of five new mental hospitals, and three of them are under construction. At least three more are planned, one of them for mental defectives. Psychiatric wards have been established in about 18 hospitals, and deal with light psychiatric cases, depressions and neuroses, psychosomatic cases, alcoholics and others. The county councils also have nursing homes for the chronic mentally sick who do not need hospital care.

In conformity with the Epidemic Diseases Act of 1919, a doctor must be called for in case of a communicable disease, and it rests with the doctor (usually the medical officer) and the local health board to make satisfactory arrangements for the care and isolation of the patient in order to prevent the spread of the disease. Except in certain cases the patient must undergo treatment in a hospital. The local health board also carries out disinfection of the patient’s house at public expense. A special committee on communicable diseases is responsible for the organization of the care within the county, and the county medical officer may attend the meetings of this committee. There were 42 hospitals for the care of patients with communicable diseases at the end of 1956, with a total of 3488 beds.

The duration of the medical course in Sweden is six and a half years, leading to the certificate of Licentiate in Medicine. The four medical schools are government institutions, supported financially by the State and supervised by the Ministry of Education, but they are autonomous in such matters as curriculum planning and organization of research. Post-graduate courses are arranged by the State Institute of Public Health and the Royal Board of Education.

There are 28 basic nursing schools in Sweden, which give three years’ training; in the last year it is possible to specialize at other central schools in psychiatric nursing, paediatric nursing and midwifery.

SWITZERLAND

Switzerland is the most mountainous country in Europe. The Alps take up part of its eastern frontier and the greater part of the interior (61 per cent. of the total area), and the Jura mountains compose its western frontier (12 per cent. of the total area). The country is land-locked, with frontiers on France, Germany, Austria and Italy. Its total area is 41 288 square kilometres and practically one-quarter of this is unproductive land. From the most eastern to the most western point the distance is 348 kilometres. Switzerland has a population of 5 million, of whom approximately 36.5 per cent. are urban and 63.5 per cent. are rural. Berne is the capital, but the largest town is Zurich, with 400 000 inhabitants.

Four languages are spoken—German (72 per cent. of the population), French (21 per cent.), Italian (6 per cent.) and Romanshe (1 per cent.). The general educational level is high and illiteracy is unknown. The main occupations of the people are industry (823 000 workers), agriculture (255 000), and commerce (253 000).

Agriculture is undertaken chiefly in the valleys and in the area between the Alps and the Jura, known as the “plateau”. Wheat, oats, maize, barley, flax, hemp, tobacco, and many fruits and vegetables are grown. Eighteen of the cantons are also wine-producing. Dairy farming and stock-raising, however, are the principal agricultural activities. The most important industries are engineering, clothing, watchmaking, chemical products, pharmaceuticals, wood-work and other light industries. The chief imports are metals, cereals and other foodstuffs, cotton and woollen goods, chemicals, machinery and motor vehicles.

Primary instruction is free and every district has primary and secondary schools. Switzerland has seven universities—Basel, Zurich, Berne, Geneva, Lausanne, Fribourg and Neuchâtel. Each of them has faculties of theology, law, philosophy, arts, science and, except for the last two, medicine. Medical qualifications from any of the schools entitle the holder to practise throughout Switzerland; the curriculum and the examinations are prescribed by federal law.

A federal law of 1911 entitles all citizens to insurance against illness, and more than 3.8 million people are members of a social health insurance scheme. The bodies responsible for this are the numerous mutual aid societies or cantonal or communal health insurance funds. If these societies fulfil the minimum requirements fixed by federal law for health and accident insurance, they are subsidized by the Federal Government by means of an annual grant for each insured member, this grant being higher for women than for men. An additional grant is paid for members living in mountainous areas. Although there is a federal health and accident insurance law, it is for the cantons to decide whether health insurance should be compulsory, and, if so, up to what income; this power may be delegated to the communes. As a result, in some cantons as many as 96 per cent. of the population are insured, and in
the cantons have therefore concluded an agreement whereby cantonal institutions there is no federal law on nursing education; nurses' diplomas (issued by schools recognized by the Swiss Red Cross) are made valid in all areas upon ratification by the Director of Public Health of the canton concerned.

Health

Most public health matters are the responsibility of the cantons, and although a number of federal laws on health have been promulgated their application is to a great extent entrusted to the cantons and communes. Moreover, the encouragement and the subsidies given to private organizations tend still further to decentralize health organization, thus permitting the great diversity of the population to be taken into account.

At the national level, the responsibilities of the Confederation include: prevention of communicable diseases at the frontiers of the country (frontier health services, medical examination of workers and refugees) and, in exceptional circumstances, within the country; statistical services; legislation on health and accident insurance and control of its application; prevention of accidents; inspection of working conditions in factories; application, to a certain extent, of laws concerning tuberculosis, narcotics, foodstuffs and other matters, and control of that application; establishment of advisory commissions; training of doctors, dentists, pharmacists and veterinarians; payment of subsidies for many activities of the cantons, communes or private voluntary organizations, such as the building of infectious diseases hospitals and school medical services. The administration and organization involved is carried out by the Federal Public Health Service of the Department of the Interior, in collaboration with the Federal Offices of Social Insurance, Statistics and Industry, the Swiss Accident Insurance Fund, the Army Health Service and various other organizations concerned with specific health matters.

The cantons are responsible in particular for environmental sanitation, cleanliness of houses, school, professional and mental health services, establishment of hospitals, etc., and control of sale of pharmaceutical preparations. These matters are also partly controlled by the communes. Each canton has its public health administration, with a chief of department and a staff consisting usually of a doctor, a chemist, a veterinary surgeon, a pharmacist and a dentist—all working as cantonal chiefs of sections. There are also district medical officers responsible for groups of communes.

Each commune is legally bound to establish a local health authority and is in charge of school medical supervision. The larger communes (towns) may organize their health services on the same lines as those of the cantons.

The total public health budget for the Federation, cantons and communes in 1955 was 382,400,000 Swiss francs (US $89,345,794); that for old-age and public assistance was 403,900,000 Swiss francs (US $94,369,159), and 132,100,000 Swiss francs (US $30,864,486) were spent on other social welfare measures.

Vital statistics are drawn up by the Federal Statistical Office with assistance from the cantonal statistical offices, which receive data from the cantonal civic status offices. A census is taken every 10 years, the last being in 1950. In 1954 the birth rate was 17, the death rate was 10, and the infant mortality rate was 27.2. Only about 0.5 per cent. of deaths remain uncertified by a doctor, but in about 1.4 per cent. of certified cases the cause of death is stated to be unknown. Morbidity statistics cover notifiable communicable diseases; there is no uniform pattern for hospital statistics on diseases and injuries treated, but statistics on patients treated in mental hospitals, in homes for psychiatric observation of children and in rehabilitation establishments for alcoholics are very complete.

The total number of doctors in Switzerland in 1956 was 7,233, of whom 4,626 were general practitioners or specialists in private practice, hospital doctors (not counting assistants and voluntary assistants), or professors. This gives a ratio of one doctor per 1,082 persons.

Although most people are insured—for example, 3,800,000 participated in sickness funds in 1956—no doctor is employed as a medical practitioner by an insurance organization. All practise general or specialized medicine independently, with the exception of medical officers and those working full-time in hospitals. There is a free choice of doctor, and an approved schedule of charges determines the amount to be paid to the doctor on the basis of services actually rendered. In some mountain valleys the doctor receives a fixed salary from the insurance fund, the main reason being that he would not otherwise have enough patients to earn his living. There are no health centres in the strict sense in Switzerland, and the practitioners rely on their own consulting-rooms and equipment. In many cases they also have public functions—for example, as school medical inspectors or as members of the local health authorities prescribed by federal law for each commune or group of communes. In the larger cantons the medical officer of health is usually employed full-time, and there are also some other full-time medical officers of health and
school medical officers in some of the large towns. Uninsured persons who cannot pay a doctor’s fee may still choose their physician, and the fee will be paid by the commune of origin, or—in accordance with an intercantonal arrangement (concordat)—by the commune in which they are living at the time. This rule applies to all public assistance, and many of the communes have set up old people’s homes which are also open to many Swiss who had never seen Switzerland until the Second World War.

With the exception of a few military sanatoria there are no federal hospitals. The most important hospitals are public institutions run by the cantons, but there are also a certain number of municipal or city hospitals and many district establishments, especially in rural areas. As a rule, every patient pays his own hospital bills; if he is not insured, the daily amount is fixed on the basis of an assessment, so that the poor pay less than the well-to-do. If the patient is insured, his coverage will reimburse the hospital according to a contract between the hospital and the health insurance fund. Nearly all hospitals have large annual deficits which are covered by State taxes. Very large sums have been spent in recent years on the construction and modernization of hospitals.

Federal old-age insurance is the main system for providing economic assistance to the aged. It is a general and compulsory form of national insurance, run by a special fund of the employers’ organization and supervised by the cantons and the federal authorities. In recent years many of the major hospitals have tended to become overloaded with the chronic sick, and special wards or units are being set up to meet this difficulty. There are otherwise very few special hospitals, although every canton of any size has one or more psychiatric hospitals. The nursing staff of the psychiatric hospitals have different training from that of the general nurses. Many of these hospitals have organized a family nursing system, whereby many of the patients live in specially selected families. Such patients are, of course, under medical supervision but are taken care of by the individual families concerned.

Policlinics attached to the larger hospitals are becoming more and more popular. These are centres where advice of a medical or social nature may be given free of charge in case of need, but they are now serving more and more as specialized centres with first-class equipment, which can also help the general practitioners in carrying out special examinations and making diagnoses without it being necessary for the patients to be admitted to hospital. A policlinic may also act as a medico-social dispensary for tuberculosis control work, and for such activities as maternal and child health. Some of the smaller dispensaries in rural areas are often run by a nurse or a social worker. The policlinics are always operated under State auspices, but most of the dispensaries have been founded and are maintained by voluntary organizations. The aim of the State is not to supplant voluntary activities, but rather to give them support in providing the necessary equipment and services.

Health education of the public is carried out through the teaching of hygiene in all primary and secondary schools, and during the compulsory military service period for men. It is also furthered by the Swiss Samaritans' Federation and by voluntary organizations.

TURKEY

Turkey is situated at the north-eastern corner of the Mediterranean with the Black Sea on its northern coast. To the north-east and east are the Union of Soviet Socialist Republics and Iran, to the north-west, Greece and Bulgaria, and to the south-east and south, Iraq and Syria.

The area of Turkey is 776,980 square kilometres, and its population was 24,121,778 at the 1955 provisional census, giving a density of 31 inhabitants per square kilometre. The population of the capital, Ankara, is 453,151, and that of Istanbul 1,214,616. The three other large towns are Izmir, with 286,310 inhabitants, Adana, with 172,465, and Bursa, with 131,336.

The chief agricultural products of Turkey are tobacco, olive oil, silk, cereals and fruits. The subsoil is rich in coal, copper, chromium, antimony and manganese. There has been considerable development of industry in recent years.

Health

The modern organization of the health services dates from 1827, when an academy of military medicine was set up in Istanbul. In 1838, a Higher Council of Health was established, followed in 1840 by the Civil Public Health Council. In 1889 a central Public Health Administration was founded, and in 1870 regulations came into force providing for public health services in the provinces. For a time, from 1911 onwards, public health administration was under the Ministry of the Interior, but in 1920 the Ministry of Health and Social Welfare came into being. The present public health legislation dates from 1930, and governs, inter alia, the functions of the Ministry of Health. The organization of the Ministry in its present form was laid down in a law promulgated in 1936.

The Ministry of Health and Social Welfare is the chief authority on health matters, although certain
They may be provided - according to local needs - their main emphasis is on preventive medicine, but establishment of a health centre in every district; districts, and the present programme aims at the most important elements in the country's health centres, which have been developed since 1937 chiefly with a total of 2452 beds.

At the municipal level, health administration is conducted by a board of public health nurses, sanitary inspectors, and urban and rural midwives. There is also a board of public health inspectors, a board of consultation and enquiry, a legal office, and divisions of accounts, archives, and supplies and equipment.

The Higher Council of Health, consisting of nine members chosen from among leading experts in health matters, meets for ten days three times a year.

At the provincial and local level, health administration is under the authority of the provincial governor, advised by a Director of Health in accordance with policy instructions received from the Ministry of Health; at the district level, the governor is represented by the district civil authority, and the Director of Health by a district medical officer, who in turn advises the civil authority on public health matters and is responsible for preventive and curative services, as well as for forensic medicine, in his respective district. He is assisted by public health nurses, sanitary inspectors, and urban and rural midwives.

At the municipal level, health administration is concerned chiefly with environmental services.

The percentage of the national budget allocated to health during the period under review was 5.6 in 1954 and 5.1 in 1955 and 1956. At the provincial level, the percentages of the provincial budget devoted to health services were 2.48, 2.31, and 2.15, and at the municipal level, 21.27, 20.01, and 23.86 respectively.

In 1956 there were 95 general hospitals in Turkey, with a total capacity of 15,195 beds, and 207 health centres with a total of 2452 beds. These health centres, which have been developed since 1937 chiefly to meet the needs of the rural population, are among the most important elements in the country's health services. They are located in the chief towns of districts, and the present programme aims at the establishment of a health centre in every district; their main emphasis is on preventive medicine, but they may be provided — according to local needs — with 20 or 25 beds, and offer curative services as well.

Medical care is free of charge in both the in-patient and out-patient departments of health centres and dispensaries. In hospitals it is also free to those who have not the means to pay, and includes drugs, laboratory tests, and surgery.

The following table shows the personnel strength of the health services (and the increase in certain categories) during the years 1954, 1955 and 1956:

<table>
<thead>
<tr>
<th>Category</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>3,045</td>
<td>3,111</td>
<td>3,386</td>
</tr>
<tr>
<td>Dentists</td>
<td>41</td>
<td>44</td>
<td>48</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>79</td>
<td>69</td>
<td>60</td>
</tr>
<tr>
<td>Sanitary inspectors</td>
<td>2,903</td>
<td>2,733</td>
<td>2,877</td>
</tr>
<tr>
<td>Nurses</td>
<td>889</td>
<td>928</td>
<td>984</td>
</tr>
<tr>
<td>Midwives</td>
<td>485</td>
<td>471</td>
<td>459</td>
</tr>
<tr>
<td>Assistant nurses</td>
<td>146</td>
<td>244</td>
<td>295</td>
</tr>
<tr>
<td>Rural midwives</td>
<td>960</td>
<td>1,003</td>
<td>1,088</td>
</tr>
</tbody>
</table>

The distribution of medical and health personnel throughout the country is somewhat uneven, since many prefer to live and work in towns rather than in rural areas.

Very thorough statistical surveys, which have been carried out since 1951 in the district of Beyazari, in the Ankara area, show the following trends in vital statistics: birth rate, 38.8 in 1951, 36.6 in 1953, and 34.5 in 1955; death rate, 16.8 in 1951, 13.3 in 1953, and 11.7 in 1955; infant mortality rate, 124.3 in 1951, 158.4 in 1953, and 117.3 in 1955.

The main health problems in Turkey at the present time are tuberculosis, endemic infectious diseases and malaria; other questions of urgent concern to the health authorities are the extension of maternal and child health services, the strengthening of nursing services, and a more complete coverage of the population by the health and social welfare services.

The first quarantine administration was established in Turkey in 1840 and was an international organization with the principal task of protecting Europe against diseases coming from the East; it was abolished by the Treaty of Lausanne and replaced by the Department for Sanitary Control of Ports and Frontiers. This Department is now in charge of nine centres and 26 offices, as well as two bacteriological laboratories, three quarantine administrations, and two medical posts at the airports of Istanbul and Ankara. The control of infectious diseases within the country really began in 1914, but was made an actual legal undertaking with the passing of the public health law of 1930. This law includes the provision that all infectious and epidemic diseases which come to the knowledge of any member of the medical profession must be reported to the medical officer of health,
who will immediately take appropriate measures, in which full co-operation must be forthcoming from all the administrative units concerned. The necessary supplies of vaccine and serum are provided by the Refik Saydam Central Institute of Hygiene in Ankara. Smallpox vaccination is compulsory.

Organized measures for tuberculosis control were first taken in 1924, when a sanatorium with 50 beds was opened on the Island of Heybeliada in the Sea of Marmora. The progress of the campaign since that time is illustrated by the fact that in 1956 there were 52 tuberculosis control dispensaries maintained by the Government, and 66 other institutions caring for tuberculosis patients under the auspices of the Ministry, providing a total of 7777 beds. Since 1952 a large-scale BCG vaccination campaign has been in progress; mobile teams have carried out tuberculin-testing of 13 500 000 persons (more than half the population), of whom 5 300 000 have received BCG vaccination. These measures have undoubtedly contributed to the decline in the death rate from tuberculosis, which fell from 150 per 100 000 in 1950, to 78 in 1955.

Syphilis was introduced into Turkey some seventy years ago, and became a serious public health problem in certain areas. With the help of legislation a systematic control programme was built up, and free treatment of this disease is now given either in special venereal disease control clinics or — where these do not exist — by the local medical officer of health. In 1950 there were 32 special clinics and 68 treatment stations in areas where the disease was widespread; by 1955 there were 33 clinics and 160 treatment stations. During the same period, as a result of these active control measures, the number of cases of syphilis fell from 104 491 to 61 000.

Trachoma also became a menace only in comparatively recent years, and a control programme was launched in 1925. In 1950 there were 40 trachoma control clinics and 111 rural treatment stations, whereas there are now 50 clinics and 229 stations. In 1951, 27.3 per cent. of persons attending for consultation at eye clinics were found to have trachoma, while in 1955 this percentage had dropped to 17.3.

Malaria had for long ravaged Turkey, and a campaign for its control was started in 1924. A Malaria Institute was founded at Adana in 1926, where from 1928 onwards courses have been organized to train health personnel in the principles of malaria control. Control measures have been intensified in recent years, including the residual spraying programme; in 1955, 595 tons of DDT were used, compared with 109 tons in 1950. The results of the campaign are illustrated by the decreasing spleen rate in the malarious areas: from 26.0 in 1946 and 7.0 in 1950, it fell to 0.7 in 1955.

In 1952, a Maternal and Child Health Section was established in the Ministry of Health and Social Welfare, and since then services for mothers and children throughout the country have been considerably strengthened. A maternal and child health demonstration and training centre was opened in Ankara in 1954, similar centres were set up at Izmir and Yenimahalle in 1955, and a fourth at Bursa in 1957. Extension of services to rural areas began in 1956 with the formation in several provinces of mobile teams, based on local maternity clinics, which visit villages in their areas. Furthermore, a training scheme for rural midwives is being planned; the course will last 18 months and will consist of six months’ theoretical training, six months’ practical work, and six months’ probation. On completion of their training the rural midwives will be posted to village health units, although they will continue to be under the administrative and technical supervision of the district health centres. The last six months of training will be spent in a pilot area in the district of Ankara (Kizilcahamam), which has 50 000 inhabitants and 103 villages. Facilities for maternal and child care in hospitals and clinics have also increased in recent years. Whereas in 1926 there were only two government maternity clinics, with a total of 25 beds, by 1956 there were 18 clinics, with 1716 beds. Furthermore, priority is given to maternity cases in health centres and hospitals; 57 general hospitals have special departments for gynaecology and obstetrics. Out-patient services include pre-marital medical examination, pre-natal and post-natal care of mothers, infant welfare clinics, vaccination of infants and children, and domiciliary midwifery and infant care services.

The Ministry of Education is responsible for the organization of school health services, but close liaison is maintained with the Ministry of Health and with non-governmental organizations which participate in this work. Most schools have fully equipped medical clinics, and all boarding-schools have a sick-room where children can be accommodated for short periods in case of illness. School doctors carry out regular medical examination of schoolchildren, and owing to the shortage of qualified school nurses, they are often assisted in non-medical aspects of the work by the school teaching staff. The service includes dental examination, and tuberculin-testing and BCG vaccination are carried out by the National League against Tuberculosis on behalf of the school medical service. Records of each child’s health are kept and sent annually to the provincial
Education Department; the individual files are usually transferred with the children from one school to another and follow them throughout their scholastic career. Recommendations are also sent to parents if any special care or treatment of their children is considered necessary. It is planned in the near future to establish school medical centres in all provinces and townships with a population of more than 10,000.

There are no organized preventive mental health services as such in Turkey, although the maternal and child health and school health services include in their functions the promotion of mental health in the groups with which they deal, and the neuropsychiatric services in the general hospitals also make their contribution to this end. For mental diseases there are three psychiatric hospitals in the country with a total of 3,675 beds.

The Department of Health Education and Medical Statistics of the Ministry is responsible for health education of the public, which is organized by means of leaflets, posters, films, broadcast talks, lectures and health museums. There are seven health museums in the country, which were visited by 532,043 persons in 1956. An Institute for Health Education has recently been set up at the School of Hygiene, where health education material is prepared, research is carried out, and training courses for health educators are given. Many voluntary organizations also take part in health education, and in 1955 a Turkish National Committee for Health Education of the Public was formed in order to coordinate their work and ensure the orderly development of health education activities throughout the country. Apart from representatives of the government departments concerned, members of this committee include representatives of medical faculties, the School of Hygiene, the Red Crescent Association, the Society for Child Welfare, the National League against Tuberculosis, and other voluntary bodies concerned with health education.

The problems of health and safety of workers have been aggravated by the rapid pace of industrialization in Turkey in recent years. A considerable amount of legislation has been passed to provide for industrial health services and safety of workers in industry, and the Ministry of Labour and the Ministry of Health and Social Welfare are jointly responsible for ensuring that it is enforced. There are not at present enough specialized staff to provide adequate supervision in this connexion, but measures are being taken to train personnel. Apart from the requirements laid down by law, many large industrial concerns organize their own health services, including medical examination of their workers on recruitment and periodically during their employment, as well as in-patient and out-patient care and free distribution of medicaments to employees and their families. Many large undertakings have built their own hospitals, and many provide free canteen meals during working hours. Some factories are setting up safety committees in the workshops, on which both the employers and the workers are represented.

There are no special institutions for the care of the chronic sick or the aged, but there are hospices where these people are housed and fed. There are at present 13 homes for the poor in the country.

A special subcommittee has been formed to undertake research on nutrition subjects, and a number of nutrition surveys are being planned. Several provinces have also started training courses for food economists.

Food control (including meat and milk) and inspection of public health equipment and supplies are undertaken by the State, through the local municipal authorities; in places where there are no municipal authorities, the Ministry of Health provides an inspection service. Control of pharmaceutical products is undertaken by the Department of Pharmacies and Pharmaceutical Products of the Ministry of Health.

The Central Hygiene Institute is the country’s main public health laboratory; it serves also as a reference laboratory and for the preparation of vaccines and sera of all kinds. In the larger towns, municipal public health laboratories provide control services, and elsewhere this work is carried out by hospital laboratories.

There are three faculties of medicine in Turkey — at Istanbul, Ankara and Izmir. The last mentioned was founded in 1955 and is still in the process of being organized. At Istanbul, 7,706 medical students graduated between 1923 and 1955 (498 of them women), and at Ankara there were 1,247 graduates (119 of them women) between 1945 and 1955. Istanbul also has faculties of dentistry and pharmacy. Postgraduate courses of two or three months’ duration are organized each year for doctors at the School of Hygiene in Ankara, on a wide variety of medical and health subjects. Training of auxiliary health personnel is carried out in special schools organized by the Ministry of Health, the Medical Faculty of Istanbul, the Red Crescent Association, and the National League against Tuberculosis in Istanbul; there are courses for nurses, midwives, rural midwives, laboratory technicians, sanitary inspectors and social welfare workers. The following table shows how these training programmes have developed during the period under review:
Post-graduate courses are held for nursing administrators, nurse tutors, and public health nurses for maternal and child health centres; some 15-20 staff are trained in each of these categories annually. Post-graduate training of rural midwives was started in 1956, in connexion with the rural health programme already mentioned, to prepare these workers for practice in the districts at village health units; there are 170 students following the courses in question. There are also 18-month in-service training courses in hospitals for auxiliary nurses; candidates must have completed their primary education and be over 18 years of age.

The central environmental sanitation service is staffed by a specialized sanitary engineer, an engineer, a chemist and a physician. At the provincial level the public health departments are responsible for environmental sanitation. Chlorinated drinking-water, which is sometimes also filtered, is supplied to about 75 per cent. of the population. Sewage disposal is by drainage to the sea or into water-courses or sewage farms. Measures taken against air pollution include the fitting of ventilation systems in many establishments, such as factories, workshops, cinemas, theatres and public baths. Where necessary, action is also taken to protect those exposed to the risk of radiation in places of work.

### UNION OF SOVIET SOCIALIST REPUBLICS

The Union of Soviet Socialist Republics extends over part of Eastern Europe and Northern and Central Asia. It is bounded on the north-west by Norway, Finland and the Baltic; on the west by Poland and Czechoslovakia, and on the south-west by Romania. To the south and south-east lie Turkey, Iran, Afghanistan, China, Mongolia and the Korean People’s Democratic Republic; in the north is the White Sea and the Arctic Ocean and in the east the Pacific Ocean. This vast territory, which includes part of the Arctic region, is extremely varied in geographical character. There are mountains in the Caucasus, on the borders with Iran, China and Mongolia, and in north-east Siberia. The comparatively low Ural Mountains form the conventional dividing line between the European and Asiatic parts of the USSR. The rest of the territory is mainly a wide plain. In the European part the main rivers flow into the Black Sea and the land-locked Caspian; in Siberia, they flow into the Arctic Ocean. Access to world sea routes is relatively restricted in comparison with the great size of the territory.

The climate in the greater part of the USSR is temperate, cold, continental, or, in the north, sub-polar. In the small areas of desert the climate is hot. There is a Mediterranean climate in the Crimea and along the Caucasian coast of the Black Sea, and a warm, continental climate in the regions bordering on Afghanistan.

The total area is 22,403,000 square kilometres. The last census was taken in 1939, and the population of the country at that time was 170,600,000. The figure for 1956 was estimated at 200,200,000; the next census will take place in 1959.

There are a great number of ethnic groups in the USSR, which can be subdivided into four broad groups: Slavs (the largest), Mongols, Finns, and Ural-Altaians.

By 1939 it was estimated that illiteracy had been reduced to below 10 per cent. among males over nine years of age, and to less than 28 per cent. among females of the same age. This figure has been much lowered in recent years and illiteracy has now almost completely disappeared from the USSR.
research, and art institutions. The main research and scientific centre is the Academy of Sciences of the USSR.

Moscow and Leningrad are the main focal railway centres. The central and southern parts of the country are well served by railway lines running from north to south and from west to east, but in the eastern part of the USSR, in the Volga region and in Siberia, there are lines running from west to east connecting Europe with Asia, but a lack of lines running north to south. This deficiency is, however, now being met by the construction of new lines.

The main ports are situated on the shores of the Baltic, Black and Azov seas. Except for Murmansk, the northern ports, which include Leningrad and Archangel, are not navigable in winter. Several new ports have been built on the Arctic Ocean which are open for navigation all through the summer. Vladivostok, the largest port in the Soviet Far East, is navigable throughout the year, icebreakers being used to keep it open in winter.

There is an extensive system of canals connecting the largest rivers of European USSR and providing direct communication between the White, Baltic, Black and Caspian seas. Civil aviation is very well developed.

There is a very comprehensive and complete system of social security covering in principle the whole population.

The continuing growth of housing construction is worthy of note. In 1954, the total area of dwelling houses constructed was 32.5 million square metres; in 1955, 33.4 million; in 1956, 36 million; and in 1957, 48.4 million.

Health

The development of public health work in the USSR has been based on a set of established principles whereby the State, through concerted efforts of co-ordination and planning in education, research and practice, and with the active participation of the population, provides a system of integrated curative and preventive services for the protection and improvement of the health of the people in the Union.

The administration of the health services in the USSR is on four different levels. At the Soviet Union level there is a Ministry of Health, which is an integral part of the Council of Ministers. The Union Ministry of Health is responsible for the planning and co-ordination of health programmes and services for the entire Union, for setting up standards for various health establishments, and for approval of health budgets and plans submitted by the Republics. In each of the 15 Republics there is a Republic Ministry of Health dealing with the administration of health services within its jurisdiction. At the district level of each Republic there is a district health service and at the local level there is a regional health service. The local (rayon) health services consist of a combined rayon hospital (that is, with polyclinic attached), and a Sanitation and Epidemiological Centre under the authority of the rayon Health Department of the Executive Committee of Working People's Deputies. In many rural areas all the duties connected with the administration of the health services are assigned to the Chief Physician of the rayon, who is at the same time the Chief Physician of the rayon hospital. The Sanitation and Epidemiological Centre in such rayons is the Sanitation and Epidemiological Department of the rayon hospital.

In the localities public health is administered by the local Soviets of Working People's Deputies; these are responsible for medical aid and maternity centres, which are financed out of the rural budget, and also for maternity homes and crèches attached to the collective farms. They also undertake measures for preventing infectious diseases and for health education of the public. The recent trend in the USSR has been towards increasing the powers and duties of local bodies, and the regional officers have become more independent of headquarters' control. Although public health and medical care are free of charge to all, some charges are made for drugs.

During the period 1954-56 there was an increase in State funds allocated to social security services and benefits for workers and employees, for old-age and invalid pensions, for large families and self-supporting mothers, for travel to and stay at spas and rest homes either free or at reduced prices, for the provision of medical assistance, for education, science and culture. These allocations amounted to 147 000 million roubles (US $36 750 000 000) in 1954, 154 000 million (US $38 500 000 000) in 1955, and 169 000 million (US $42 250 000 000) in 1956.

The successes achieved in the economic and social spheres have led to the enactment during the period under review of a series of legislative measures which are of importance for the maintenance and development of public health. Apart from the laws relating to pensions, special mention must be made of the decisions (1956) concerning the shortening of the working day on days preceding leave and holidays, the Decree (1955) of the Praesidium of the Supreme Soviet to repeal the prohibition of interruption of pregnancy, and the Decree (1956) to increase the duration of maternity leave.

The general death rate has fallen from 18.3 in 1940 to 7.5 in 1956.

The joint efforts of scientific workers and field workers have contributed to the successful control of infectious diseases. Examples of this are the eradication of relapsing fever and Grigoriev-Shiga dysentery, and a sharp fall in the morbidity due to Flexner-Sonne dysentery, brucellosis and infectious diseases of children (such as scarlet fever, whooping-cough and measles). The control of malaria is a spectacular example; the morbidity of malaria in 1956 was less than one-sixtieth of that in 1950,
and only 13,000 cases of malaria were registered in 1956 throughout the whole country. In recent years there has been a continuous decline in the morbidity and mortality due to tuberculosis; between 1950 and 1956 the tuberculosis morbidity in towns decreased by 41 per cent. By the end of 1956 the total number of tuberculosis control institutions, including 1164 tuberculosis dispensaries, had reached 5300, and in addition there were 2102 sanatoria, with 289,000 beds, and 900 rest homes, with 159,000 beds. There were also 5451 venereological institutions throughout the Union.

For general medical care there is a network of hospitals and out-patient establishments—such as polyclinics, both independent and attached to hospitals, maternal and child health consultation centres, medical posts, medico-sanitary units in industrial undertakings, and feldsher-midwife posts in the rural areas. In 1956 there was a total of 25,178 hospitals, with 1,360,800 beds, and 33,854 establishments providing out-patient services; all these establishments also provide domiciliary medical care and first-aid.

In 1956, there were also 13,686 oncological institutions, 2,327 psycho-neurological institutions, 1,191 psychotherapy dispensaries, and 1,731 first-aid stations.

The maternal and child health services at the end of 1956 included 7,156 women's consultation centres, 142,911 maternity beds in maternity homes and hospitals and 29,660 beds in maternity homes attached to collective farms and feldsher-midwife posts. Practically all pregnant women in the country received services from women's consultation centres in 1956, and all deliveries in the cities were carried out in maternity homes or hospitals. In rural areas almost all deliveries were conducted by trained personnel. More than 60 per cent. of all deliveries in the cities and 40 per cent. in rural areas were conducted by the "painless labour" method based on Pavlov's physiological doctrine.

Children from birth to the age of 14 years are regularly supervised and given medical care by children's consultation centres and polyclinics, the network of which has been further extended during the past three years. Between 1955 and 1956 alone their number rose from 7037 to 7125. In 1956, 80.6 per cent. of infants in towns were undergoing routine monthly medical examinations; of the infants examined, 85.3 per cent. came under medical surveillance during the first month of life.

An extensive network of children's crèches has been developed. In 1955 there were 851,000 beds in permanent crèches, and in 1956 there were 904,300. On collective farms, seasonal crèches are set up during the field work seasons and in 1956 the number of beds in this type of crèche amounted to 2,386,800. During recent years there has also been an increase in the number of children's hospitals and children's departments in general hospitals; by 1956 they comprised 192,478 beds. There were 1,095 children's sanatoria with 106,000 beds in the USSR in 1955. For children of school age with incipient and quiescent forms of tuberculosis, forest schools have been opened in which they received sanatorium care, treatment and schooling at the same time.

The system of industrial medical services has been supplemented by new medico-sanitary units, which unite all the medical establishments (hospitals, polyclinics, medical posts and night sanatoria) providing services for workers and employees of industrial undertakings. In 1951 there were 725 of these units, 575 of which included in-patient accommodation with a total of 47,527 beds; by 1956 there were 964 units, 829 of them with in-patient accommodation and a total bed capacity of 84,970.

Side by side with the medico-sanitary units, the medical and health posts under the supervision of physicians and feldshers play an important part in providing medical services for workers. The number of medical posts under the direction of physicians increased from 6037 in 1955 to 6415 in 1956; the number of feldsher posts increased in the same period from 12,494 to 13,564.

Night sanatoria established in association with industrial undertakings (of which there were 585 with 20,700 beds in 1956) constitute an important form of medical organization, which makes it possible to carry out the planned improvement of the health of specific groups of workers. During recent years there has been a considerable extension, especially in the chemical and coal-mining industries, of "photaria" and inhalatoria, which have had a noticeable effect on the prevention of a number of diseases.

The training of medical staff occupies a prominent place in planning. The first Russian university, which included a medical faculty, was founded in Moscow in 1755. Under the Soviet regime, a thoroughly planned reform of medical education was carried out. The curriculum for undergraduate medical education had to be revised in order to combine curative with preventive medicine and thus prepare graduates to organize integrated health services for the people. A large number of departments were set up for teaching the preventive branches of medicine, including chairs for social hygiene, school hygiene and occupational health. In 1930 the medical faculties were separated from the universities and transformed into independent medical
institutes under the direction of the Ministry of Health. A six-year course is laid down for medical students and a five-year course for pharmacy students. The first three years of the medical course are devoted to basic and pre-clinical sciences and an introduction to medicine and surgery. The last three years, including a year of supervised practical work, contain subjects required for three separate fields of activity: paediatrics, curative medicine and public health. A four-year training is given for full nursing qualification, and two years for fieldshers and midwives. In 1956 there were 79 medical schools and 603 schools for the training of auxiliary health personnel, with a total of 152,767 medical students and 194,868 students in auxiliary health subjects. In 1956 the total number of health workers in the civil services of the entire Soviet Union was 2,736,000, including 329,400 physicians, 25,000 dentists and about 1,000,000 auxiliary health workers.

Leadership in medical research rests with the Academy of Medical Sciences, and there are also 268 other scientific institutes; altogether 28,663 investigators are carrying out research work in various medical and health fields.

The most important condition for ensuring unity of science and practice, and for the successful solution of public health problems, was the carrying-out of scientific research and practical measures in accordance with a concerted plan adopted by the Praesidium of the Academy of Medical Sciences and the Scientific Council of the Ministry of Health. This plan covered a number of fundamental problems, including community health, nutrition, school health, occupational health and physiology of work, prevention of occupational diseases, control of infectious and parasitic diseases, cardiovascular diseases, rheumatism, malignant tumours, and diseases of women and of the newborn.

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

The British Isles lie off the north-west coast of Europe, only about 34 kilometres from the continent at the nearest point. These islands, including Scotland in the north, extend from 40° to 50° north. Wales and the north and west of Scotland are largely mountainous, and the Pennine Range runs like a backbone through north and central England. The west coast of Scotland is studded with many islands.

Throughout the area the west coast is warmer than the east, and has a greater rainfall. The total land area of the United Kingdom is 244,015 square kilometres. The population at the 1951 census was 50,225,224, with a density of 206 per square kilometre. Approximate figures are: England and Wales, 44,000,000 inhabitants; Scotland, 5,100,000; and Northern Ireland, 1,400,000. Over 80 per cent. are urban dwellers, and the population of Greater London in 1951 was 8,348,123. There are no ethnic groups as such. The population is mainly of mixed Teutonic and Celtic stock, the Celtic type being most prevalent in Wales and the north-west of Scotland.

The general educational level is high with a literacy figure of over 95 per cent.

One of the characteristic features of English public life is the very large number of voluntary organizations. It is difficult to make a selection, but perhaps the WVS (Women's Voluntary Service) and the WRI (Women's Rural Institutes) are the most versatile. These organizations contribute extensively to the health services, especially at the local level.

The ministers usually in the cabinet include those for Housing and Local Government; Education; Pensions and National Insurance; Agriculture, Fisheries, and Food; and Labour and National Service. The Minister of Health is not a member of the cabinet but is "of cabinet rank".

The chief local authorities are the councils of counties and county boroughs (i.e., the larger cities). The other local authorities are borough councils, urban and rural district councils, and in certain cases, parish councils. The corresponding authorities in Scotland are county and large burgh councils, town and district councils, and, in Northern Ireland, borough councils, municipal town councils and urban and rural district councils.

In England and Wales there are 83 county boroughs, 309 boroughs and 1047 districts; in Scotland, 24 cities and large burghs, 173 town councils and 199 districts. Northern Ireland has two county boroughs, eight boroughs and municipalities and 60 districts. In general, the members of local authorities are directly elected by the citizens; councillors are elected for a period of three years. The County of London has 28 metropolitan boroughs, which have important concurrent powers with the county.

The economy of the United Kingdom is largely industrial but agriculture and fisheries supply a great deal of food and even some exports. In 1953, 1,000,000 tons of fish were landed, valued at £41,000,000 (US $114,800,000). The output of coal in the same year was over 223,000,000 tons, of which 13,500,000 tons were exported. The United Kingdom is widely industrialized, and nearly every kind of industry is represented. The principal imports are foodstuffs, wood, wool and cotton, petroleum and its by-products, chemicals and paper. The principal exports are chemicals, wool and cotton goods, manufactures of many kinds, road vehicles, aircraft and ships. Production is very largely in private hands, but railways, coal mines and electric power are nationalized.

Primary and secondary school education are free, and school attendance is compulsory to the age of 15. There are also a number of private boarding-schools, known as "public" schools, which are independent of the State system, as well as some 5,000 private schools. All schools, however, are inspected by the Ministry of Education and may be closed if found to be inefficient. There are 16 degree-granting universities in England; one in Wales; four in Scotland, and one in Northern Ireland. All
these institutions are self-governing and they receive their grants from the Treasury, through a special university grants committee, and not from the Ministry of Education.

There is an extensive network of railways, but only a very small proportion of the lines have been electrified so far—namely, 1500 kilometres out of 31 000. There are approximately 300 000 kilometres of public roads of which only 14 000 kilometres are trunk roads. An additional 31 000 are classified as class 1.

In July 1954 Lloyd’s Register showed 3828 steamships of over 11 000 000 gross tonnage, and 1912 motor vessels totalling nearly 8 000 000 tons. This figure excludes ships of less than 100 tons. In 1954 a tonnage of over 115 000 000 was cleared from the main ports of the United Kingdom.

There are two main State-owned airlines and a number of private charter companies.

Social security schemes cover the whole population. After the Second World War the partial schemes which had previously been in force were replaced by a comprehensive system of national insurance and industrial injuries insurance, with national assistance and family allowances in the background. The National Health Scheme provides medical care, including hospital care, for all persons, whether they are insured or not.

Health

In England and Wales the Ministry of Health is under a Minister, who has a Parliamentary Secretary. In Scotland the Department of Health is under the Secretary of State, and these two ministers are responsible to the Imperial Parliament. In Northern Ireland the Minister of Health and Local Government is responsible to his Parliament. The Welsh Board of Health is in effect a special department of the Ministry of Health with a large degree of autonomy in the health affairs of Wales. Most of the health legislation for Scotland is drawn up separately, following the same principles as that for England and Wales but adapted to local conditions. In all health departments there are parallel hierarchies of administrative and medical staff working in liaison. The Secretary as administrative head, and the Chief Medical Officer, have direct access to the responsible Minister.

The Minister of Health is directly responsible for: (a) the provision on a national basis of all hospital and specialist services; (b) mental health functions concerned with medical care; (c) the conduct of research into matters relating to the prevention, diagnosis and treatment of illness or mental defect; (d) a public health laboratory service; and (e) a blood transfusion service. He has indirect responsibility for the general practitioner and the local health authority services. The Minister is advised by a Central Health Service Council, which keeps under review the general development of the service and makes special studies of any subject which in its opinion should come to the special attention of the Minister. The 138 Executive Councils are responsible for the administration of the general practitioner service. Each has 25 members, 12 appointed by the local doctors, dentists and pharmacists, eight by the local health authority and the remaining five by the Minister of Health.

The health services of Scotland are largely on the same lines as those in England but under different statutory authority. The Secretary of State for Scotland is responsible to Parliament for the health service. The local authorities are the councils of counties and large boroughs. The county councils are responsible for the major public health services in the small towns, which in turn undertake local sanitary and hygiene services. General practitioner services are administered by executive councils, and the responsibility for hospital services rests with the Secretary of State. The main difference in Scotland is that teaching hospitals are included in the regional services and have no separate boards of governors. There is also a medical education committee in each region. Responsibility for local health services, e.g., maternity and child welfare, home nursing, etc., rests with the major local authorities—that is, the county councils and the towns councils of large burghs. Health centres come immediately under the control of the Secretary of State and not the local authorities.

The health services of Northern Ireland follow the same general lines as those of England and Wales and the benefits and facilities provided are very similar. The Minister of Health and Local Government does not administer any of the services directly. This responsibility rests with three main agencies which exercise wide powers—viz, the Northern Ireland Hospital Authority, the Northern Ireland General Health Services Board, and the local health authorities, which are the councils of counties and county boroughs. There is a medical officer of health for each county and county borough. The tuberculosis service is separate in Northern Ireland but otherwise the Hospitals Authority undertakes all the functions, including the building of new hospitals, the provision of a consultant and specialist service and of facilities for medical education and research. It also provides bacteriological, pathological and blood transfusion services, not only for the hospitals but for the health services in general.

The vital statistics for England and Wales show rates for 1954, 1955 and 1956 as follows: births, 15.2, 15.0 and 15.6; deaths, 11.3, 11.7 and 11.7; and infant mortality, 25.4, 24.9 and 23.7. For Scotland during the same years the rates were: births, 18.0, 18.0 and 18.5; deaths, 12.0 for each year, and infant mortality, 31.0, 30.4 and 28.3.
The National Health Service Act, which came into operation in July 1948, was aimed at strengthening and expanding existing services so that benefits previously available only to insured persons or to those who could afford to pay for them, or as a form of charity, should become available to everyone. About 97 per cent. of the population of Great Britain are using the service. The great majority of specialists are taking part in it, together with almost 98 per cent. of general practitioners (nearly 20,000 in England and Wales, and over 2,500 in Scotland). Ninety-four per cent. of the dentists participate; of about 10,500 practising dentists in England and Wales, approximately 9,800 are in the Service, as are over 1,100 Scottish dentists—i.e., almost all the dentists in the country. Nearly all chemists in Great Britain are also in the Service.

The total cost of the National Health Service in the United Kingdom represents 3.5 per cent. of the total national resources, and in 1955-56 amounted to £552,644,000 (US $1,547,403,200); four-fifths of the gross cost falls on the Exchequer and a further portion on local rates. Other sources of income include a transfer from the National Insurance Fund and some payment by persons using the service. To help to limit expenditure without reducing the services it was found necessary to introduce charges for certain items, for example, prescriptions and part of the cost of dentures and spectacles. The availability of the service is not dependent on contributions to national insurance. A recent analysis of the National Health Service by a committee set up in 1953 showed that the real cost after allowing for rising prices increased little during the years 1948-54, while many of the services provided were substantially expanded and improved.

Expenditure on the National Health Service in Scotland amounted to £57,646,000 (US $161,408,800) in 1954/55, and £61,411,000 (US $171,950,800) in 1955/56. The Service in Scotland is very closely akin to that of England, but central responsibility rests with the Secretary of State.

In England and Wales the 14 Regional Hospital Boards, which are in general charge of the hospital and specialist services, operate in areas that were designed to secure as far as possible a close association with universities having a school of medicine. Each Board has a membership of between 22 and 32 persons appointed by the Minister after consultation with universities, health authorities, representatives of the medical profession, voluntary associations, employers, trades unions, etc. All appointments are honorary. A number of hospitals in England and Wales have been designated by the Minister as teaching hospitals. There are 36 of these, 26 being in London. Each teaching hospital has its own board of governors, which is responsible under the Minister alone for organization and control. The members are appointed by the Minister, but about half of them are nominated in equal numbers by the university, the teaching staff and the Regional Hospital Boards. In Scotland there are four such Regional Hospital Boards.

The detailed internal administration of individual hospitals and small groups in England and Wales is carried out by 388 hospital management committees, whose members are appointed by the boards after consultation with associations and persons concerned. Although their powers are delegated from the regional boards, the management committees have a substantial autonomy.

In England and Wales at the end of 1955 the 2,681 hospitals in the service had 476,433 staffed beds—about 29,000 more than in 1949. This figure included several thousand beds specially set aside for mental illness. The nursing and midwifery staff in the hospitals concerned comprised 143,347 whole-time and 32,873 part-time personnel, of whom 53,62 were whole-time midwives, 1,286 were part-time midwives and 3,710 were pupil midwives. About 250 hospitals and homes remain outside the Service—most of them run by religious orders—and there are a number of nursing homes, which must be registered as such. In Scotland at the end of 1955 there were 400 National Health Service hospitals, with 63,000 staffed beds and a full-time nursing and midwifery staff of 21,300.

The hospital and specialist services provide all forms of hospital care and treatment for both in-patients and out-patients in every kind of hospital, in maternity homes, sanatoria, infectious disease units, institutions for the chronic sick, convalescent homes and rehabilitation centres. They also provide specialist advice and treatment either in hospitals or in clinics or, if necessary, in the homes of the people. The domiciliary consultant service has grown rapidly since its introduction and is now a valuable link between hospital and general practitioner. Blood transfusion and pathological laboratory services are at the disposal of every hospital. All specialist services, such as those for tuberculosis, mental care, etc., are available to every member of the public without any insurance qualifications. The majority of patients are accommodated in general wards but some hospitals have beds in single rooms or small wards, which, if not required on medical grounds, are made available to patients desiring extra amenities. In such cases a charge is made representing the additional cost over the cost of maintenance in a general ward. There are also a number of pay beds for which patients are charged the full hospital maintenance rate as well as the specialist’s fee.
Many hospitals have a department staffed by medical social workers. Their main function is to form a link between the medical staff and the patients by social inquiries with the object of relieving the personal anxieties of the sick, any family difficulties and other problems which arise during illness, and to ensure that after-care and help in readjustment to normal life are provided when necessary.

The general practitioner service is available to everyone. Patients may choose the doctor they wish provided he is enrolled in the Service and consents to attend them. They may also change their doctor at will. The doctor has a similar freedom to accept or refuse patients, and may accept private patients. He cannot be forced to attend any person against his will, although he has a general obligation to provide emergency treatment. The general practitioner is free to treat his patients exactly as he wishes. There are no regulations as to what drugs or treatment he may prescribe, although the Chief Medical Officer for the Ministry offers guidance, and provision is made to investigate improper or excessive prescribing. If any special difficulty arises in diagnosis or treatment the doctor may call in a consultant and secure hospital care without reference to any outside authority. The maximum permitted number of patients' names on the principal's list is 3500 and the present average is about 2200. No doctor can be obliged to remove from his existing practice, but he may be prevented from starting in a new area if it is already fully served; in that case he will be encouraged to choose a district where doctors are most needed. A practitioner in public service is remunerated by capitation payment for each patient registered with him, with an addition for any patient within the range of 501 to 1500 of this list. In addition doctors may receive special mileage payment for visiting in rural areas and financial inducements for practising in specially difficult or unpopular districts. A special initial allowance may also be paid to doctors taking up practice in areas where there is great need. At present the general practitioner service is almost always organized from the doctor's own surgery, to which patients go for advice and treatment except when the doctor visits them at home. A few doctors work from health centres. It has recently been urged that many of the advantages of health centres could be secured more easily by group practice. This means that a number of doctors, normally between three and six principals, work from a common centre controlled by themselves and employ jointly any auxiliary help that they require, such as, for example, nurses and secretarial staff. They co-operate in providing a round-the-clock service for patients, but each patient remains the responsibility of his own chosen doctor. The group practice may or may not be organized as a partnership. One of the most usual methods of entering general practice is to become an assistant to a partnership or in a group practice.

The provision of the dental service is on similar lines. There is complete freedom of choice by patients, and the dentist has the same rights. He may take both private and National Health Service patients if he wishes. Patients are not required to register with dentists and the ordinary practice of visiting by appointment is retained. Dentists providing treatment in their own surgeries are paid on a prescribed scale of fees. All routine dental treatment may be given without reference to any outside authority, but cases of special difficulty or long-term treatment require the authority of the Dental Estimates Board. Ophthalmic and pharmaceutical services are organized on similar lines.

The services provided by the 146 major local authorities in England and Wales are undertaken by the medical officer of health and his staff, working through statutory health committees. There are very large numbers of local authority health clinics, which are responsible for general preventive care as well as for maternity and child health services, school health, dental health, health education of the public, etc. More than 75 per cent. of babies born in England and Wales are brought to infant welfare centres for regular supervision by doctors and health visitors. This service is available until the child is five years of age. If treatment is required the child is referred to the family doctor. Local health authorities are required to provide free dental care for mothers and young children, who have special priority. Where possible, separate sessions are arranged for pre-school children between two and five years of age. Mothercraft teaching is a feature of the work at ante-natal clinics and is often associated with relaxation classes for expectant mothers. Teaching is continued for mothers who attend the clinics with young children, and health education of this kind takes the form of individual consultations, group discussions, demonstrations and special classes—for example, in infant cookery and making clothes for babies and young children.

The expectant mother may arrange to have her baby in hospital or at home. The doctor carries out ante-natal and post-natal examinations, attends the confinement if he thinks it necessary and gives any other medical care required. Routine supervision and advice is provided by the midwife, who visits the house regularly before the confinement. As a rule the midwife delivers the baby, unless the doctor considers it necessary to be present, and she continues in attendance for the first 14 days after birth. Midwives work
in close touch with child welfare centres, and when they cease to attend the mother, or the mother returns home after a hospital confinement, the health visitor from the health department begins her regular visits. Special equipment is provided on loan to mothers whose premature babies can be nursed in their own homes, and arrangements have been made for them to be attended by midwives and health visitors with special training.

Before 1948 health visitors were primarily concerned with the general care of mothers and of children up to the age of five years. The trend, which is still encouraged, was to use the health visitor also as the school nurse in her area. Under the National Health Service her role has been widened further to include advice on the care of any person suffering from illness and on measures for preventing the spread of infection. Many health visitors take part in care and after-care services, especially for tuberculosis patients. A Home Nursing Service is provided under the family doctor for those who require nursing in their own homes. The nurses are employed either directly by the local health authority or by a voluntary organization as its agent. About half of the nurses' time is devoted to nursing the aged or the chronic sick.

Local health authorities have power to provide domestic help for households where it is needed on account of illness, childbirth, or the presence of children, old people or mental defectives. This is not a free service but authorities make charges according to the families’ means. All authorities now provide this service, mainly by the employment of part-time workers. It is especially valuable for the aged and the chronic sick.

Local authorities have power, with the approval of the Minister, to provide, equip and maintain a new type of combined health centre for the following services: (a) general practice, dental and pharmaceutical services; (b) specialist services by arrangement with the Regional Hospital Board; (c) the local authority clinic services, and health education. Lack of resources has prevented the building of these combined centres on a large scale. A few have been established by local health authorities and one or two experimental centres have been set up by voluntary bodies. As part of their preventive work, local health authorities may give help and advice to families which are in difficulties or in danger of being broken up.

Mass miniature radiography was introduced in 1943 and there are now about 70 units operating under the Regional Hospital Boards, and examining over three million persons a year. Under a scheme launched in 1949 all health authorities provide BCG vaccination. This was expanded in 1953 to make special provision for schoolchildren between their thirteenth and fourteenth birthdays. In a similar way, under the National Assistance Act of 1948, the major local authorities have power to provide welfare services for the blind, deaf or dumb or those permanently and substantially handicapped by illness, injury or deformity. They are also empowered to use the help of voluntary organizations as their agents and, in the case of the blind, a duty has now been imposed by the direction of the Minister.

The National Health Service Act brought mental and physical health together in one comprehensive service and the Minister is responsible for the whole organization of mental health. Local health authorities deal with community care of mental defectives and the initial care of patients suffering from mental illness. They also provide after-care where necessary. The officers employed by local health authorities are mainly local health workers who are under the direction of the medical officer of health. Some authorities have appointed an assistant medical officer with special duties in mental health.

At the end of 1956 there were, in England and Wales, 149 480 patients under treatment for mental disorders and 141 996 mental defectives were under care; 78.2 per cent. of all patients admitted direct to mental hospitals were admitted voluntarily. In Scotland, the boarding-out system has always been a prominent feature of the mental health services. By the end of 1955 there were 26 886 hospital beds for the mentally ill and mentally defective compared with 36 180 for all other types of illness. About 72 per cent. of admissions to mental hospitals are now voluntary. In Northern Ireland the mental health services are administered by the Northern Ireland Hospitals Authority as part of a comprehensive scheme. There are six mental hospitals and three institutions for the mentally subnormal. The Hospitals Authority is also responsible for community mental health work.

A large number of voluntary associations provide welfare services for sick and handicapped persons. Their most valuable role is probably to give personal service to the welfare of the sick and infirm. These agencies usually depend partly on the work of unpaid volunteers. A great deal of voluntary help is given to hospitals. More than half of all the hospitals in England and Wales have their own “League of Friends” or a similar body. The main functions of these associations are the operation of canteens for out-patients and library services for in-patients. They also take a great part in transport work, visiting in the wards, receiving new patients, making linen, clothes, etc.
The School Health Service, although closely co-ordinated with the National Health Service, continues its separate existence under the Ministry of Education. The executive work is generally carried out for the local education authorities by the medical officer of health and his staff. All the medical and dental services are provided free of charge. Child guidance centres for the treatment of maladjusted children are made available by most of the education authorities under the school health services and also by many large hospitals and a few voluntary organizations. Child guidance centres and clinics are normally staffed by teams consisting of a psychiatrist, an educational psychologist and psychiatric social workers. The School Health Service in Scotland operates under the Education Act and the executive work is carried out by the local education authorities. The central service, however, is under the Department of Health.

The industrial health services are essentially preventive and include first-aid treatment for accident or sickness. The State appoints independent inspectors (including medical inspectors) to advise on and enforce the enactments connected with the health of workers. The employers have a general responsibility not to endanger the life and health of their employees. Many of them have made arrangements, including the provision of medical and nursing services, to help them comply with the statutory requirements. A large number of private industrial firms maintain their own health services, and since 1947 the National Coal Board has developed its own industrial medical service. Most of the industrial premises in Great Britain come under the Factories Acts, which are administered by the Ministry of Labour and National Service. The factory inspectorate which is appointed and paid by the central Government was first created in 1833. The original staff of four inspectors and 14 subinspectors has increased to about 360 and the number of premises subject to inspection has grown from just over 4000 to a quarter of a million. General requirements for safety, health and welfare are supplemented by regulations dealing with special risks in particular industries, processes and machines. There are at present 14 medical inspectors in the factory department of the Ministry of Labour. Their duties include special investigations in industrial hygiene, the study of industrial conditions in so far as these affect the health of the workers, and scientific inquiries into cases of industrial disease and processes directly dangerous to health. Factory doctors appointed under the Chief Inspector of Factories carry out statutory medical examinations. They also investigate cases of notifiable industrial disease and certain accidents. The whole of Great Britain is covered by the service. Most of these doctors are in general practice and undertake part-time factory work. In addition to the above, industrial medical officers have been appointed by many employers. They cover a wide range of medical and preventive work, including rehabilitation and health education. There is a standing Advisory Committee to advise the Minister, and a number of special bodies—such as the Department of Scientific and Industrial Research—undertake research and other activities.

Medical research in universities, hospitals and other institutions in the United Kingdom has been established for many years. The principal organization is the Medical Research Council, which is under the statutory authority of a committee of the Privy Council. The Public Health Laboratory Service is administered by the Medical Research Council for the Ministry of Health. Private voluntary organizations play a considerable part in medical research work in close co-operation with official bodies.

Professional training in medicine is controlled by the General Medical Council, which is a statutory body. There are 16 universities which grant degrees in medicine and surgery. In addition, the Royal College of Physicians and the Royal College of Surgeons (in England and in Scotland) and the Apothecaries Society of London grant diplomas which are recognized by the General Medical Council. There are about 140 hospitals in Great Britain with medical teaching facilities. The British Postgraduate Medical Federation is a school of the University of London. It comprises a post-graduate medical school and institutes in the various clinical branches of medicine and surgery. The dental profession is governed by a General Dental Council, which is a statutory body. Fourteen universities grant degrees in dental surgery and, over and above this, diplomas are granted by various colleges and faculties.

The minimum period of hospital training required to qualify the candidate for registration as a general nurse is three years. The theoretical work for examinations is done either at the same time as the practical nursing or, in some hospitals, at intermittent periods. Qualified nurses are entitled to use the letters S.R.N. (State Registered Nurse) after their names. The minimum period of training for certification as a midwife is one year for registered nurses and two years for others.

Water supply, sewerage and the prevention of river pollution in England and Wales are responsibilities of the Minister of Housing and Local Government. Management of rivers is in the hands of special boards set up under the River Boards Act, 1948. Local authorities are required to supply wholesome water
to every part of their district where there are houses or schools, to maintain wells, springs and water mains and to ensure that supplies are free from pollution. Recent Acts of Parliament empower the Minister to make grants towards schemes in rural areas. It is estimated that a piped water supply now reaches 97 per cent. of all urban households and 90 per cent. of rural dwellings.

Local authorities have wide responsibilities in housing, the executive functions being undertaken by the smaller local authorities. They are responsible for the routine maintenance and sanitary conditions of houses and also for the clearance and re-development of unhealthy and congested areas. Local authorities have important duties to relieve overcrowding and to provide new housing accommodation to meet local needs. The county councils have a general supervising authority over rural dwellings and are especially concerned with town and country planning in their areas. All these functions are under the supervision and control of the Ministry of Housing and Local Government.

The public health functions of local authorities also include street cleansing and refuse disposal, the provision of baths and wash-houses, rodent control and the abatement of smoke and other nuisances, such as those arising from the processes of offensive trades.

The Ministry of Health and the Ministry of Agriculture, Fisheries and Food are the central departments responsible for the purity and hygiene of food and for food protection. The larger local authorities enforce the regulations made under the Food and Drug Act, 1955. All premises where food for human consumption is prepared, sold or stored are required to conform to certain hygienic standards. Local authorities are empowered to take samples for analysis and to deal with any deficiencies under the regulations.

**YUGOSLAVIA**

Yugoslavia is a State in the Balkans, with a long coastline on the Adriatic fringed by many islands, and land boundaries with Italy, Austria, Hungary, Romania, Bulgaria, Greece and Albania. The area is 255,804 square kilometres.

The population at the 1953 census was 16,936,573, with a density of 66.3 per square kilometre. About 61 per cent. of the population live in rural areas. In 1956 Belgrade, the capital, had a population of about 485,000. In 1953 it was estimated that 25 per cent. of the inhabitants over 10 years of age were illiterate.

According to the 1953 census, the main occupations are agriculture (engaging over 5 million), mining (130,000), industry (530,000); commerce (240,000), and handicrafts (430,000).

Yugoslavia is a Federal People's Republic, made up of six Republics: Serbia, Croatia, Slovenia, Bosnia-Herzegovina, Macedonia, and Montenegro.

In agriculture, the main crops are wheat and maize. There are large forest areas which could be considerably developed. The Government has been encouraging industrial development and a small amount of equipment is now being exported. Minerals are a great source of wealth, especially in the central regions. Industries are nationalized, and private ownership of agricultural land is limited to 10 hectares.

Eight years of primary education are compulsory, and all education is free. There are seven universities—Belgrade, Zagreb, Ljubljana, Sarajevo, Skopje, Novi Sad, and Rijeka.

In 1957 there were about 11,800 square kilometres of normal and narrow gauge railways. On the Adriatic the principal ports are Rijeka, Split, Sibenik, Ploče, Dubrovnik and Kotor. The Danube is an important waterway, and in 1957 Yugoslavia had nearly 1,200 river craft. In the same year there were 48,557 kilometres of macadamized and 4181 kilometres of concrete or asphalt roads. There are many international air services operated by Yugoslav and foreign civil airlines.

In 1957, 2,821,000 people were covered for old-age, invalidity, and survivors' pensions and the same number for benefits in case of unemployment and the accidents of employment.

**Health**

The municipality (commune) is the basic social and economic unit of the community and is organized on the principle of self-government by the local people's committees. It is an economic and territorial unit, and a great number of municipalities are in fact strong enough to solve their own economic, communal and health problems. But in case of need it is the district—which is the social and political association of the municipalities and forms a more or less independent territorial and economic area—that supervises the organization and development of social life in any given region.

Within the framework of local district and municipal committees, there are public health councils, made up as a rule of representatives of social organizations (such as the Red Cross, the Association of Friends of Children, and the social insurance system) and public health workers. These councils generally have nine to 15 members in the districts and five to nine members in the municipalities.

In the people's republics there are also public health councils, as in the districts and communes, made up of between 15 and 25 representatives of social organizations, and experts in various subjects (such as university professors and medical officers of health). These councils have at the same time social and administrative functions, and have secretariats as their executive organs.
The Federal Assembly and the national assemblies of the Republics have committees for public health and social welfare, which are especially concerned with programmes of health improvement and may call on the advice of experts. These committees work out the public health laws of the Republic and, in cooperation with the executive council of the Republic, submit them to the national Assembly.

Finally, there is in the Federal Executive Council a Committee for Public Health and Social Policy, as well as a Public Health Division headed by an Under-Secretary of State.

In the administration of the health services as a whole there is a substantial amount of decentralization; in most cases the local bodies are responsible for running the services, and they deal with matters which come within their jurisdiction. Experience has shown that the best way of arousing the interest of the people in public health is to set up local councils responsible for organizing both curative and preventive services and for making studies of public health conditions. These councils co-ordinate the work of all health establishments and in this way are responsible for the health programme within their own area. In order to secure uniformity in the health programmes of the Republics, institutes of public health and hygiene have been established in the Republics, and the Federal Government has a Federal Institute of Public Health.

The fundamental principles on which the health service was constituted are: (a) the protection and improvement of public and personal health; (b) control of disease by general and specific measures; (c) case-finding, early diagnosis and timely treatment; and (d) campaigns against ill-health and for the rehabilitation of the handicapped. For this purpose, medical care and preventive services are frequently united to form an integrated service. The hospitals have also been included in the general health service and are gradually becoming less isolated; they have begun to set up dispensary services and polyclinics and are thus helping to bring about the integration of out-patient, dispensary and hospital services.

Health insurance covers about 43 per cent. of the population; some 7,413,000 people were covered for sickness and maternity benefits in 1957. Free medical advice and care are given for communicable diseases, all forms of tuberculosis, mental disease, physical handicaps, and long-term disabilities provided that these can be cured. All mothers requiring maternity care, people who are unable to support themselves, the aged and infirm, and all children up to three years of age are also entitled to free medical advice and care in all health establishments. Certain sections of the population, such as children under school age, and pupils and students of all schools, also receive care in the dispensaries free of charge, irrespective of whether or not they are insured. Furthermore, even if they are not insured, they pay only 50 per cent. of the charges for in-patient medical care in hospital. Members of collective agricultural co-operatives also pay only 50 per cent. of the charges. Medical care is provided free of charge to such an extent that it was recently estimated that about 80-85 per cent. of all health services were free, the remainder being paid for by individuals.

The following table shows how the cost of health and medical care is being borne to an increasing extent by the national budget and health insurance:

<table>
<thead>
<tr>
<th>Year</th>
<th>% covered by the budget</th>
<th>% covered by social insurance</th>
<th>% covered by citizens</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>24</td>
<td>59</td>
<td>17</td>
</tr>
<tr>
<td>1955</td>
<td>20</td>
<td>64</td>
<td>16</td>
</tr>
</tbody>
</table>

The national health services budget in 1953 represented 2.96 per cent., and in 1955 3.27 per cent., of the national income. The ratio of expenditure on curative services to expenditure on preventive services in 1954 and 1955 was 11.5:1.0.

Health statistics are published annually in a statistical yearbook. In 1956, the birth rate was 25.9, the death rate was 11.2, and the infant mortality rate was 98.3, compared with a death rate of 14.9 in 1939, and an infant mortality rate of 143 during the years 1934-37.

There has been a considerable extension of the hospital service during the past ten years. The number of beds has doubled, and the total number of physicians has risen from 4754 in 1939 to 10,346 in 1956. The organization of domiciliary medical care is not yet adequately developed, but there has been a very large increase in out-patient services at dispensaries and health centres, of which there are now more than 3000; the number of out-patient visits rose from 23 million in 1953 to 28 million in 1955. Some 1.147,000 patients received treatment in general and special hospitals in 1955, and a further 35,000 were attended in other institutions such as sanatoria.

Since the war, a series of programmes have been planned and carried out for the control of various epidemic and endemic diseases, and these programmes are now beginning to bear fruit. All the pre-war institutions have been re-established and many new hygiene institutes and epidemiological stations have been built. With the opening of new laboratories the scope of these institutes has been enlarged, and various
specific studies have been undertaken on such conditions as brucellosis and virus diseases, especially in Belgrade, Zagreb, Sarajevo and Ljubljana. In 1955 the epidemiological stations and hygiene institutes employed 599 physicians, 145 public health engineers and chemists, 51 pharmacists, 587 technical health workers, and 560 hygienists and other medical technicians. The local district and municipal committees employed separately a very substantial number of health workers.

Malaria control was begun in 1947, and has achieved considerable success. Since that time there has been a very rapid decline in the number of cases, from several hundred thousand to 600 in 1953 and some 800 in 1957.

Tuberculosis is still a major problem, and a survey made in 1955 revealed that about 1.7 per cent. of the people were actively infected. The health service has undertaken a series of measures for the control of the disease, including an increase in institutional accommodation and in the number of dispensaries and specialists. Before the war there were only 2800 hospital beds and 49 dispensaries for tuberculosis patients, whereas by the end of 1955 the number of beds had risen to 17 000 and the number of dispensaries to 226, apart from eight static and 10 mobile x-ray units. BCG vaccination was made compulsory in 1948, and since then over nine million children and young people have been tuberculin-tested, and nearly four million of them have been vaccinated. Before the war, the tuberculosis control service was staffed by 50 physicians and 76 nurses, as well as a number of x-ray technicians and laboratory assistants in the dispensaries; in the ten years since the war the number of staff had increased by 474 per cent.

After the war it was decided to organize a campaign to eradicate endemic syphilis, which was prevalent in certain areas of Serbia and Bosnia. Field teams were sent to make investigations on the spot and to treat detected cases. They toured the villages, making house-to-house inspections and carrying out serological tests; altogether, 1 841 898 people were examined and given blood tests, and on the basis of these examinations 98 066 cases were found and treated. Endemic syphilis in Yugoslavia has now been brought under control, and further care can be left to the local health services.

The number of cases of trachoma has not been accurately estimated, but it almost certainly amounts to more than 30 000. Campaigns for the control of this disease were conducted before the war, but after the war they were considerably strengthened, and have been especially effective in Slovenia, where only about 300 chronic cases remain and no new infections have been noted. In Serbia more than half the cases have been cured, and in Croatia and Bosnia the situation is improving rapidly.

Approximate estimates show that Yugoslavia had about 1 400 000 cases of endemic goitre. In 1953 it was decreed that salt for human and animal consumption must be iodized; most encouraging results have already been obtained from the compulsory consumption of iodized salt—the number of cases of goitre in young children has decreased by 50 per cent. in five years, and in as many as 72-87 per cent. of cases, manifest goitre has completely disappeared.

There has been a steady increase in child health services, as shown by the fact that between 1953 and 1955 alone the number of children's dispensaries rose from 132 to 159, and the number of school health centres and polyclinics increased from 120 to 155. The same is true of maternal health services. Since the war the number of beds for maternity cases in hospitals and maternity homes has increased and many new clinics have been opened. The growth of these services is illustrated by comparative statistics for 1950 and 1956: in 1950, there were 237 dispensaries for women and 682 000 visits were recorded, whereas in 1956 the number of dispensaries had risen to 401, and 1 040 000 visits were recorded. Many professional courses on maternal and child health are being given to general practitioners, and the training of midwives is being improved.

In recent years there have been great improvements in the dental service. In 1956 there were 1697 qualified dentists and 1414 dental technicians, and 946 dental treatment centres for out-patients were in operation.

With the object of preventing accidents and protecting health during working hours, the health authorities have devoted special attention to the establishment of health services in factories, mines and all concerns employing large numbers of workers.

The rehabilitation of the sick and injured has become an essential part of the work of public health centres. After the war, these institutions were overburdened with the care of disabled ex-service men, and it was not until 1949 that a new and wider rehabilitation service was first organized. The first centre (which has since been converted into an institute) was established in 1952, and from then onwards the idea spread widely, so that all the Republics have now set up their own centres. Steps have also been taken to train staff for this purpose, particularly at the school of physiotherapy in Zagreb (Croatia) and the Institute for Rehabilitation in Belgrade (Serbia), and similar courses are also being organized in other Republics.
EASTERN MEDITERRANEAN REGION
The Aden Petroleum Refinery Limited Hospital and with 50 beds, admitted 2600 patients in the same year.

5449 admissions; the government maternity hospital, tuberculosis unit of 138 beds, and in 1956 recorded infant mortality rate.

Birth rate per capita. The expenditure on health for the Colony for the financial year 1954/55 was 6.8 per cent. of ordinary expenditure, and represented roughly £7.5 (US $21.00) per capita.

In recent years, and other important crops are millet, dates and sesame.

Cotton cultivation has increased in recent years. The Protectorate's economy is based on agriculture, animal husbandry and fisheries. Cotton has been cultivated extensively in the region and new plantations have been established. Other important crops include millet, dates, and sesame.

In Aden Colony, education in government primary schools is free. Small fees are charged at government intermediate schools, at Aden College and at the Technical College. Teacher training for men is provided at Aden College and for women at the government intermediate school for girls. Selected students are awarded scholarships for teacher training courses in the United Kingdom.

Health

Aden Colony. The Medical Department of the Colony is administered by the Director of Medical Services and consists of the civil hospital, the maternity hospital, the port health office, the public health department under the medical officer of health with an assistant medical officer of health and a health inspector, and three dispensaries.

The expenditure on health for the Colony for the financial year 1954/55 was 6.8 per cent. of ordinary expenditure, and represented roughly £7.5 (US $21.00) per capita.

The vital statistics for the years 1954, 1955, and 1956 were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth rate</th>
<th>Death rate</th>
<th>Infant mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>22.8</td>
<td>10.8</td>
<td>156.0</td>
</tr>
<tr>
<td>1955</td>
<td>29.3</td>
<td>12.8</td>
<td>159.0</td>
</tr>
<tr>
<td>1956</td>
<td>32.7</td>
<td>12.9</td>
<td>151.0</td>
</tr>
</tbody>
</table>

The government civil hospital has 360 beds, with a tuberculosis unit of 138 beds, and in 1956 recorded 5449 admissions; the government maternity hospital, with 50 beds, admitted 2600 patients in the same year. The Aden Petroleum Refinery Limited Hospital and the mission hospital provide a further 156 beds; 2481 patients were admitted to these two hospitals in 1956.

The health personnel in Aden Colony in 1956 consisted of the Director of Medical Services, the medical superintendent of the civil hospital, the medical superintendent of the Maternity Hospital, a surgeon specialist, 26 medical officers, 15 assistant medical officers (13 male and two female), two matrons, 37 nursing sisters, one dental officer (part-time), and 251 medical auxiliaries.

There are no local facilities for training students in medicine or nursing, and government scholarships are provided for this. In 1954 five men had been trained as State Registered male nurses, and six scholarship-holders were studying medicine in the United Kingdom.

Pneumonia, dysentery, tuberculosis and malaria were the most important diseases in the Colony in the period under review. Routine mosquito control is carried out and all the reported cases (1535 in 1954, 769 in 1955 and 617 in 1956) came from outside the Colony. Tuberculosis is not notifiable, but 815 new cases of pulmonary tuberculosis were seen at the tuberculosis clinic in 1956 and 85 deaths were recorded from this disease in the same year.

Aden Protectorate. The Aden Protectorate Health Service is headed by a health adviser, based at Mukalla, with assistant health advisers in the Western and Eastern Protectorates. The health adviser administers the government health service and advises the states of the Protectorate on health matters. The assistant health advisers deputize for him, are also honorary consultants to hospitals in their areas, and control or contribute to the tuition in the training centres.

Senior medical officers are in charge of four state (Lahej, Qu’aiti and Kathiri) or joint state (Fadhli-Lower Yafai) health services, and the Qu’aiti has in addition three district medical officers in charge of the districts. All these state health services are based on hospitals; that for the Qu’aiti Western District is planned for the near future in Duan. Health units are administered from parent hospitals, and number 34 in the Western and 33 in the Eastern Protectorate. There are two mobile sanitation units, with health inspectors in charge, one based on Makhzan and one on Mukalla, associated with the training centres at these bases.

There are three state health boards (Fadhli-Lower Yafai, Qu’aiti and Kathiri), which discuss such matters
as policy, legislation, estimates, buildings and licensing of practitioners and drug-sellers, and pass their recommendations to the state councils.

The staff engaged on health work in the Protectorate has increased since 1951, and in 1956 the senior staff consisted of 14 doctors (10 government, four private), and two nurses of senior training (both private). The government hospital staff comprised 18 technical (hospital, theatre, radiographical, laboratory and pharmacy) assistants; seven head sick-attendants, 26 sick-attendants (male and female) and approximately 25 trainees. District staff, employed by either the Government or the states, consisted of 52 health assistants, seven health inspectors, five health overseers and four health technicians.

The total expenditure on health for the fiscal year 1953/54 was £67 212 (US $188 194), for 1954/55, £111 747 (US $312 892) and for 1955/56, £87 426 (US $244 793).

There are five State hospitals in the Protectorate, each with laboratory facilities, and with a total of 120 beds (in 1955); 1465 in-patients and 42 476 out-patients were cared for in these hospitals during 1956.

The health units are staffed by health assistants, who work under the supervision of visiting district doctors and who are trained in preventive as well as curative skills. In 1956 the 34 health units in the Western Protectorate handled 100 874 cases, including 14 035 home visits, 161 567 treatments, and 1198 immunizations (smallpox, cholera and yellow fever); 7995 homes were sprayed. In the Eastern Protectorate during the same year the 33 health units dealt with 47 247 cases, including 5088 home visits and 195 788 treatments; 2957 homes were sprayed.

No figures for births and deaths are available; infant mortality is known to be high in places, reaching as much as 500 per 1000 live births.

From the cases admitted to, or treated by, hospitals and health units, it may be seen that malaria and other fevers, intestinal infections, ulcers, eye diseases and pulmonary tuberculosis are of importance. The group of undifferentiated fevers includes some malaria and also infective hepatitis, sandfly fever, dengue, influenza and, it is suspected, a not inconsiderable amount of poliomyelitis. During the period under review there were no cases of the six quarantinable diseases.

By the end of 1956 malaria was being controlled to an increasing degree, though there were occasional epidemics. More and more attention is being given to pulmonary tuberculosis by registration, leaflet propaganda, domiciliary care and hospital care where necessary and possible. In 1956 the number of cases being brought to treatment had increased by some 300 per cent. since 1951, and a BCG vaccination campaign was planned.

The number of leprosy patients registered in 1956 was 63 in the Western Protectorate and 115 in the Eastern; these figures are minimal, but the disease is not a major public health problem. Domestic segregation and domiciliary treatment are applied when feasible.

Trachoma is widespread, and a drive against eye diseases was started in 1951; since then the number of cases tracked down and treated has increased more than tenfold.

Sanitation is very primitive, and the lack of it is the greatest single danger to health. In the Eastern Protectorate the constant efforts which are being made to render privies fly-proof are proving successful.

**CYPRUS**

Cyprus is an island in the eastern Mediterranean basin. The summer climate is hot and dry in the plains and humid on the sea coast; the climate in the hills is equable and bracing.

The area is 9251 square kilometres, and the estimated total population was 498 000 in 1952, 513 700 in 1954, and 527 800 in 1956.

For administrative purposes the island is divided into six districts, and there are municipal authorities in the larger towns.

The territory is predominantly agricultural. Minerals account for about half the value of all domestic exports. Industry is as yet relatively little developed.

Government-controlled primary education is free but not compulsory and about 95 per cent. of the children attend school. All secondary schools charge fees. Teaching is in Greek or Turkish, English being taught as a subject. About 300 Cypriots are engaged in higher studies in the United Kingdom. At the 1946 census, 25.6 per cent. of the population between 16 and 60 years age (most of them over 50) were illiterate.

**Health**

The history of the public health services dates back to the time of the British occupation of the island 80 years ago. Malaria took a heavy toll particularly among the younger age-groups and stood as a formidable obstacle to the island's prosperity. At the beginning of this century Ronald Ross visited the island to advise on practical methods of malaria control. During this period locally trained sanitary inspectors were appointed to assist in the prevention of disease and the improvement of environmental
sanitation. Later on trained health officers were appointed and the preventive services were organized and expanded.

The public health service which had thus been established gradually improved with the passage of time. In the late 1940's a malaria eradication scheme was started and by 1950 malaria had been almost completely eradicated from the island. Hospitals and other institutions were built in the main towns and in some of the larger villages; ante-natal and child welfare centres were opened and environmental sanitation was considerably improved. All these factors, combined with the excellent climate and the absence of the most formidable communicable diseases, created a standard of health and a socio-economic situation bearing favourable comparison with conditions in several European countries.

The Government assumes responsibility for social security, the treatment of the sick and the prevention of disease, and these services are available to every class of society and cover every part of the island. For the lower income groups hospital treatment is provided free or at a nominal cost. Prophylactic inoculations against diphtheria, typhoid and whooping-cough are given free.

The Director of Medical Services is the central authority for the organization, planning and co-ordination of all curative and preventive services. He is assisted by two assistant directors, one responsible for hospital administration and the other for the preventive services. Other members of the technical staff are a chief health inspector, a senior health visitor, an inspector of pharmacies and a chief pharmacist. The district medical officer is responsible for all curative and preventive measures in his district. Under his supervision rural medical officers are in charge of groups of villages (each group containing some 10 000 population), assisted by a pharmacist, a health inspector, a midwife and in some areas a health visitor. The health responsibilities of local authorities—the municipal authorities in the towns and larger villages—are concerned mainly with sanitation. Voluntary organizations such as the Anti-Tuberculosis League, the Red Cross and others give valuable assistance to the health services and also to welfare work.

There are 339 registered private practitioners in the island. This total, added to the number of government-employed physicians, theoretically gives a ratio of one doctor to every 1255 inhabitants. Most private practitioners, however, practise in the larger towns. There are some 53 private hospitals, with a total of 880 beds, as well as 21 government hospitals, and the ratio of hospital beds to population is 4.5: 1000.

The technical staff of the public health service includes 81 physicians (specialists and general duty medical officers); 56 nurses of senior training; 136 nurses locally trained; 196 nursing aides; 20 midwives of senior training; 40 midwives locally trained; 55 health inspectors; 21 laboratory and x-ray technicians; 37 pharmacists; three physiotherapists and assistant physiotherapists.

There are no medical schools, and training of public health medical personnel is not undertaken in Cyprus. A certain number of fellowships are awarded by the Government to medical officers, enabling them to obtain post-graduate training outside the country in various branches of medicine and public health. There are training courses for community health visitors, and there are schools for nurses, sanitarians and auxiliary personnel. Recruitment of nurses constitutes a notable problem; the number of educated girls who show a desire for the profession is too small to fill the needs of the service.

Registration of births and deaths is compulsory by law, but figures for 1955 and 1956 had to be estimated on the basis of the last three years' trends because a large proportion of the mukhtars responsible for the registration submitted their resignation.

Vital statistics for the period under review were estimated as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth Rate</th>
<th>Death Rate</th>
<th>Infant Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>27.0</td>
<td>7.2</td>
<td>52.0</td>
</tr>
<tr>
<td>1955</td>
<td>26.4</td>
<td>5.8</td>
<td>31.5</td>
</tr>
<tr>
<td>1956</td>
<td>26.4</td>
<td>6.3</td>
<td>31.7</td>
</tr>
</tbody>
</table>

The main causes of death for the whole population were arteriosclerosis and heart diseases; accidents; vascular lesions affecting the central nervous system, and senility. Important infectious diseases are: diphtheria, with a mean incidence of 19 per 100 000 population; enteric fever, with 18 per 100 000; and tuberculosis, with 37 per 100 000. The incidence of venereal disease showed a marked decrease during the years under review. Trachoma, widespread until the beginning of this century, has shown a gradual but steady decrease, particularly in the last two decades. Returns for 1954-56 showed a mean incidence of 21 per 100 000 population, and this disease has therefore ceased to be a public health problem. Judging from the number of patients requiring surgical treatment, hydatidosis can be taken to be fairly widespread.

The attention of the central health authority has been directed towards the further improvement of services in the rural areas. A scheme for transforming the existing rural medical stations into health centres has received official approval and is expected to be put in operation soon. Long- and short-range health planning activities include an extensive BCG vaccina-
tion campaign, the reorganization of the rural health services, the organization of a school health service, plans for a new and modern mental hospital and proposals for a comprehensive public health law.

As far as the control of endemic diseases and other diseases of social importance is concerned, BCG vaccination is offered to selected groups, such as public health workers, police, tuberculosis contacts and schoolchildren over the age of 12 years. There are two sanatoria with 150 beds in the island and there is no waiting list for tuberculosis cases. Chest clinics function in the main towns of the island and are visited regularly by two tuberculosis specialists. Each of the district hospitals has a venereal disease clinic and there are also some 12 prophylactic centres operating either under municipal or under military control. Treatment of venereal diseases in government institutions is offered free of charge. Although malaria is practically eradicated, a team of sanitary inspectors and labourers is permanently engaged in checking potential breeding-places and spraying activities in view of the possibility of the introduction into the island of *Anopheles* from countries where malaria is still prevalent. Insect control measures are also applied to all incoming ships and aircraft.

Health education of the public forms part of the duties of the Medical Department. Medical officers, health inspectors and health visitors are responsible for conducting a health education campaign through talks and demonstrations to different population groups. Posters, bulletins, the press and radio are also used for the purpose.

Ante-natal clinics are attached to all government hospitals and most of the rural medical centres of the island. Owing to the considerable demand for institutional delivery, admission to government hospitals is limited to primiparae and those found to present abnormalities at the ante-natal clinics. There are 60 government-employed midwives and 425 private midwives—a ratio of one midwife to approximately 1100 of the population. All towns, and some of the larger villages, have child welfare centres and some of them also have day nurseries and play centres. So far, no organized school health service exists, but a pilot service has recently been introduced, and it is planned to extend it to other schools in the near future.

Plans for a modern mental hospital have been prepared. Meanwhile, the old mental hospital continues to function in its old-fashioned building, where more than 500 patients are treated under overcrowded conditions. Juvenile delinquency, although not a big problem, is dealt with adequately. In addition to a reform school, a scheme is in operation whereby maladjusted or delinquent children and young persons are placed on probation or in special hostels, and supervised by trained probation officers. Homes for children and young persons in need of protection have been established in all main towns.

Altogether 13,028 in-patients received treatment in hospitals during 1956, as compared with 13,261 in 1955 and 12,568 in 1954. An extensive hospital building programme has been carried out during the period under review. The out-patients who received treatment at the government out-patient dispensaries and health centres during 1956 numbered 142,951, as compared with 157,092 in 1955 and 164,643 in 1954.

The standard of nutrition of the whole population is considered satisfactory. All essential foodstuffs are readily available and fruits and vegetables are abundant, but there is a tendency towards diets of too high a caloric value, owing to the excessive consumption of carbohydrates and oily foods.

Housing conditions in the towns and large villages are satisfactory, but there is considerable room for improvement in the remoter hill villages and those of the plains, where badly constructed houses and overcrowding are common.

The sanitation, ventilation, cleanliness, etc. of premises where work is carried out, and the health, safety and welfare of persons employed are controlled and maintained in accordance with the Factories Law. Health hazards in industry have been reduced but there are still numerous accidental injuries occurring among unskilled labourers. Although the mining industry is the main mass labour-employing undertaking, pneumoconiosis has not yet been observed. Temporary or permanent disability occurring during employment is compensated under the Workmen's Compensation Law.

Water supplies have been greatly improved during recent years. In every town and in the majority of the villages there is now an adequate piped and safe water supply. Sixty-two per cent. of the villages are provided with a piped water supply, 16 per cent. have a piped water supply requiring repairs or pipe replacement or redistribution, and only 20 per cent. of the villages are without a piped supply, on account of their distance from reliable sources. The question of refuse and sewage disposal has attracted official attention. There are as yet no sewage plants in the island, but plans are being made for their installation in certain places. In the towns and in some villages individual septic tanks and soak-away pits are used; in the villages dry pit latrines are in more common use. Both methods have proved satisfactory, and as the result of an extensive privy construction campaign only a small proportion of houses in some rural areas are still without a sanitary convenience.
EGYPT

Egypt forms the north-eastern extremity of the continent of Africa. It is bounded on the north by the Mediterranean, on the east by the Gulf of Akaba and the Red Sea, on the south by Sudan and on the west by Libya. The total area is one million square kilometres of which only a little over 35,000 are at present habitable. The main divisions are: Egypt proper (the Nile Valley or Upper Egypt and the Nile Delta or Lower Egypt), the Western Desert, the Southern Desert, the Eastern or Arabian Desert, and the Peninsula of Sinai. The city of Cairo, the capital, is situated between Upper and Lower Egypt on 30° north, and has a population of about three million. Except for the northern coastal area, where the climate is Mediterranean, Egypt has a continental climate.

At the last census, in 1947, the population was just over 19 million and the estimated figure for 1957 is about 24 million. This would give a density of 22 per square kilometre, but if cultivable land alone is taken into consideration the density would rise to 540. The urban population accounts for a little over 30 per cent. of the total. Agriculture is the main occupation, employing 7,554,614 persons according to the latest census. Manufacture and commerce come next, occupying 708,776 and 620,288 respectively.

Administratively, Egypt is divided into several Governorates, one for each of the big cities such as Cairo, Alexandria, Suez and Port Said, eight for Upper and eight for Lower Egypt, and one each for the Western, Southern and Eastern Deserts and the Peninsula of Sinai.

The powers of provincial councils were extended in 1934, especially for education, public health and agricultural matters. The number of members varies between 10 and 18, in part elected and in part nominated ex officio. There are now 216 municipal and rural councils, which have power to impose local rates. Principal imports include machinery and electrical equipment.

In 1933, elementary education was made compulsory and free for all children between the ages of 6 and 12, primary education was made free in 1933 also, and secondary education was made free in 1950. The total number of scholars of all kinds amounted to about two million in 1957. There are four universities—Cairo, Alexandria, Ain Shams and Assyout—with a total student body in 1957 of 64,211.

There is heavy international traffic through the Suez Canal, and Cairo is an important centre of international air traffic. A good deal of stress has been laid on improving both railways and roads under a five-year programme started in 1954. The 70,000 or so kilometres of railways are owned and worked by the State.

There are social security schemes covering old age, invalidity and survivors' pensions.

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1 On 2 February 1958 the Republics of Egypt and Syria were united into the United Arab Republic.

Health

The first sanitary administration in Egypt was established in 1798. Its duties were the control of epidemics, the supervision of medical services for the army and for civilians, and the ensuring of general cleanliness and public health.

In 1827 the medical school was founded, and a year later schools of pharmacy and veterinary medicine were attached to it. In 1831, a Board of Health was established to supervise maritime sanitary questions and quarantine control. In 1886 the medical and public health services were administered by two main boards: the Sanitary Maritime and Quaranite Board in Alexandria and the Department of Public Health in Cairo under the Ministry of the Interior. In 1920 the Department of Public Health was headed by an Under-Secretary of State and remained attached to the Ministry of the Interior. It included four sections: sanitation, general hospitals, eye diseases and epidemics. From 1920 to 1936, new sections were added—for child welfare, leprosy, endemic diseases, etc. A tuberculosis control campaign was launched. A research institute and a few rural hospitals and out-patient clinics were also established during this period. In 1936 the Department of Health was converted into a Ministry. More rural hospitals were set up. Sections for health education, venereal diseases and bilharziasis control were established in the Ministry. In 1942 a law for rural health improvement was promulgated. Provision was made for setting up a health services unit for communities of 15,000 inhabitants.

Since 1952 the Ministry of Public Health has assumed a greater responsibility for providing health services for the entire population, in close co-operation with other social services. In its present form, the Ministry of Public Health is headed by a Minister, assisted by an Under-Secretary of State and three assistant Under-Secretaries. The Under-Secretary of State supervises directly the Technical Inspection Department, the School Health Department and the Central Administration Department. In addition, he advises on problems of special importance referred to him by the assistant Under-Secretaries. Each assistant Under-Secretary is in charge of a group of departments, arranged as follows:

(1) General Hospitals, Social Health, Mental Health, Eye Diseases, Stores;
(2) Endemic Diseases, Quarantine, Preventive Medicine, Rural Health and Sanitation, Technical Research;

(3) Chest Diseases, Medical Commission, Laboratories, Pharmacies.

As regards local organization, each Governorate is under a chief medical officer, who represents the central health administration and supervises all health and medical services in the Governorate. He is assisted by a number of senior medical officers, one for medical services, one for preventive services, and one for rural health. Each Governorate is divided into a number of local health areas, in each of which public health work is the responsibility of a local medical officer of health.

Other Ministries also co-operate to a certain extent in the health field. For example, the Fellah Division of the Ministry of Social Affairs, which deals with the social problems of villages, has established approximately 120 social centres, whose activities include agriculture, sanitation, homecraft and industries, and health. The Ministry of Agriculture (which is responsible, inter alia, for the control of animal diseases) has also established a number of agricultural centres throughout the country for teaching and demonstration purposes which co-operate with the Ministry of Social Affairs in the field of social welfare. In municipal areas the Ministry of Municipalities has taken over some of the responsibilities of the Ministry of Public Health in environmental sanitation questions.

The Ministry of Education is in charge of university hospitals (11 hospitals with 5920 beds), which are considered to be teaching hospitals.

The Ministry of Public Health, assisted by WHO, established a Demonstration Centre at Qalyub to demonstrate methods of effective and efficient co-ordination and integration of all types of services, and to train the staff needed in public health centres.

There has been a steady increase in the national health budget: in 1956 the expenditure of the Ministry of Health was about ££ 0.4 (US $1.15) per capita, constituting approximately 4 per cent. of the total State revenue during the year 1956/57.

In 1953, the last year for which vital statistics are available, the crude death rate was stated to be 19.6, the crude birth rate 42.5, and the infant mortality rate 146.

In 1957 there were 98 general hospitals in the country, 24 in large cities and capitals of the Governorates and 74 in districts and important towns, with a total of 6930 beds.

There are three Faculties of Medicine, two Faculties of Pharmacy, two Faculties of Dentistry, a High Institute of Public Health, a Sanitary Institute, a Higher Institute of Nursing, four undergraduate schools of nursing, 12 schools for assistant nurses, and 22 schools for assistant midwives and health visitors.

Under the Epidemic Diseases Section of the Ministry of Public Health there are 207 health units engaged in preventive measures for the control of epidemic diseases. Primary vaccination of infants up to three months of age against smallpox is compulsory, and the whole population is vaccinated every four years. Since 1944 there has been no epidemic of smallpox. No cholera cases have been reported since 1948. All pilgrims leaving for the Mecca pilgrimage are inoculated against smallpox, cholera and typhoid, and control measures are also applied to those returning from the pilgrimage as well as their families. In 1956 there were in operation 33 fever hospitals throughout the country, 14 permanent isolation centres and 22 tent cordons—providing a total of 5000 beds.

In 1956 there were 60 dispensaries for the control of tuberculosis, and 12 more were due to open in 1958. Beds for tuberculosis patients are distributed as follows: 6800 for pulmonary cases, 675 for cases of bone and joint tuberculosis, and 140 beds for children in a preventorium. There is also one colony in which 80 families are under observation. The General Anti-Tuberculosis Association has introduced a scheme of domiciliary treatment in 15 dispensaries and also renders social aid to tuberculosis patients and their families. There are 12 mass x-ray units attached to the more crowded dispensaries, for the examination of patients from adjacent areas. There are also five mobile units for the examination of schoolchildren, factory workers, recruits and inhabitants of rural areas. In 1957 there were 12 BCG centres and 22 mobile BCG teams, which in that year carried out tuberculin tests on 555 511 persons and vaccinations on 167 878 persons.

Leprosy control in Egypt commenced in 1929. Until 1956, 10 out-patient leprosy clinics with isolation wards and branches in the adjacent centres for examination and treatment, and two leprosy settlements, had been established. In 1954, 1955 and 1956, 1027, 1286 and 1348 leprosy patients respectively were isolated, most of them in the two settlements. The number of cases discovered annually by the above services was 847 in 1954, 772 in 1955 and 807 in 1956. Sulfonamides were used for treatment. Owing to social prejudices there have been problems in the rehabilitation of the patients released from the two colonies after cure.

A malaria eradication project is now under consideration by the Government. The Malaria Eradication
Section of the Ministry of Public Health comprises an administrative service, a parasitological laboratory, statistical and engineering branches as well as a mosquito control service for Cairo. Between 1954 and 1956, 42 malaria centres and 67 sub-centres were in operation throughout the Egyptian Region. The staff engaged in malaria control work totalled 2287 at the end of 1956. Some 348 515 houses and other structures were sprayed with residual insecticides in 1954, and 415 652 in 1955. The population thus directly protected was 2 630 886 in 1954 and 3 207 501 in 1955, the number of inhabitants living in malarious regions amounting to 14 675 200 in 1954. Anti-larval measures were also taken. New malaria cases registered in 1954 and 1955 were 1563 and 1642 respectively.

The Venereal Diseases Section of the Ministry of Public Health is in charge of two hospitals, with outpatient clinics, in Cairo and Alexandria, 41 outpatient clinics in different parts of the country and seven mobile units. The incidence of syphilis is reported to be declining.

Snail control measures were taken against bilharziasis in 10 Governorates in Egypt, as well as in three oases of the Western Desert. In view of the shortage of molluscicides, generalized snail control measures were taken only in certain restricted areas, and emphasis was laid on the treatment of sites found to harbour snails infested with schistosoma cercariae. On an average, over one million examinations were made yearly of streams totalling about 300 000 kilometres in length, about 25 per cent. of which were found to harbour vector snails. During the period under review the number of field laboratories for the examination of snails increased from 52 to 70. Copper sulfate was applied in 14 000-24 000 sites yearly, totalling stretches of 13 000-14 000 kilometres, and 1200-1900 tons of copper sulfate were used. Research projects are under way in order to determine the efficacy of new molluscicides such as sodium penta-chlorophenate and to study snail ecology and infection patterns with a view to improving methods of irrigation and environmental sanitation.

The Ophthalmic Section of the Ministry of Public Health had under its charge, in 1956, 28 separate ophthalmic hospitals, 66 ophthalmic units in general hospitals, and 17 mobile teams for the prevention as well as for the medical and surgical treatment of trachoma and other communicable eye diseases. Each year, during the three years 1954-56, there were about 1 600 000 trachoma patients.

In 1942 the Rural Health Reform Law was promulgated in which provision was made for setting up a rural health centre for every 15 000 rural population. A Rural Health Department was therefore created in the Ministry of Public Health in which four sections were established to deal with rural health centres, sanitary engineering, child welfare and administration. This department also organizes training courses for medical officers, midwives, assistant midwives and sanitary overseers before such personnel take up duties in the rural health centres.

Recognizing the need for better co-ordination and integration of all public services provided by various Ministries in the interest of people in rural areas, the Permanent Council of Social Services initiated a project in 1954 to erect 863 combined centres (community centres). Up to the end of 1957, only 250 such centres had been established. The combined centre includes a medical section, an education section, a social section and an agricultural extension centre, all working together as one unit.

The Child Welfare Section of the Ministry of Public Health is in charge of 16 child welfare centres in Cairo, 67 centres in other parts of the country, one children’s home and three sanatoria. Among the staff of the child welfare centres are 98 medical officers, 48 female doctors, 20 pharmacists, seven assistant pharmacists, five midwife-supervisors, 65 midwives and 448 assistant midwives. The section has also under its supervision 22 schools for assistant midwives and six schools for dayas (local traditional midwives). In 1956 a total of 169 120 confinements were attended by the services under this section.

The Health Education and Social Services Section of the Ministry of Public Health is in charge of 20 “social health services offices” throughout the country carrying out health education through public talks and meetings held in various places such as schools, market places and social and religious institutions.

A national Nutrition Institute was established recently to carry out studies and plan programmes with the object of raising the nutritional level of the population. A recent survey shows that there has been some increase in the per capita intake of calories and proteins during the period under review.
ETIOPIA

During the period under review there were in the country, under both Government and private auspices, a total of 54 hospitals and 362 clinics, comprising 5774 beds. In all 132 doctors were employed by the national, provincial, and local authorities, as well as by the missions. In addition there were 31 private practitioners, 160 nurses, 12 pharmacists and 1367 dressers.

Malaria is a serious problem all over the country, with the exception of some parts of the highlands above 2000 metres. Pilot projects for malaria control have been initiated. Typhus, mostly louse-borne, is endemic, but with vaccination campaigns the incidence is decreasing. Smallpox is also endemic, but vaccination is compulsory and is carried out in towns where there are health service facilities. Relapsing fever is also reported. Bilharziasis is found sporadically on the Sudan and Somalia borders, in Eritrea and in a few other scattered places. The vector snails are found all over the country but are not usually infected. Trachoma shows a high incidence.

Tuberculosis is one of the most widespread and serious diseases. A country-wide BCG vaccination campaign has been carried out. A venereal disease control programme has been in progress for some years. Other important infectious diseases are dysentery, salmonelloses, infectious hepatitis, whooping-cough, measles and leprosy. Poliomyelitis is not common. Cholera, plague and yellow fever have not been reported.

A mobile health team has been organized to extend services to the remote areas and to investigate the prevalence of diseases and the general health conditions of the people.

Maternal and child health care is included in the general health services. During the period under review special maternal and child health clinics have been established in a few places. A health education section under a qualified health educator has recently been set up in the Ministry of Health.

No complete medical school exists in the country, but pre-medical teaching is carried out at the University College in Addis Ababa and in Asmara. There are five schools for nurses, and training facilities for sanitarians and other auxiliary personnel. An outstanding achievement is the establishment of the Haile Selassie Public Health College and Training Centre at Gondar. The object of the Centre, which includes a hospital with 150 beds, a laboratory and

Health

The Ministry of Health, which was set up in 1947, is divided into a central administration and a provincial and local administration. The central administration consists of a Department of Health and a General Advisory Board of Health. In the provinces each Governor-general is responsible for the public health in his province and is assisted by a provincial health officer and a Provincial Advisory Health Council.

Ethiopia is in east central Africa. It is bounded on the north by the Red Sea, on the east by the Somali Iand, on the south by Kenya and on the west by Sudan. The province of Eritrea was federated with Ethiopia in 1952. The area is just over one million square kilometres. The country is mainly mountainous, several peaks rising to over 5000 metres, chiefly in the centre and the north. The high plateaux are well watered and have a pleasant climate, but the lower country and the valley gorges are very hot. On the plateau there is a dry season from October to June and a wet season from June to September. The Blue Nile is the principal river.

No census figures have been given, but the population was last estimated (in 1954) at 17 million. The most important race are the Amhara, who inhabit the central highlands. North of them are the Tigré; both of these are of mixed Hamitic and Semitic origin, further mixed by intermarriage with Galla and other races. The Gallas constitute large communities and are a pastoral people of Hamitic origin. Somalis and Danakil are on the eastern border and there are Nilotic tribes in the south-west. The main occupations are pastoral and agricultural.

Addis Ababa, the capital, has a population of about 400,000. Local produce includes coffee, hides, skins, wax and wheat, in quantity sufficient for export. The principal imports are salt, cotton goods, building materials, petrol and kerosene, sugar, glass, machinery and soap.

There are 10 secondary schools in Ethiopia, with 2294 pupils, a secondary school for 450 girls, and a teachers' training college with 80 students. There are also commercial, technical and handicraft schools. Elementary schools have places for some 7000 pupils. School attendance throughout the country is estimated at about 60,000 at the government schools. In Coptic Church schools there are an additional 55,000 children who are being taught to read and write. There is a University College in Addis Ababa, with a two-year training course, preparing students for examinations at the intermediate level at London University, or for corresponding entrance tests at other universities abroad. There exists also in this college a post-graduate training programme leading to a Bachelor's degree. The training is organized in two faculties: an Arts Faculty (with four sections) and a Science Faculty (with three sections—one of which trains assistant doctors and laboratory chemists). The medical subjects taught include biology, comparative anatomy, genetics, histology, embryology, general physiology and bacteriology.

A railway runs from Djibouti in French Somaliland to Addis Ababa, with trains about three times weekly in each direction. Ethiopia is linked by air with Cairo, Athens, Karachi and various other cities.

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urban and rural training centres, is to train three categories of health workers — namely, health officers, community nurses, and sanitarians. The health officers have a training period of three years, the community nurses have one of two years, and the sanitarians follow a one-year course. All the graduates will have one year of practice in the health centres before they are assigned to work in the country. The first group in each category of students was due to graduate in 1957.

The Ministry of Health has recently started long-term planning of health programmes, including the reorganization of the Ministry so as to place more emphasis on the preventive aspects of the work.

FRENCH SOMALILAND

French Somaliland lies in north-east Africa, on the Gulf of Aden. It is bounded on the east by British Somaliland, and the rest of the territory adjoins Ethiopia and Eritrea. It consists of an 800-kilometre coastal strip and, in the interior, a series of closed valleys among plateaux and basalt ridges. There are no permanent water-courses. The area is about 22 000 square kilometres. The nomadism of the indigenous population makes census-taking a difficult matter, but on 31 December 1957 the total population was estimated at 67 256. The diet of the nomads consists of milk from their herds, dates, and durra bread.

The economy of the country is almost wholly dependent on the free port of Djibouti, the seat of government, which serves as an entrepôt for the goods carried to or from Ethiopia by the Franco-Ethiopian Railway.

The indigenous population is semi-nomadic and exists, rather precariously, mainly on stock-raising, except in the Ambouli district, where Arabs engage in market gardening. The soil is potentially fertile in some areas but unproductive for lack of water. The processing of sea-salt, of which 29 584 metric tons were exported in 1955, is the only industry in the country.

In 1955-56 there were 12 primary and lower secondary schools and a vocational school with 41 teachers and 1248 pupils. Education is free. The curriculum follows that of French schools with some adaptation to local conditions. Teaching is in French. The indigenous languages are not written and there are no local books.

Health

The public health services are administratively under the authority of the Governor, and technically under the direction of the Public Health Service of the Ministry of Overseas France. A local director of public health is responsible for the co-ordination of the various services. In 1956 the medical and health staff consisted of seven physicians, one pharmacist, one dental surgeon, two midwives, 45 nurses (male and female), two technicians and three sanitary inspectors. Health services include the general hospital at Djibouti (521 beds); a garrison infirmary (40 beds); five dispensaries for out-patients only; four dispensaries (32 beds); a maternity home (28 beds); a tuberculosis centre (40 beds), and a psychiatric centre (10 beds). In all, there are 12 practising physicians — i.e., one per 5000 inhabitants.

The health situation of the population is satisfactory on the whole, as there are no epidemic or pestilential diseases. Malaria has been practically wiped out except in some rural areas, where control is difficult owing to the irregularity of the rains and the nomadic movement of the people.

Endemic tuberculosis is the most prominent disease; a systematic diagnosis campaign started in 1954.

Venereal diseases are almost unknown among the rural populations, and no difficulty is experienced in case-finding and treatment in the urban areas.

The presence of malnutrition is due to the poor agricultural and economic resources of the territory. Efforts are being made to improve local fishing facilities, with a view to encouraging a wider use of an available natural source of protein.

Slow progress is being achieved in the rural areas with regard to the acceptance of modern principles of maternal and child health, although more-rapid advances have been made in urban centres, where about 50 per cent. of the women now accept qualified assistance in child-birth. One medical officer is in charge of school health. Lessons in hygiene are included in the school curriculum, leading to better health practice in the family circle.

The recruitment of candidates for the nursing profession is limited to men, since women take no part in public life.

Efforts are being made to improve existing unhealthy housing conditions by the gradual construction of more hygienic accommodation.
IRAN

Iran is situated between the Persian Gulf and the Caspian Sea, bordered on land by Iraq, Turkey, the Union of Soviet Socialist Republics, Afghanistan and Pakistan. Its area is 1,630,000 square kilometres. There are wide stretches of desert area, especially in the east-central and south-eastern parts of the country. There are two ranges of mountains: Alborz in the north (with Damavand peak, 6,200 metres high), and Zagrosse in the west. The Caspian coastal region is covered in woods, and there are also scattered woods in the west. The rainfall is heavy around the Caspian, but very moderate in the west and east and sometimes insufficient in the south. There are four distinct weather seasons in most of the country, but the main temperature varies greatly from north to south; northern Iran usually has several inches of snow in winter, and the summers are moderately warm. The southern part of the country has a tropical climate.

The Government of Iran is a constitutional Monarchy, with fourteen ostsans (provinces) governed by ostandars (governors-general). Each ostan is subdivided into shahrestans of varying size. The legislative, executive and judiciary powers work separately. Senate and Parliament constitute the legislative power of the country; elections for Parliament (Majlis) are held every four years, and only men over 18 years of age are entitled to vote. The Senators are of two categories: "elected Senators", and "appointed Senators", the latter being appointed personally by the Shah. The executive power rests with the Cabinet, which is at present made up of 14 Ministers working under the Prime Minister and aided by two Ministers of State without portfolio.

A census in 1956 gave a provisional population figure of 18,944,821, of whom 1,513,164 lived in Teheran, the capital. The population is mainly Aryan, and in places—particularly in Baluchistan—there are remnants of an aboriginal Dravidian race.

In 1943, a law was passed by both Houses of Parliament making primary education compulsory. This has helped a great deal to reduce the number of illiterates throughout the country. The proportion of literate population in the cities is higher than in the rural areas.

Although petroleum is the chief product, the country is mainly agricultural and 80 per cent. of the people depend on the land for their living, including about four million tribal people who are engaged in livestock production; they winter in the lowlands and drive their herds to the mountain highlands for the summer months.

Some progress has been made recently in developing industry. Apart from petroleum, the principal industries are carpet weaving, cotton spinning and weaving, wool spinning and weaving, the manufacture of jute sacks, silk goods, sugar and cement production. There are substantial mineral deposits relatively undeveloped. The principal exports are heavy oil, and petrol, gum, dried fruits and nuts, caviar, hides and skins and carpets. The imports consist mainly of cotton and woollen fabrics, tea, sugar, motor vehicles, industrial machinery, chemicals and pharmaceutical products.

A large tonnage of shipping enters the ports on the Persian Gulf; in the Caspian ports the tonnage is much smaller. A few main roads are asphalted, but most of them are not. The railway system links the Persian Gulf with the Caspian Sea, with branches recently opened to Mashet, Tabriz and Kashan. Two more branches—to Yezd and Isfahan—are under construction. A national airline connects the large provincial cities with one another and with Teheran, and also operates to neighbouring countries. Many international airlines pass through Teheran, thus providing Iran with world-wide connexions.

Health

About 38 years ago a Ministry of Health was established, but after a short time it was changed into a Department of Health under the Ministry of the Interior. In 1941, the Ministry of Health came into being once more; until 1948 it was responsible for curative services only, but in that year a Department of Preventive Medicine was formed, comprising divisions for maternal and child health, nursing, health education, administration, health statistics, sanitary engineering, trachoma control, malaria eradication, tuberculosis control, venereal diseases control, etc. The higher authorities have recently planned a reorganization of the Ministry of Health which is at present under consideration by Parliament. The budget of the Ministry of Health receives funds from oil revenue, which are placed at the disposal of the Planning Authority, and has also benefited from the United States Foreign Operations Mission in Iran. The Ministry of Health has two Under-Secretaries and four departments-general: Administration, Health, Environmental Sanitation and Public Assistance.

The health organization in the provinces is established in such a way as to cover both curative and preventive activities, and there are 844 dispensaries in both urban and rural areas throughout the country. Of these, 545 are run by the Ministry of Health, and the remainder by other agencies such as the Workers’ Insurance Society, the Red Lion and Sun Society, oil companies, and the Imperial Social Foundation.

In the ostsans and shahrestans, the chief medical officers are fully qualified physicians; in rural areas they are behdars (assistant medical officers with four years’ medical training).

A law has recently been passed whereby hospitals and dispensaries throughout the country under the direct control of the Ministry of Health are to be run by the municipalities concerned, which will have responsibility for the curative services under the supervision of the Ministry of Health. Some provincial hospitals and dispensaries have already been handed over to the municipalities on an experimental basis.

There are 159 hospitals in Iran, of which 112 are government establishments under the Ministry of
from the valuable revenue to be derived from oil, the wealth of and Indian corn are the chief crops. Cotton-growing is successful, can be gathered each year, and wheat, barley, beans, rice, dates the country depends on agricultural development. Two harvests in industry.

The population at the 1957 census was 6,538,109. The main occupations are agricultural and pastoral but there are recent developments in industry. Iraq will be capable of supporting a much greater population when irrigation is extended. Apart from the valuable revenue to be derived from oil, the wealth of the country depends on agricultural development. Two harvests can be gathered each year, and wheat, barley, beans, rice, dates and Indian corn are the chief crops. Cotton-growing is successful, teams, with the necessary drugs, are sent to different areas to carry out blood tests and treatment, and venereal disease control centres have now been set up in six provinces.

Malaria was the most serious public health problem of the country in the past, and may have been one of the major causes of nomadism, since people moved away from infected areas to avoid sickness. It has certainly been an important cause of infant mortality and has considerably reduced manpower and industrial productivity. A widespread control programme has been organized during recent years, however, and as a result of insecticide spraying, spleen rates which were as high as 80-100 per cent. in certain areas have dropped to 2-5 per cent., and the area of land under cultivation has quadrupled. In 1956 the control operations were reorganized to include an eradication programme beginning in 1957; plans have been drawn up for this programme to cover the period until 1961.

The Sanitary Engineering Division of the Ministry of Health has drilled 75 deep wells throughout the country during the period under review. Altogether 450 deep wells have been drilled within the past ten years. Furthermore, the Planning Authority is making arrangements with contractors for the development of a drinking-water supply throughout the country.

An important step taken by the Government has been the banning of opium cultivation in the past two and a half years, in spite of the fact that this was a source of considerable revenue to the Government. A bill has been drafted, and is now before Parliament, to revise previous legislation on the subject in the light of this new development.

Iraq

Iraq extends from Turkey on the north and north-east to the Persian Gulf on the south and south-east, and from Iran on the east to Syria, Jordan and Saudi Arabia on the west and south-west. It has an area of 444,442 square kilometres. It runs approximately from 37° to 48° east and from 30° to 37° north, and is traversed by the rivers Tigris and Euphrates. There are three main geographical regions: the highlands of the north and north-east; the broad central plain between the rivers; and the steppe and desert in the south and west. The climate is continental and the humidity is low except near the Persian Gulf. The population at the 1957 census was 6,538,109. The main occupations are agricultural and pastoral but there are recent developments in industry. Iraq will be capable of supporting a much greater population when irrigation is extended. Apart from the valuable revenue to be derived from oil, the wealth of the country depends on agricultural development. Two harvests can be gathered each year, and wheat, barley, beans, rice, dates and Indian corn are the chief crops. Cotton-growing is successful, teams, with the necessary drugs, are sent to different areas to carry out blood tests and treatment, and venereal disease control centres have now been set up in six provinces.

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standard gauge line from Baghdad to the Syrian border which
links up with the Syrian system. Some 8000 kilometres of roads
have been developed for vehicular traffic. Much of the money
obtained from oil royalties is being devoted to improving
communications.

Health

The Minister directs the general policy of the
Ministry of Health and is responsible for general
supervision of the staff; he may order official notices,
resolutions and instructions to be issued, their en-
forcement being under his supervision. The head-
quarters of the Ministry of Health consists of a
Directorate-General of Health, an Inspectorate-Gene-
ral of Health (both headed by physicians with the
status of Director-General), and the Minister’s private
secretariat. The Directorate-General of Health in-
cludes the following sections: judicial affairs; accounts;
personnel; archives; correspondence; international
health; and statistics.

The following Directorates-General are also attached
to the Ministry: the Faculty of Medicine; medical
services; preventive medicine; and medical supplies.
The Faculty of Medicine is headed by a Dean, who is
responsible for the organization and administration
of all institutes and schools attached to the Faculty.
The other Directorates-General are headed by phy-
sicians with the status of Director-General and have
the following functions:

(1) Medical services — in charge of all curative
matters, and all curative establishments and institutes
appointed by the Minister, with the exception of
those mentioned in (2);

(2) Preventive medicine — in charge of all pre-
ventive activities to maintain public health and the
control of epidemic and endemic diseases, and of
all institutions engaged in these activities;

(3) Medical supplies — responsible for the admi-
nistration, organization, storage, importing and dis-
tribution of medical and technical substances, furniture
and other supplies required by the Ministry and its
Directorates-General.

The health administration in each liwa (province)
is in the charge of a physician with the status of Chief
Medical Officer, who is responsible for the health
services in his liwa under authority delegated to
him by the Minister.

According to available records, thirty years ago
Iraq had only 75 doctors, most of them foreigners,
only 10 hospitals with a total of approximately
260 beds, and about 50 out-patient departments and
dispensaries. At the end of 1956 there were 98
hospitals, with a total of 7260 beds, many of the
hospitals being well equipped, with all the necessary
facilities. The numbers of medical and health
personnel in Iraq at the end of 1956 were as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>1,027</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>305</td>
</tr>
<tr>
<td>Health officials</td>
<td>386</td>
</tr>
<tr>
<td>Dentists</td>
<td>86</td>
</tr>
<tr>
<td>Nurses</td>
<td>797</td>
</tr>
<tr>
<td>Midwives</td>
<td>769</td>
</tr>
<tr>
<td>Dressers</td>
<td>1,309</td>
</tr>
<tr>
<td>X-ray technicians</td>
<td>85</td>
</tr>
</tbody>
</table>

In spite of this increase in the number of institutions
and personnel, more are still needed, and the demand
of the public exceeds the supply.

In the past, the health administration paid more
attention to curative than to preventive services,
and little was done in public health and preventive
medicine. Since the end of the war, however, in-
creasing emphasis has been laid on preventive and
control measures, and many plans have been drawn
up and put into operation with the help of experts
from WHO and other health agencies.

The five-year plan includes provision for a large
medical training centre in Baghdad, for which more
than 16.5 million Iraqi dinars (US $46 205 545)
have been allocated. This will be in the nature of a
“medical city”, grouping together the schools of
medicine, pharmacy, dentistry and nursing, with all
necessary facilities, including laboratories, a research
centre and a large hospital with about 1000 beds.

The Government has given the utmost attention
to improving the standard of health of the inhabitants
of rural areas, and legislation is at present under
consideration to provide for yet further improvements
in the health, social and educational conditions of
these areas.

Some ten years ago, fellowships and study leaves
were granted by the Government to many medical
officers to enable them to study and specialize in
different branches of medicine. A number of doctors
have also studied and specialized at their own expense,
with the result that there are now quite a number
of Iraqi medical specialists in such branches as
surgery, paediatrics, gynaecology, and ophthalmo-
logy.
Israel lies on the western edge of Asia and at the eastern end of the Mediterranean. Its neighbours are Lebanon on the north, Syria on the north and east, Jordan on the east, and Egypt on the south. The area is estimated at 20,678 square kilometres.

There are four main regions: the hill country of Galilee, Judaea and Samaria, which rises in places to 800 and 1200 metres; the coastal plain from the Gaza strip to north of Acre; the Negev, a triangular semi-desert region; parts of the Jordan valley, including Lakes Hula and Tiberia, and the south-western corner of the Dead Sea. The climate is similar to that of Lower Egypt. The summer is hot and the rainy season is in the winter.

The population at the 1948 census was 785,678. The estimated population in 1953 was 1,649,342; in 1955, 1,767,783; in 1956, 1,851,046, and at the end of 1957, 1,975,354.

The country is divided into six districts. Local authorities exercise their powers mainly through by-laws approved by the Ministry of the Interior.

Israel is mainly an agricultural country. The variety in climate permits the cultivation of many different kinds of crops. Oranges and other citrus fruits are grown in large quantities in the coastal plain; olives are cultivated and the oil is used for food and for making soap. The main winter crops are wheat and barley, and various kinds of pulses, sorghum, millet, maize and sesame are produced in the summer. Potatoes can be grown in autumn and winter. The production of eggs and milk has been greatly increased. The critical factor in food production is the supply of water for irrigation; new deep wells have been dug and a plan to bring water to the Negev from the Jarkon river is nearly completed.

The chief industries, in addition to citrus fruits and their by-products, are manufactured food products, pharmaceuticals, textiles and clothing, light engineering and the assembly of motor cars and trucks. Citrus fruits and their by-products, polished diamonds, artificial teeth, semi-finished textiles and pharmaceutical drugs are exported, whereas foodstuffs, crude oil, machinery, iron and steel manufactures and chemicals are imported.

Elementary education is compulsory for all children from 6 to 13 years. A unified State-controlled elementary school system was established in 1953 with a provision for special religious schools. Many high schools in towns are private; some are maintained by municipalities, and some are administered by teachers' co-operatives or by trustees. The Hebrew University in Jerusalem had 523 professors and 2958 students in 1954-55; in the academic year 1957-58 there were 739 professors and 4014 students. A new university was opened in 1955 near Tel Aviv.

The curriculum of the Medical School has been revised with the object of introducing the preventive medicine and public health.

In order to meet the needs arising from continuous immigration and the steady increase in the population, the Israeli health services are being expanded. The staff of the Ministry of Health increased by some 20 per cent.—from 3960 in January 1954 to 4889 at the end of 1956.

Hospital facilities for chronic diseases were almost non-existent in the country a few years ago. At the end of 1950 there were only 0.11 beds for chronic diseases per 1000 of the population. This rate increased to 0.48 at the end of 1953 and reached 0.99 at the end of 1957. The hospital care of mental patients has also expanded from 1.62 beds per 1000 population at the end of 1953 to 2.02 at the end of 1957. Several new hospitals have been opened by the Ministry of Health or by voluntary agencies. In 1954, the National Insurance Institute started its activities covering maternity insurance, labour accidents insurance and old-age insurance. In 1955, 1,223,561 persons, and in 1956, 1,276,771 persons, including their dependants, were members of the three main sickness funds of the country.

The only medical school in Israel is that of the Hadassah Hebrew University in Jerusalem. The number of students attending in 1956-57 was 376, and 72 students graduated during the year, as against 64 in 1955-56. Schools of dentistry and of pharmacy have been established in connexion with the Medical School. The curriculum of the Medical School has been revised with the object of introducing the preven-
The Ministry of Health still spends more than three-quarters of its budget on medical care, including hospitals, there is a slow but notable increase in expenditure on public health work. During the period under review the number of well-baby clinics increased from 357 to 518, and the first four health centres were opened, affording comprehensive health services including home nursing. An Office for Health Education of the Public was set up in 1956 at the Ministry's Headquarters in Jerusalem to direct educational activities at the regional and local levels and to prepare and distribute educational materials.

A number of other achievements were reported during the period under review. As regards tuberculosis control, screening of the population by means of miniature x-ray photography and BCG vaccination were carried out extensively. The control measures taken have made it possible to reduce the number of hospital beds, in spite of the continuing immigration. The tuberculosis mortality rate dropped from 9.1 in 1954 to 6.0 in 1956, per 100 000 of the Jewish population; active cases reported were 80 in 1954, 67 in 1955 and 54 in 1956 per 100 000 of the Jewish population.

In order to combat the serious poliomyelitis epidemics of recent years, the Ministry of Health established a laboratory, which began to produce polio vaccine early in 1956.

The Ministry of Health provides for treatment for all cases of venereal disease, and progress was reported in the control of syphilis. Control measures have also been taken to prevent the spread of bilharziasis. The malaria eradication programme is stated to be well under way. The number of cases dropped from 302 in 1954 to 45 in 1956. During the period under review some 3000 cases of ringworm of the scalp and 5000 cases of trachoma were brought to treatment annually.

The close network of maternal and child health centres is a special feature of the country's health services. Over 60 per cent. of all pregnant women are under medical supervision in these centres from the fifth month of pregnancy. More than 95 per cent. of all pregnant women are admitted to hospital for delivery. Infant care and school health services are well developed. Over 90 per cent. of all school-children in elementary schools and 50 per cent. in secondary schools of different types are under medical supervision.

The main problem as regards mental hygiene is the lack of accommodation for mental patients. Progress reported in this field includes the introduction of occupational therapy, the establishment of a special institution for the rehabilitation of mental cases, the segregation of tuberculous mental patients, the creation of mental health clinics for adults, a child guidance
The Hashemite Kingdom of Jordan is bounded by Syria, Iraq, Saudi Arabia and Israel. It has two divisions, which were united in 1950: Western Jordan, which includes the districts of Hebron, Jerusalem (part) and Nablus; and Eastern Jordan, which includes Ma'an, Kerak, Balqa, Ajlun and Amman.

Western Jordan is fertile but severely eroded; Eastern Jordan is a fertile mountainous area and, like the eastern half of the Jordan valley, is productive. The area is 96,610 square kilometres.

The population in 1957 was 1,538,028, compared with 1,329,174 in 1952, with a density of 16 per square kilometre. Most of the population is engaged in agriculture and sheep- and goat-rearing.

The economy is primarily agricultural, but phosphate mining is being expanded, and there are proposals for exploiting the rich potash resources of the Dead Sea.

There has been a perceptible improvement in the general level of education, owing to the fact that education in government primary and secondary schools is given free to all classes of the people. In 1957 there were 840 primary schools, with a total of 208,501 pupils (139,622 boys and 68,879 girls), and 360 secondary schools with a total of 44,112 scholars (35,798 boys and 8,314 girls). There were six occupational schools, with a total of 704 students, and three agricultural schools, with 8314 girls). There were also six teacher-training schools.

On matriculation, some students complete their university education outside the Kingdom—in Lebanon, Egypt, Syria, Iraq, the United States of America, or other international university centres. In 1957 almost 3000 students were following university courses.

There are all-weather asphalted roads in Jordan, linking the towns and villages together, and contributing to the economic and agricultural revival of the country. The Hedjaz Railway runs from Damascus in Syria through Jordan to Ma'an; this line originally ran as far as Medina in Saudi Arabia. There is also a sub-line from Ma'an to Ras El-Nagb, from which an asphalted road continues to Aqaba, the only sea-port in the country, on the Gulf of Aqaba. The country's exports, such as phosphates and other products, and its imports, are routed through this port.

Health

The health and medical services of the country are directed by the Minister of Health, who is assisted by an Under-Secretary of State for Health; an Assistant Under-Secretary; and a Director and a Supervisor of Health Projects. In addition, there are directors of the following departments: internal medicine, surgery, ophthalmology, otolaryngology, malaria, tuberculosis, laboratory services, blood transfusion services, and of the broad divisions of mental health and maternal and child welfare. Other staff consist of: six District Senior Medical Officers; a sanitary engineer; the Chief of Pharmacies Division; the Chief Accountant; and the Directress of the Nursing School. The total number of staff in 1950 was 149; by 1957 it had increased to 1469, including 77 medical officers employed according to their various specialities, and 367 nurses.

There are 21 government hospitals, with a total capacity of 1,266 beds, and 24 private hospitals, with a total capacity of 1,389 beds. It is planned to group together all the hospitals in Amman in one place: the Tuberculosis Hospital, the Surgical Hospital and the Nursing School and its hostel are already situated close to one another, and the following hospitals will also be moved to the same site: the Eye Hospital, the Ear, Nose and Throat Hospital, the Children's Hospital, the Maternity Hospital, the Internal Diseases Hospital, the Infectious Diseases Hospital, and the Midwifery School.
The available vital statistics for the four-year period 1954-57 are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth rate</th>
<th>Death rate</th>
<th>Infant mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>38.4</td>
<td>10.4</td>
<td>89.0</td>
</tr>
<tr>
<td>1955</td>
<td>40.7</td>
<td>9.3</td>
<td>72.8</td>
</tr>
<tr>
<td>1956</td>
<td>37.6</td>
<td>8.4</td>
<td>73.6</td>
</tr>
<tr>
<td>1957</td>
<td>39.3</td>
<td>8.4</td>
<td>69.3</td>
</tr>
</tbody>
</table>

In 1957 there were 136 clinics. So far, 23 MCH centres have been established, and the Ministry of Health is planning to set up 30 new centres in various districts.

Two main antituberculosis centres, and 29 malaria control centres for supervision of the malaria eradication programme in the country have also been established.

There are two nursing schools and one midwifery school. The nursing course lasts four years (36 continuous months), and graduates are employed in government and private hospitals. The midwifery course is of two years' duration (18 continuous months), and graduates are employed in maternal and child health centres and maternity hospitals.

Two government laboratories are attached to the Ministry of Health, one in Amman and one in Jerusalem. These laboratories have a good number of specialized doctors and chemists. The government laboratory in Jerusalem prepares antityphoid, antirabies and antismallpox vaccines. There are also four laboratories in four of the district government hospitals, and the Ministry of Health is planning to establish a small laboratory in each of the government hospitals. Most of the hospitals also have x-ray sections.

LEBANON

The Republic of Lebanon lies on the eastern coast of the Mediterranean, bounded by Israel on the south and by Syria on the east and the north. It is about 195 kilometres from north to south and 45-55 kilometres from east to west, with a total area of 10 400 square kilometres. Part of the inland range resembles steppe country; about half the country has an altitude of over 900 metres. The climate is hot in summer and rainy in winter. The capital of Lebanon is Beirut.

For administrative purposes, the country is divided into four provinces and 24 counties. The population at mid-1954 was estimated at 1 383 000 with a density of 133 per square kilometre, and at the end of 1956 it was estimated at 1 500 000.

The economy is primarily agricultural, but in 1954 there were also 2518 industrial establishments with 25 583 workers, the majority employed in food-processing, hotels, quarrying, and wood and metal work. About half the population is urban.

Elementary education is compulsory but there are not yet enough schools or teachers for this requirement to be fully effective. For higher education there are in Beirut a French University, an American University, and a Lebanese National University (which is chiefly a teachers' training college).

Beirut is the largest and busiest port of the country, and is also an important centre of international air traffic. The railway system connects Lebanon with Syria and thence with Mosul and Baghdad in Iraq, and Ankara and Istanbul in Turkey. The main roads are good.

Health

In its early days, the health administration of Lebanon was a Directorate of Health consisting of a few physicians, nurses and sanitarians, whose main activities were limited to curative medicine in the different dispensaries scattered throughout the country. During the second half of the French Mandate, a Ministry of Hygiene and Public Assistance was established; more staff was appointed and activities were extended, particularly to the provision of free medical care for the needy.

The Ministry of Health in its present form is composed of three Departments, dealing respectively with administration and finance, technical matters and medical care. These Departments are supervised by a Director-General.

Apart from general administrative and financial work, the Administration and Finance Department also deals with health legislation. The Technical Department deals mainly with matters related to public health, and comprises the following 11 sections: sanitary engineering; pharmaceutics; preventive medicine and control of communicable diseases; maternal and child health; school health and health education; vital and health statistics; control of the medical profession; dental hygiene; quarantine; international health affairs, and the Library. The Medical Care Department is in charge of the central and regional government hospitals and dispensaries and also of the medical care services for government employees, the poor and indigent, and workers in industry and in private employment. The Department is also carrying out studies in co-operation with the Ministry of Social Affairs, with a view to the organization of a medical and hospital insurance system for the whole country.

At the local level, health units represent the Ministry of Health in each county. Each of these 24 units is staffed by a physician, a public health nurse and a sanitarian, and their activities include public health, social hygiene, sanitary inspection and medical examination of needy persons and of certain other
groups, such as industrial workers and the employees of food-handling establishments.

The health services budget in 1957 amounted to 8.6 million Lebanese pounds (US $2 687 500), or 5.06 per cent. of the total national budget. Almost half of the health budget was set aside for health programmes in the rural areas, not including the normal running costs of the municipal health services; the per capita expenditure from the central budget was estimated at 3.84 Lebanese pounds (US $1.20), and from the regional budget at 3.35 Lebanese pounds (US $1.04).

In 1956 the total registered number of deaths in Lebanon was 8286, with 753 infant deaths. Registration of births and deaths is not complete at present and efforts are being made to improve it. Birth reports were issued by the Ministry of Health in 1957 for the first time.

Records from some 45 government and private hospitals show a total of 42 663 in-patients admitted in 1955, and 48 429 in 1956, government dispensaries and clinics in 1956 provided the following out-patient services in 1956:

<table>
<thead>
<tr>
<th>Type of dispensary or clinic</th>
<th>Number of visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dentistry</td>
<td>11 281</td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>7 209</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>5 403</td>
</tr>
<tr>
<td>Venereal diseases</td>
<td>4 023</td>
</tr>
<tr>
<td>Gynaecology and obstetrics</td>
<td>3 644</td>
</tr>
<tr>
<td>Ear, nose and throat diseases</td>
<td>3 554</td>
</tr>
<tr>
<td>Internal medicine</td>
<td>2 724</td>
</tr>
<tr>
<td>Diseases of digestive system</td>
<td>1 503</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>644</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>421</td>
</tr>
</tbody>
</table>

Communicable diseases reported for the year 1956 included typhoid and paratyphoid fever (462), tuberculosis of the respiratory system (266), diphtheria (135), acute bacillary and amoebic dysentery (131), and malaria (108). An outbreak of smallpox, introduced from abroad in December 1956, caused 192 cases and 46 deaths, but was brought under control by February 1957 as a result of the active measures applied.

Intensive malaria control operations over a number of years made it possible to enter the eradication stage during the period under review. A special malaria control office has been set up, and co-ordination with the malaria eradication programme in Syria is being worked out.

The Ministry of Health is aware of the importance of health education of the public and a department has been established within the Ministry for this purpose.

Progress in the period 1954-56 includes the creation of a central public health laboratory; the building of a new leprosarium; the provision of new hospitals; the establishment of a rehabilitation centre for handicapped children; and the opening of a maternal and child health centre. Greater stress was laid on the development of the mental health services, and two important mental hospitals were provided with more beds, better equipment and a larger staff.

There are two schools of medicine in Beirut, the French Faculty and the American University, with a total of approximately 400 medical students between them each year, of whom some 75 per cent. are Lebanese. About 50 doctors graduate from these two schools annually. Both schools are steadily extending the scope of their activities. A Chair of tuberculosis has been created in the French Faculty, and both faculties have created departments of preventive medicine, and have a system of visiting professorships in various specialties. Both provide courses in industrial hygiene. The School of Public Health at the American University of Beirut also trains personnel for public health administration, sanitary engineering, health education of the public, health statistics, public health nursing and laboratory work.

There are eight schools of nursing, and one school which provides special training for psychiatric nurses.

Fellowships are made available to about 70 per cent. of the medical staff of the Ministry of Health for specialization, and nurses of the central administration are also sent abroad for special training.

**UNITED KINGDOM OF LIBYA**

The United Kingdom of Libya, on the Mediterranean coast of Africa, is bounded on the east by Egypt and Sudan, on the south by French Equatorial Africa and French West Africa and on the west by Algeria and Tunisia. It consists of the three provinces of Tripolitania, Cyrenaica and the Fezzan, and has an area of 1 759 540 square kilometres.

Vast sand and rock deserts, almost completely barren, occupy the greater part of the country, and its southern part lies within the Sahara desert. There are no rivers and rainfall is precarious. The climate is that of desert and semi-arid areas with a small strip of the Mediterranean type.

The population at the 1954 census was 1 091 830, with a density of 1 per square kilometre and showing an annual rate of increase of 1.39 per cent. Tripoli (142 000) and Benghazi (60 000) are the joint capitals; the other main cities are Misurata, Homs Cassabat, Derna, Barce, Tobruk and Sebha.
The three provinces are each administered by a Governor, assisted by an executive and a legislative council, three-quarters of whose members must be elected.

In the coastal zone—an area of about 44,600 square kilometres—date palms, olives, cereals, figs, grapes, oranges and other fruit are grown. The more important industries of Tripolitania and Cyrenaica are sponge fishing, tunny fishing, tobacco growing and processing, dyeing and weaving of local wool and imported cotton yarn.

In recent years there has been striking progress in education in Libya. There are 433 elementary schools with 73,158 male pupils and 16,400 female pupils, 37 preparatory schools and eight secondary schools with 5271 scholars, four teacher-training colleges with 1283 male and 285 female students, and eight technical schools with 722 students. Private schools include 25 kindergartens, 69 elementary schools, and eight secondary schools, with 5672 boys and 5158 girls. There are also 693 religious schools, with 20,609 students.

So far as communications are concerned, the Tripolitani Railway serves the districts of Tripoli, Tellil, Zuara, Azizia and Taghura. In Cyrenaica, the railway covers the lines Benghazi-Barce and Benghazi-Soluch. There are about 3830 kilometres of carriage roads, on which there are bus services. Inland, the principal means of communication are the caravans, which follow long-frequented routes. Benghazi is linked by air with Cairo, Tripoli and Malta.

Health

The Minister of Health is responsible to Parliament on all matters of health, and deals with international health questions and with foreign and international bodies offering assistance to Libya in the medical field. As technical adviser to the Minister there is a Director-General of Health, who is assisted by a Deputy Director-General.

The health department of each of the three Provinces is autonomous as far as the planning, organization and administration of health services within the Province are concerned. Each Province has a Nazir of Health who has ministerial functions and, in that capacity, is a member of the Executive Council of the Province. Each Nazir of Health has a Director of Medical Services as technical adviser, and in Cyrenaica and Tripolitania there is also an Assistant Director of Medical Services. At the local level there are district medical officers appointed by the Nazirate of each Province to supervise the local health services, which consist of "ambulatoria", or small health centres. In the district towns a doctor is in charge of the service, while in rural areas male nurses are responsible for the work.

The development of the health centre system began in Libya about 30 years ago, and in 1954 it was planned to provide one centre for every 6000 people in Cyrenaica, one per 2000 in the Fezzan and one per 8000 in Tripolitania. The majority are staffed only by a male nurse, though in Cyrenaica most of the centres are visited by a doctor once a week. It has been estimated that a total of 173 health centres will be needed in Libya, and the Government, with the help of economic aid from the United States of America, has devoted US $40,000 in 1956 to furnishing and equipping the health centres. US $3000 were allocated in the same year to give refresher training to the male nurses. It is proposed in the first instance to rehabilitate 153 such centres.

The lack of trained Libyan medical and health personnel is a problem. With the assistance of WHO and UNICEF, a school for female nurses was established in Tripoli in 1956; in both Tripoli and Benghazi, training centres have been set up to train maternal and child health auxiliaries; and a federal school was established in Benghazi in 1956 to train health assistants and sanitarians who will work in the health centres in rural areas. The course is of about three years' duration and is available to secondary school graduates from all three provinces.

Students training abroad include 48 medical students, five pharmacy students, seven in veterinary medicine and two in dentistry, as well as a number of students in auxiliary health branches.

The most important communicable diseases in Cyrenaica and Tripolitania are pulmonary tuberculosis and trachoma. A BCG vaccination campaign, which is now a part of the general activities of the health service, was initiated with the help of WHO during 1953. A tuberculosis survey, which is being conducted throughout the country, is expected to be completed during the first half of 1959.

A malaria survey is being made in the three Provinces under the auspices of the malaria eradication programme.

Libyan-American Public Health Joint Services, established in 1955, are organizing various health projects to improve hospitals, ambulatoria, laboratories and community health services throughout the country.

Courses in health education were started in 1953, in Tripoli, for women school-teachers, for women trainees at the maternal and child health centre at Sukel-Giuma, and for students at the school for assistant nurses. Hygiene lessons were introduced into all grades of schools during the scholastic year 1956-57.
PAKISTAN

Pakistan consists of East and West sections, situated on each side of the base of the Indian Peninsula. West Pakistan touches the Himalayas and the Hindu-Kush mountains in the north and descends from high Pamir to the Arabian Sea. East Pakistan lies between West Bengal and Assam and Burma, with the Bay of Bengal in the South. The combined area is 944,824 square kilometres.

The population at the 1951 census was 75,842,162, with a density of 85 per square kilometre. The general educational level is rising steadily. At the time of the 1951 census it was estimated that about 19 per cent of the people were literate. In the federal capital, Karachi, which now has a population of over one million, and in several other cities, the percentage of literates is between 30 and 40, reaching over 60 per cent. in some of the towns of East Pakistan.

Agriculture is the largest industry and 80 per cent. of the people are directly or indirectly dependent on it for their livelihood. The main crops are rice, wheat, cotton, jute and tea. In recent years, however, there has been a gradual increase in emphasis on heavy industries. The Government has established a special Industrial Development Corporation, as well as a Small Industries Corporation to look after the development of small and cottage industries. In addition a few technical training institutes have been set up.

The Pakistani Railways comprise two separate systems: the North-Western Railway in West Pakistan has a length of 8,587 kilometres, and the East Bengal Railway covers 2,748 kilometres. Pakistan has over 100,000 kilometres of roads. A road development programme has permitted of considerable improvements in construction. In 1947, Karachi and Chittagong were the only ports in Pakistan. The port of Karachi has developed greatly since then and now serves the entire region of West Pakistan and the neighbouring country of Afghanistan — handling all types of cargo. The port of Chittagong has recently been developed, and the other port in East Pakistan is the Chalna Anchorage, which was opened to traffic in 1950. Inland water transport plays a considerable part in the economic and commercial life of East Pakistan, where there are over 4,290 kilometres of navigable waterways.

In Karachi and Dacca there are international airports, the latter being the centre of air services in East Pakistan. Other airports have also been developed, such as those of Chittagong and Lahore. A national airline operates services to Europe, and various other international airlines make Karachi one of their important ports of call.

Health

In 1949 the Central Government amalgamated its medical and public health departments and placed them under the control of a single officer designated as Director-General of Health, who also has the status of Joint Secretary in the Ministry of Health. The provinces (at that time, Punjab, Sind and the North-West Frontier, but now constituting a single province, West Pakistan) followed this arrangement and each appointed a Director of Health Services at the provincial headquarters. The Government of East Pakistan has also amalgamated its medical and health services and placed them under a Director of Health Services, East Pakistan. Various health conferences were held, and in 1951 a draft five-year plan was inaugurated to deal with such aspects of national public health as nutrition, medical education, research, rural health services, etc. A country-wide anti-mosquito programme and a BCG vaccination programme were also approved.

The various personal health services, including maternal and child health, have been developing since 1947, but a great deal of leeway has had to be made up. In part of West Pakistan, where health services were relatively well developed, before 1947 there was only one hospital bed for every 2,309 persons, while in the entire sub-continent there was only one midwife for every 60,000 and only one health visitor for every 400,000 persons.

At the time of independence only three medical colleges existed in Pakistan (Lahore, Karachi and Dacca) and only one was producing medical graduates. Since then, five more have been established, in Lahore (the Fatima Jinnah Medical College for Women), Hyderabad, Multan, Peshawar and Chittagong. To make up for the lack of teachers, medical graduates have been sent abroad regularly for further training. An institute for post-graduate training in basic medical sciences — anatomy, physiology, pharmacology, pathology, bacteriology and biochemistry — is scheduled to commence functioning in early 1959.

With the departure of Indian staff from hospitals after independence, there was a grave shortage of nurses, midwives and auxiliary personnel. The Central Government set up schools of training, first at Lahore in 1950, and subsequently at Karachi, Dacca and Peshawar. Since then a college of nursing has been established, which acts as a central educational institute for training sister-tutors. A Nursing Council was constituted in Pakistan in 1949 in order to maintain uniform training levels. The Nursing Adviser is attached to the Office of the Director-General of Health.

The latest vital statistics available (for the year 1952) are: birth rate, 22.5; death rate, 11.5; and infant mortality rate, 103.5.

Malaria is still one of the major health problems in Pakistan. About 60 million people live in areas where the disease is prevalent and some 30 per cent. of the total population are affected each year. Assisted control schemes have been in operation since 1951 and are making steady headway. By the end of 1957 more than 37.5 million people were protected by
residual spraying. A Malaria Institute first set up in Karachi in 1947 was removed to Dacca in 1952, with a branch remaining at Karachi.

Tuberculosis is the second great public health problem of the country. A control and demonstration centre has been established in Karachi to train medical, nursing and technical staff. In 1949, BCG vaccination was started by the Government, and by the end of December 1957 about 22.7 million persons were tuberculin-tested and 7.9 million were vaccinated with BCG in the two zones. The programme is being further extended in East Pakistan and additional teams have been recruited to increase tuberculin-testing.

A Health Education Bureau, established on a modest scale in the Office of the Director-General of Health in Karachi, has been in operation since 1952 and has been disseminating health knowledge in the country, through the media of pamphlets, posters, leaflets, filmstrips, cinema slides, etc., on such subjects as cholera, typhoid, sneezing, coughing and spitting, food for the child, venereal diseases, drinking-water, rules of health, kitchen hygiene, prevention of tuberculosis, cleanliness of the home, diseases caused by dirty hands, etc. To expand the scope of its activities, additional staff are being recruited. A scheme for the establishment of similar bureaux of health education is under consideration by the Government of West Pakistan, while the Government of East Pakistan has already decided to set up a health education organization.

One of the most important services that have been organized in recent years is community development, known in Pakistan as the Village Agricultural and Industrial Development Programme (commonly called V-AID). This is a programme of comprehensive development of the rural society on the basis of self-help through education, motivation and co-ordinated efforts on the part of the people and the Government. The educational aspect of it consists in bringing to the knowledge of the rural communities their potentialities for improvement through individual and community action, and in providing them with the basic skills and techniques necessary for carrying out specific tasks for the attainment of a higher standard of living. Government assistance comes to them in the form of technical assistance, advice, equipment, machinery, material or financial assistance only to the extent of supplementing their local resources. It is thus a programme of partnership between the people on the one hand and their own welfare government on the other.

The Programme aims at assisting the villagers to plan and carry out self-help schemes to improve their standard of living, reduce sickness and promote health in these areas by undertaking economic, social and public health development. The plans under the Programme include, inter alia, schools, dispensaries, health and community and maternity centres, water-supply schemes, etc.

In order to fulfil the above objectives and to help the villagers in tackling and solving their problems, multi-purpose workers, both male and female, are being trained for a period of one year in the nine well-equipped training institutes (to which two more will be added soon), and sent out to the villages to work with the various communities. As the Programme is comprehensive enough to cover most aspects of rural life, these workers are generally trained in agriculture, animal husbandry, horticulture, education, cottage industries, health and sanitation, co-operatives and home economics, with special emphasis on application in rural areas, and a good deal of practical and field training. The multi-purpose worker thus trained acts as an extension agent for all the nation-building departments, and uses the various skills he has learnt with regard to human relationship in individual and group motivation to create a community spirit among the rural people. The Village Aid Programme has been in operation for about five years now, and has been able to put into the field 2300 village workers (including 168 women) to work in 89 Development Areas, each containing about 150 villages, in both East and West Pakistan. Each Development Area is in the charge of a Development Officer assisted by two supervisors. Each worker looks after some five to seven villages. According to the first five-year plan, 1955-59, about one-quarter of the country will be covered by the Village Aid Programme during this period, while the whole country is expected to come under it in about 12-15 years at the present accelerated pace of progress.

Two Academies for Village Development are being set up, one in Peshawar (West Pakistan) and the other in Comilla (East Pakistan), for the training and orientation of officers of V-AID and nation-building departments, including members of the civil services of Pakistan and of the provincial civil service.
SAUDI ARABIA

Saudi Arabia occupies the greater part of the Arabian Peninsula, with an estimated area of 1,600,000 square kilometres. It has a long coast line on the Red Sea and a shorter one on the Arabian Gulf, and is bounded on the north by Jordan and Iraq and on the south by Yemen, Aden and Oman. The general contour of the country is a plateau sloping gently eastward from a mountain range along the west side of the peninsula about 15-25 kilometres from the Red Sea coast. The monsoon brings some rain to the south-west corner, but most of the country is true desert, with many scattered oases and some valleys that permit agriculture.

The population, which is almost wholly Arab, was estimated at seven million in 1952. Riad, the capital, has a population of about 100,000, Jeddah, the main port, about 200,000, and Hofuf 100,000. Many of the people are nomads.

Development of the oilfields in Saudi Arabia has revolutionized the country’s foreign exchange position and greatly improved the economic situation.

Education is provided for boys and young girls, and in 1952 there were 344 primary schools, 20 secondary schools, five technical schools, seven teacher-training schools and one higher school. The last-mentioned school prepares students who have completed their secondary education for university training in Egypt or elsewhere. With three exceptions, all schools are maintained by the Government.

The only completed metallised road, apart from those in the oilfields area, connects Mecca with the port of Jeddah, but a new road from Jeddah to Medina was under construction in 1955. A railway from the port of Dammam to the oilfields at Abqaiq and through Hofuf to Riad was opened in 1951. There are internal air services, regular services to Cairo and Beirut, and several international airlines call at Jeddah.

Health

The Ministry of Health, with a Minister and an Under-Secretary, is directly in charge of the health services of the country. Following a health survey, the Minister, in compliance with the wishes of the King and the reformatory policy, has recently drawn up a detailed long-term health programme for the country, known as Circular No. 1 of the Ministry of Health, Kingdom of Saudi Arabia. According to this programme, the Kingdom is divided into the following six health areas: Eastern area; Riad area; Mecca area (including the places of pilgrimage); Medina area; Western Coast area; and Al-Assir area.

A medical officer, appointed by the Minister of Health as the representative of the Ministry, is responsible for the supervision of the curative, preventive, quarantine and administrative services in each area. The areas are divided into health districts with medical officers in charge. Within each health district there are both curative and preventive units providing the population with direct services. This plan calls for the completion in 39 districts of a total of 75 hospitals providing 5400 beds in five years. Among the preventive units in these 39 districts, in addition to the district health offices, there will be established in the course of five years 30 quarantine stations for both sea- and airports, 17 malaria control stations, five maternal and child health centres and four venereal disease control centres, one public health centre and one public health nursing school.

The total government budget increased from 203 million rials (US $54 467 400) in 1949 to 1300 million (US $348 806 010) in 1954, and the allocation for public health purposes also increased from 1.5 per cent. of the total government budget in 1949 (3 million rials, or US $804 937) to 5.4 per cent. (70 million rials, or US $18 781 862). It may be expected that the five-year plan will be fulfilled if the problems of health personnel can be solved.

The present hospital facilities in Saudi Arabia are as follows: in Riad, the capital, there is a new hospital (600 beds) with first-class equipment, which was established in 1956; there are also in Riad a military hospital, a chest diseases hospital, the Royal Palace Hospital, and two private establishments. Jeddah has a general hospital with 300 beds, a gynaecology and midwifery hospital with 100 beds, and three private hospitals. In Mecca, a new 600-bed hospital was opened in 1957, which is intended to replace within a few years the old hospital with 300 beds which is at present still functioning; there is also in Mecca a hospital (100 beds) for gynaecology and midwifery. In each of the other important towns there is a general hospital, with about 125 beds, and in smaller towns there are dispensaries with in-patient accommodation. Since 1954 the Government has begun to set up special hospitals for tuberculosis patients, the main one being on the road between Jeddah and Mecca, with a capacity of 150 beds.

In 1955 about 200 physicians were employed by the Government, mostly on a part-time basis, for the various types of health services throughout the country. In order to train more medical personnel the Government has been sending students to study medicine and allied subjects in Egypt, and altogether 90 students were studying there in 1955.

Malaria, tuberculosis, venereal diseases, bilharziasis, ankylostomiasis, dysentery, leishmaniasis, filariasis and some other tropical diseases are common. During the period under review a venereal disease control centre with a serological laboratory has been estab-
lished in Mecca, and field surveys have been carried out in Assir, Medina and Nejd to determine the prevalence of the infection. At the same time a malaria control programme was initiated, first in the Jeddah area and later extended both north and south, in-
cluding the Najran and El Leith valleys. In 1955 a tuberculosis survey was carried out.

In 1956 the Jeddah quarantine station was opened—a significant development because of its valuable service during the Mecca pilgrimage.

SUDAN

Sudan extends from the southern boundary of Egypt to the northern boundary of Uganda, and from French Equatorial Africa to Ethiopia and the north-west boundary of Eritrea and the Red Sea. There are some fairly wide uplands in the west, with one peak over 3000 metres high, but most of the country is below 450 metres, with no marked physical features except the Nile. Three zones can be distinguished. The first, in the north, is mostly desert, from the Egyptian border to Khartoum. The second, in the centre, has many streams, most of which run into the Nile. Irrigation has been well developed and this zone is therefore the most important, economically and politically. The third, in the south, is typically Central African, with large swamps, wide stretches of savannah and tropical forest, but with some cultivation. There is a wide range of climate, from the hot desert in the north to the equatorial south, where rain falls for more than half the year. The area is 2,505,823 square kilometres.

The population was estimated in 1957 at 10,700,000. The capital is Khartoum. Port Sudan, on the Red Sea, is a well-equipped modern port.

Agriculture is the chief occupation, the principal grain crop being durra millet, which is the staple food of the Sudanese. Sesame and groundnuts are other important food and export crops. The nomadic Arab tribes of the plains and the Negro tribes of the river and swamp country in the south depend for their livelihood on livestock. Egyptian and American-type cottons are grown, the Sudan-Gezira Scheme, irrigated from the Blue Nile, providing most of the high quality cotton. Sudan is also the chief source of the world's supply of gum arabic.

Sudan was proclaimed a sovereign independent republic on 1 January 1956. The country is divided into nine provinces, each under a Governor assisted by an advisory provincial council, except Khartoum province, which is under a Commissioner and has no provincial council. The provinces are sub-divided into 69 districts, each under a district commissioner. Local administration is now largely in the hands of statutory local government authorities, which are the sheikhs and chiefs in tribal areas, and the councils in urban or advanced rural districts.

The education system, which formerly fell into two sections—north and south—is now being unified under the control of the Minister of Education. Arabic is taught in all government schools and in intermediate mission schools; the latter were to be taken over by the Government in 1958.

The University of Khartoum, which is administered by an independent council and comprises faculties of arts, science, agriculture, engineering, veterinary science, medicine and law, was given full university status in 1956.

Health

The Director of Medical Services under the Minister of Health is responsible for the organization of all health services throughout Sudan, including the training of local medical and health personnel. He is assisted by a deputy director, an assistant director of public health services, an assistant director of hospital services, an assistant director of research and public health laboratories, a chief public health inspector, a principal matron, a controller of medical stores, a controller of accounts, a senior establishment officer, and a non-medical inspector of administration. A central board of public health has been established to act as an advisory body to the Minister, under the chairmanship of the Director of Medical Services. Health boards have also been created at the provincial and district levels. At the local level, health committees have been set up as subsidiary bodies to the local councils in some areas.

The medical service maintains 50 hospitals, 879 dispensaries and dressing stations (providing a total of 9606 beds), and 193 physicians. There are also 80 private practitioners, 37 qualified pharmacists and 29 dentists working independently. The Christian missions also maintain local medical services.

The former Kitchener School of Medicine has now been incorporated as a Faculty of Medicine into the University of Khartoum, and offers a six-year medical course. It also provides post-graduate opportunities for special study and research by Sudanese doctors. The annual number of graduates from the school is reported to be 20.

The school for medical assistants, which was first established in 1918, is now offering a three-year course equivalent to intermediate education for the training of medical assistants. They are working as assistants in hospitals and are also assigned to rural dispensaries responsible for the medical work of the districts and for such public health duties as may be delegated to them by the medical officer of health.

A School of Hygiene was established in 1932 to produce Sudanese sanitarians holding the certificate (now diploma) of the Royal Society of Health (R.S.H.). Candidates are chosen from among boys.
who have completed their secondary education. They spend one year in Khartoum Technical Institute and two years in the School of Hygiene. At the end of the third year candidates sit for the R.S.H. examination, and those who are successful are awarded the Diploma in Public Health Inspection. At present there are 76 qualified officers who graduated from this School. Some of these are designated senior public health inspectors in charge of provincial sanitation, and others (public health inspectors and officers) are employed by local government councils. The School of Hygiene also gives short training to sanitary overseers (sanitary assistants and sanitary aides), who are in charge of village sanitation under the supervision of qualified officers.

There are seven training schools for midwives in the country, one located at Omdurman for literate trained nurses and illiterate district midwives, and the other six situated at provincial headquarters, mainly for the training of illiterate district midwives. The Central Nursing Council, under the control of the Director of Medical Services, is responsible for nursing training in the Sudan. A nursing certificate is issued to candidates who qualify after a three-year nursing course. There are now 15 sub-grade (first-year curriculum) and 30 complete schools, as well as eight hostels for female nurses in different parts of the country. Successful candidates in the sub-grade schools continue their training at the provincial headquarters school. Ample opportunities are available for certificated nurses to take higher training as health visitors, staff midwives, etc., or as laboratory and medical assistants, theatre attendants and so forth. In addition, a nursing college has recently been opened in Khartoum for the training of girl graduates of secondary schools. Graduates of this college will receive a universally recognized diploma and will be expected to be the leaders in the nursing profession in the Sudan. Sudanese girls now under training at the Higher Institute of Nursing in Alexandria will in due course take over the responsibility of nursing training in this college.

Health education of the public is carried out in health centres, dispensaries and local councils and by public talks and the use of visual media such as posters and leaflets. The introduction of 65 specially designed and equipped ambulances to serve the villages far distant from the nearest medical unit has also been useful in the dissemination of public health education in regard to simple hygiene habits and care.

The incidence of tuberculosis is not known but the number of patients in hospitals appears to be on the increase. In 1954-55 the diagnosed incidence of tuberculosis was reported to be 65 per 100,000 population. An extensive campaign of BCG immunization is at present being conducted in the Upper Nile Province. Tuberculosis control staff are being trained at the Wad Medani tuberculosis demonstration and training centre, with a view to developing domiciliary care services rendered from rural health centres. There are special tuberculosis wards in the central and district hospitals but all are far below the optimum need.

Syphilis is prevalent among the rural population as well as among nomadic tribes all over the country, while gonorrhoea is essentially an urban disease. It is reported that successful results in the control of bilharziasis have been obtained by snail eradication measures.

Malaria is the chief endemic disease in the country. Residual spraying with insecticides, however, has proved successful in lowering the incidence in certain areas.

Trachoma is widespread in the Sudan, particularly among the young. Routine school inspections are carried out and daily treatment given whenever possible, mainly with a view to combating superimposed infection.

Kala-azar still continues to be hyperendemic in the Upper Nile Province with bouts of increased incidence every few years.

The treatment of leprosy with sulfone drugs has given encouraging results and patients have shown increasing readiness to attend out-patient centres for treatment and inspection.

Other measures for the control of communicable diseases include rat control in ports and big towns, smallpox vaccination in the western provinces and during the pilgrimage season, inoculation against yellow fever, together with a wide Aëdes control in infested areas, and delousing measures for the control of relapsing fever.

There are 35 maternal and child health centres sponsored by the Ministry of Health and conducted by Sudanese health visitors under the direction of nursing superintendents. A number of simple antenatal clinics have also been established in rural areas in the charge of district midwives, and are likewise subjected to periodic supervision by nursing officers and the medical assistant of the area. All examinations are given free of charge.
SYRIA 1

Syria is bounded on the north by Turkey, on the east by Iraq, on the south by Jordan and Israel and on the west by Lebanon and the Mediterranean. The Euphrates river flows through the north-east to the boundary of Iraq. The climate is temperate—Mediterranean on the coast and becoming progressively more arid inland.

The area is approximately 184,500 square kilometres. Population figures, according to the latest estimates, were 4,025,165 in 1956, with 423,832 in the city of Damascus. In 1953 the country was divided into nine provinces or regions.

The economy of Syria is essentially agricultural, most of the population being engaged in cultivation. The principal crops are wheat, barley, cotton, maize, sorghum and lentils. Syria is poorer in minerals than in other resources, but this may be due to inadequate exploration. Salt and bitumen deposits are being worked. The textile industry is the most important, and electric power output is being expanded.

Textile raw materials and manufactures, cereals and vegetable products, live animal products, raw hides and skins and prepared food are exported. The principal imports are textiles, petroleum products, machinery of various kinds, chemicals and pharmaceuticals, wood and its manufactures, vegetable products and rubber products.

The Syrian University at Damascus was founded in 1924. Faculties of law and of medicine had existed previously. A Higher Teachers’ College is associated with the University. Damascus is also the seat of an Arab Academy, founded in 1919.

Lattakia is an important port. Railways connect the country with Lebanon, Turkey and Iraq. In 1953 there were 2584 kilometres of asphalt roads, 1262 kilometres of metalled roads and 6182 kilometres of subsidiary roads; a transport company runs a cross-desert service from Damascus to Baghdad. Damascus airport is served by international lines.

Health

The Ottoman regime in Syria lasted for four centuries. During the second half of the 19th century the Ottoman authorities laid down administrative regulations, including sanitary rules known as Tanzimat Khairieh. These rules formed the basis of the public health services until 1918, when the country was given an international status. Between 1919 and 1943 the scope of the health service was determined by resolutions emanating from the Mandatory Authority. Since the declaration of Syria’s independence in 1943 several public health laws have been promulgated. The health services were at first supervised by a general directorate attached to the Ministry of the Interior.

In 1946 a Ministry of Health and Public Assistance was created. Certain Articles of the Constitution of Syria, which was drawn up in 1950, defined some of the responsibilities of the Government in public health.

The central health administration in its present form comprises a Directorate of Health Affairs, a Directorate of Administrative Affairs, and a Directorate of Pharmaceutical Affairs. Departments created since 1950 include maternal and child health, health education of the public, international health affairs, communicable diseases, quarantine, statistics and malaria eradication. The regional and local health administrations are made up of district health directorates (Mohafazats) and municipal health services.

The medical faculty offers a six-year course and had 373 students in 1954-55 and 346 in 1955-56. The graduates from the medical faculty in 1954-55 and 1955-56 were 63 and 50 respectively. In addition to the medical faculty a nursing school forms part of the Syrian University, and another nursing school is attached to the Ministry of Health.

Dysentery, measles and mumps are stated to be the most important infectious diseases. Some cases of smallpox, imported into the country towards the end of 1956, were brought under control, and a general vaccination campaign was started. Bilharziasis is limited to a small area where a control project is under way, and only a few cases have occurred since the end of 1957. A general decline has been noted in the number of patients treated for malaria—from 131,196 in 1951 to 39,276 in 1956. A vital and health statistics project is envisaged for the near future.

Progress achieved during the period under review includes the establishment of health stations, clinics, hospitals and sanatoria in both urban and rural areas. Field services for the control of communicable diseases such as tuberculosis, yaws and mycosis of the scalp, and for maternal and child health, sanitation and health education, have been special features of public health work during the period 1954-56.

In 1956 there were 3355 beds in government hospitals and sanatoria, as compared with 2400 in 1952. Private hospitals provided a further 1712 beds. There were also 12 centres and 95 dispensaries for maternal and child health care.

1 On 2 February 1958 the Republics of Egypt and Syria united into the United Arab Republic.
TUNISIA

Tunisia is in North Africa, between Algeria and Tripolitania (Libya), and extends southwards to the Sahara, with an area of 155,830 square kilometres. There is a coastal forest area, inland from which are plains, some below sea level, intersected by mountain ranges. The climate is Mediterranean. The population at the 1956 census was estimated at 3,783,000, and the annual rate of increase at approximately 2.16 per cent.

Tunisia became a sovereign independent country in March 1956. Following legislation promulgated at different times in 1957 and 1958, the Government is now made up of twelve Secretaries of State and one Under-Secretary of State.

The chief industry is agriculture. Of the total area of the country, about 90,000 square kilometres are productive in the following proportions: 33.9 per cent. arable; 10 per cent. forests; 9.27 per cent. orchards and vineyards; 1.1 per cent. meadow and grassland. Production in 1954 (in 1000 metric tons) was: corn, 435; wheat, 189; barley, 170; oats, 6; maize, 1.7; olive oil, 53; and wine, 1,054,000 hectolitres. Other products are dates, almonds, oranges, lemons, pistachios, alfalfa grass, henna and cork, and minerals such as phosphate, iron and lead ore, and lignite. Fishing and sponge fishing are important on the coast.

In 1956 all educational matters were brought under the responsibility of the Secretariat of State for National Education, Youth and Sports, for which about 20 per cent. of the total budget is earmarked. The 210 independent Koranic schools have been nationalized and the distinction between religious and public schools has been abolished. Primary education is free. For higher education there is a faculty of law, a centre of economic studies, and there is a Moslem University in the Great Mosque at Tunis.

Health

Since May 1958, the Secretariat of State for Public Health has been combined with the Secretariat of State for Social Affairs. Under this new organization, the following divisions are attached to the Office of the Secretary of State: programme and budget; personnel; hospital administration; preventive services and public health; social welfare; hospitals; industrial and social hygiene; and labour and workers' health and welfare. The new department is also responsible for the outside services of the Administrative Inspectorate and the Divisional Inspectorate of Labour.

The divisions more particularly concerned with matters of public health have the following functions:

(1) Hospital Administration Division: organization of hospital services, health centres, mobile health units, etc., and legislation relating thereto; control and administrative and financial supervision; construction and equipping of hospitals.

(2) Division of Preventive Services and Public Health: control of tuberculosis and social diseases; epidemiological questions; sanitary control of frontiers; school health; health education of the public; national campaigns; nutrition.

(3) Hospitals Division: curative medicine under government auspices; psychiatric services; public assistance; voluntary welfare organizations; national health schools; medical and para-medical arts; pharmaceutical and laboratory services.

(4) Industrial and Social Hygiene Division: supervision of medical services provided by industries and business concerns; occupational diseases; maternal and child health.

Medical care in the towns is provided in modern hospitals, including a number of specialized units, such as a psychiatric hospital, a tuberculosis hospital, a rehabilitation centre (opened in 1957), a chest diseases centre for children (opened in 1958), and a day-care centre for children (also opened in 1958).

The country has been divided into 14 administrative regions as far as public health is concerned, each directed by a regional administrator, assisted by a regional public health council.

In 1958, there were 54 hospitals (including auxiliary hospitals), two hospices, and 246 dispensaries specializing in various subjects; the total number of beds available was 8868, and there were 664 physicians and 40 pharmacists on the staff. During 1957, in-patient hospital days amounted to 2,461,135, and 4,058,880 out-patient visits were recorded. Several of these hospitals and medical centres have been equipped with additional facilities, such as special surgery, maternity, ophthalmological, children's and other wards.

Furthermore, district and suburban dispensaries have been set up in the larger towns, with a view to decentralizing the out-patient services of the principal hospitals and providing a solution to the problems of overcrowding. This scheme was started in 1957, and so far some 40 dispensaries have been established.

Birth, death and infant mortality rates vary considerably for the different ethnic groups. In 1955, the birth rates were 40 for Moslem Tunisians, 31 for Jewish Tunisians, and 25 for Europeans. The general mortality rate was 20 for Moslem Tunisians, 10 for Jewish Tunisians and 9 for Europeans. The infant mortality rate was 155 for Moslems, 62 for Jewish Tunisians and 37 for Europeans.

The most common endemo-epidemic diseases are malaria, exanthematous typhus, smallpox and typhoid fever. Tuberculosis and trachoma are the most
serious social scourges. Tuberculosis prevention at the individual, family and school levels is carried out by special clinics. For the control of trachoma, an efficient network of ophthalmological centres and clinics has been set up. Maternal and child health services are provided at hospitals, general out-patient clinics, maternity and child welfare centres, and at auxiliary hospitals with out-patient departments.

Two new sections have been established in the Office of the Secretary of State for Public Health and Social Affairs, both in the Division of Preventive Services and Public Health. The first, for health education of the public, was set up in 1956, with the task of forming a national committee, and its activities now extend throughout the country.

The second, for nutrition, was established to deal with the serious problem of under-nourishment and malnutrition; its programme went into operation at the beginning of 1958 with the formation of a committee to undertake study and research for the improvement of nutrition, and with the organization of schemes for school feeding and supplementary feeding for mothers and children.

The Government is making every effort to improve housing conditions, particularly by the provision of low-cost housing to replace existing shacks.

YEMEN

The Kingdom of Yemen occupies the south-west corner of Arabia, between Asir (part of Saudi Arabia) and the Aden Protectorate, with an area of approximately 195,000 square kilometres. The highlands and central plateau and the higher parts of the coastal range on the Red Sea are the most fertile part of Arabia, with an abundant and regular rainfall.

The population was estimated in 1949 at 4,500,000. The chief cities are Ta’iz, the capital, with about 80,000 population; Hodeida, the chief port, with about 30,000; and Sana’a, with about 25,000.

The country is purely agricultural and depends wholly on field products. The principal export is coffee and quantities of hide are also exported; barley, wheat and millet are other important crops.

Communications within the country are very difficult and many parts can be reached only on donkey or mule back. Illiteracy is a problem, especially in the villages, several of which, however, have primary schools and kutabs (Koranic schools where elementary general education is also provided).

Health

A Ministry of Public Health has been established, with headquarters at Sana’a, headed by a Director-General. There are three hospitals — one at Sana’a with about 400 beds, one at Ta’iz with about 450 beds, and a third at Hodeida with about 400 beds. All three hospitals are staffed by foreign doctors of various nationalities, predominantly Italian, assisted by Yemenite hakims, who have been given an apprenticeship training by the foreign doctors. Since 1954, seven Yemenite students have been taking a full medical course in Egypt, and it is expected that fully-qualified medical graduates of Yemen nationality will be available to serve their country from the beginning of 1959. Ten students are studying sanitation at the Hygiene Institute in Cairo, and one student is following a course in vital statistics at Cairo University.

In 1957 an urban health unit was set up in Sana’a, with assistance from WHO, to demonstrate the provision of the necessary health services (other than hospital care) for the population, and to form a nucleus for the training of auxiliary health personnel. The services of the unit include medical care, communicable disease control (smallpox, venereal disease, tuberculosis, malaria and bilharziasis), sanitation, maternal and child health, and health education.

So far as communicable diseases are concerned, pulmonary tuberculosis is widespread throughout the country. Malaria is stated to be one of the principal incapacitating diseases and responsible for a high percentage of sickness and death. Endemic typhus and relapsing fever occur in the highlands and middle heights, and plague is endemic in the northern highlands of Khawlan. Trachoma and ophthalmic infections are extremely common throughout the country. Syphilis and gonorrhoea are also reported to be prevalent.

Among other diseases, malnutrition and nutritional deficiency diseases are common. The chewing of khat (Arabian or Abyssinian tea) has been a very common habit among the Yemenites, and a nutritional survey has recently been made which recommends the prohibition of the cultivation, importation and use of the plant, owing to its ill effects on the health of the population.

A systematic smallpox vaccination programme has been carried out by the urban health centre at Sana’a, and as a result of successful demonstration of this work the Government has recently passed a law making smallpox vaccination compulsory.
WESTERN PACIFIC REGION
AMERICAN SAMOA

American, or Eastern, Samoa, has the general characteristics of the Samoan group. The area is about 197 square kilometres, and the population at the 1956 census was 20,154, almost entirely indigenous.

For local administration, the territory is made up of three districts, each divided into counties and further subdivided into villages. Each district is headed by a Samoan governor, who is appointed by the Governor of American Samoa from the ranks of county chiefs. The district governor presides over the district council. The county chiefs, who are hereditary, preside over the county councils. The village council is headed by a chief, selected from the matai, subject to the approval of the district governor. The matai, who is head of his immediate clan, plays an important part in local affairs.

The economy is essentially agrarian, and the principal exports are fish products, copra, and handicrafts. The principal imports are food and textiles.

The educational policy of the Government is to provide training suited to conditions in the territory, to provide at the same time a suitable background for those who will proceed to higher education in the United States of America or elsewhere, and to lead the people towards self-government. The means proposed include compulsory education in Samoan and English from 7 to 15 years of age, and scholarships.

In 1957 there were 43 public and six private primary schools, six public secondary schools, one public vocational school and one public teacher-training school. Pupils attending the primary schools numbered 5975, secondary schools 256, the vocational school 70, and the teacher-training school 14.

Health

The Department of Medical Services has two main divisions—public health and hospitals. Outlying dispensaries and village health activities are dealt with by the public health section, which is also active in sanitation (including garbage disposal) and insect and rodent control.

Approximately 25 per cent. of the government budget is devoted to medical services, of which 8 per cent. goes to the public health services and the remainder to administration and medical care.

The birth rate was reported to be about 40 in 1957, and the death rate about 10. There is considerable emigration; 60 per cent. of the people are under 20 years of age, very few being over the age of 50. The chief causes of death are pneumonia, heart disease and a number of chronic conditions in the older groups, and malnutrition, prematurity, and gastro-intestinal conditions in infants and young children.

The Government operates a 151-bed general hospital, a 56-bed tuberculosis hospital, a 30-bed leprosarium and four dispensaries.

At the end of 1957, the Samoan medical staff numbered 14. The Department also had three registered nurses, 73 Samoan certified nurses, and 56 nurses in training. One dental surgeon and five Samoan dental practitioners constituted the dental staff. There is no medical school in the territory, and dental staff are trained at the Central Medical School in Suva, Fiji. Five medical students, three dental students and one pharmacy student were in training in 1957. Nurses are trained in a four-year course at the Samoan hospital.

No malaria and very few cases of trachoma are reported, the major problem being filariasis. Rheumatic heart disease and acute yellow atrophy of the liver seem to be unusually prevalent. An island-wide programme of inoculation against typhoid and paratyphoid diseases was initiated in 1955.

Water-supply systems or reservoirs and distribution pipelines have been, or are being, developed for many of the villages. A programme for the development of additional ground- and surface-water supplies is under way. The inspection of eating establishments and water and sewage-disposal systems has been intensified.

AUSTRALIA

Australia may be called the largest island in the world or the smallest continent. It extends from 10° to 39° south and from 113° west to 153° east. Its greatest dimensions are 3840 kilometres from east to west and 3152 kilometres from north to south. The area is 7,614,912 square kilometres. An eastern and a western area may be sharply distinguished. The eastern has a regular coastline with good harbours, rivers and inland waterways. Much of the interior, especially towards the west, is sandy or stony desert with many salt marshes and some reaches of grassland. Most of the land around the coast, as well as that driving far inland in the south and south-east, is fertile, devoted partly to agriculture and partly to dairy farming. Further inland the districts are well suited to sheep farming. The climate is mostly very dry but more humid areas extend for considerable distances near the coasts. The northern portion is subtropical to tropical, with sharply differentiated "wet" and "dry" seasons subject to monsoonal influences.

The population, which was 8,986,530 according to the 1954 census and 9,427,558 according to that of 1956, is 98 per cent. of British descent. There is a consistent policy of regulating alien immigration.

The Australian system of government is a federation of states, having a Federal or Commonwealth Government with certain delegated powers under a Federal Constitution, and six
state governments each with its own state parliament and administration responsible for public services of many kinds not administered by the Federal Government.

The Commonwealth Government is responsible for the administration of foreign affairs, trade, defence, immigration, a national health and social services scheme, as well as a number of other fields of administration, including all postal services.

Among the main functions of state governments are education, public health (including hospitals) and railway transport services. There is a system of local government through municipalities, boroughs, cities, towns and districts, which administer certain areas of public health, including water supplies and sewerage, roads, recreation facilities, etc.

A number of other services, including some health services, function at federal and state levels under specially created Boards and Commissions. Examples of these are State Hospital Boards, State Electricity Commissions, State Parks Boards and Main Roads Boards at the state level, the Australian Broadcasting Commission at the federal level, and joint authority such as the Snowy Mountain Authority.

Australia is one of the principal primary producing countries of the world, though there has been considerable industrial development in recent years. Its most valuable export is wool, followed by food exports—meat, wheat, flour, fruit, sugar and butter. Chief imports are manufactured goods, particularly machinery and motor vehicles, and consumer goods such as motor spirit and oil, cotton, linen, rayon and silk piece-goods, tobacco and tea. Production is substantially in the hands of private enterprise.

The great distances in Australia have encouraged aviation, which is subject to Commonwealth control and connects the seven capital cities and Darwin in the Northern Territory. The Royal Flying Doctor Service, which is subsidized by both commonwealth and state governments, has made a great contribution to medical care in remote areas, as has also the Commonwealth Department of Health.

Health

The health services in Australia may be divided into two broad groups: commonwealth and state.

The Commonwealth Health Services are controlled by the Federal Government in Canberra, and their organization provides for a Minister of State for Health, who is in control of a Department of Health headed by a Director-General. This Department has divisions for the administration of its many functions—the National Health Division (dealing with the administration of the National Health Act), the Public Health, General Administration and Medical Administration Divisions. The Public Health Division is subdivided into sections on tropical hygiene, health laboratories, acoustic laboratories and dental standards laboratories, national fitness, immigration and human quarantine, plant quarantine, and veterinary quarantine.

The General Administrative Division includes in its control such activities as the Commonwealth X-ray and Radium Laboratory, the School of Public Health and Tropical Medicine, the Commonwealth Serum Laboratories, and the Commonwealth Health Laboratories throughout Australia. The Medical Administration Division controls the Northern Territory Medical Service, the Australian Capital Territory Health Services, and nutrition research.

The Commonwealth Health Department has offices in each state and is also represented overseas.

Each state has its own Minister for Health, who controls a state health department. The latter has direct responsibility for public health, food and drug control, disease control and hospital administration.

The Social Services Act, administered by the Commonwealth Government, provides for the payment of invalid, old-age and widows' pensions subject to a means test on income and property and residence tests. Unemployment and sickness benefits are payable subject to an income test only. Other benefits payable under the Act are maternity allowances and child endowment; these are not subject to a means test. Service pensions are paid under the Repatriation Act to returned servicemen who are over sixty years of age and who are permanently unemployable or who are suffering from tuberculosis; these pensions are subject to the same means test as is applicable under the Social Services Act. War pensions under the Repatriation Act are payable in respect of a war disability. The social services mentioned above are of many years' standing, some dating back to 1908.

Hosipital and medical benefits supplementing voluntary insurance, and pharmaceutical benefits are now paid under the National Health Act of 1953. However, hospital benefits have been paid since 1945 and pharmaceutical benefits since 1947. These were originally provided under legislation which has been superseded by the National Health Act. Allowances to infectious sufferers from tuberculosis have been paid since July 1950, under the Tuberculosis Act of 1948.

The main health problems are those of homogeneous communities, the only special problems being recurrent malaria and endemic leprosy in the tropical north, where communications are difficult and where there is a large indigenous component in the population.

Notifiable diseases are reported to the state health departments from all city and country areas. Returns are prepared on a weekly basis and forwarded to the Commonwealth Department of Health where they are consolidated for distribution to interested authorities, including WHO.

Through the state registrars of births, deaths and marriages, statistical information is received by commonwealth and state government statisticians; the reporting provides a complete coverage of the popula-
tion and allows for the preparation of full vital statistics.

In 1955 the birth rate was 22.5, the general mortality rate was 9.13, and the infant mortality rate was 22.23.

There are approximately 10 100 doctors in hospital or private practice in Australia. The majority of these are in New South Wales and Victoria, the two states with the highest population. Of the 4194 dentists registered in Australia, 3235 have private practices and 414 are in full-time government or institutional service; 545 are not practising.

In the Australian Capital Territory and the Northern Territory, the Commonwealth Department of Health provides a full dental service for schoolchildren, while in the states a fairly complete dental service for schoolchildren is also provided by the state authorities. The treatment of adults is mainly in the hands of private practitioners, the indigent being treated in dental hospitals and general hospitals.

In 1956 the total number of hospitals in Australia was 1621, providing 70 675 beds. For tuberculosis patients there were, in the same year, 4681 beds available. In mental hospitals, the average number of patients in residence in 1955 was 29 323.

Most of the general hospitals provide some beds for the chronic sick. The proportion varies with different hospitals, and depends a good deal on the amount of accommodation available in private institutions. The total number of beds for the chronic sick must run into several thousands but the actual numbers have not been ascertained. Most of the aged prefer to live in their own homes, or with friends or relatives. In more recent years, a number of the churches and voluntary agencies have established homes for the aged and chronic sick, with financial assistance, representing two-thirds of the cost, in the form of a building subsidy from the Commonwealth. Under the National Health Scheme, all persons entitled to old-age, invalid, widows' and service pensions, and their dependants, are provided with free medical treatment of a general practitioner nature in their own homes or at a doctor's office. It is customary for the state governments to provide homes for the aged in which there is a hospital section. In such cases the necessary hospital care is provided there and not in general hospitals. District nursing services are operated to provide health care of the aged within their own homes.

Health education of the public is primarily a function of the state governments. It is carried on through the state education departments in relation to schools, and all state health departments undertake some measure of health education activity and have carried out campaigns against diphtheria, whooping-cough and, more recently, poliomyelitis. A Health Week is conducted each year for publicity purposes.

Maternal and child health services in Australia are of a high standard, the infant mortality rates being among the lowest in the world. In 1955 the rate for the whole country was 22.01, while in one state (Victoria) the rate was 18.37. The services are for the most part controlled by special maternal and infant welfare divisions of the state health departments. These divisions work in close cooperation with local government and voluntary agencies. For example, in New South Wales, the specially designed buildings for infant welfare centres are provided by local government authorities, while staff is appointed and controlled by the state health department. Some hundreds of infant welfare centres have been established in all states, Victoria alone having 543 centres in operation. Special training courses are provided by the maternal and infant welfare divisions, or in special training schools; refresher courses are also provided, and in some states there are pre-school training courses for mothers and child care courses for nursing bursary holders.

Occupational health services in private industries are not organized on a routine basis, and it can be said that such services are few with reference to the total number (approximately 50 000) of private factories in the country. Even some large industries with serious potential hazards have no arrangements for regular visits by a physician. No specific requirement for private industries to provide occupational health services is laid down by law, although in some states regulations require factories of a certain size to employ a nurse, or certain industries—such as lead processes, or where there is exposure to benzine—to provide medical examinations. In New South Wales approximately 100 private establishments have arranged for regular visits from a medical officer.

Under the Commonwealth Health Department a unit of industrial hygiene and medicine was established in 1949. The functions of the unit are teaching, research, investigational, consultative and advisory. All state departments of health are engaged in industrial hygiene work and in New South Wales, Victoria and Queensland full-time divisions have been established within the departments. The functions are mainly advisory and consultative but some states have statutory powers in this field.

Environmental sanitation is the function of state and local government administration, the Commonwealth having jurisdiction only in the Australian Capital Territory and the Northern Territory.
the greater part of the population is served by community water supplies of various kinds. The recent rapid growth in population and the hasty development of new housing projects have reduced the proportion of population served by a water-carriage sewage disposal system to a figure below 40 per cent.

Except in special areas the control of water pollution is undertaken by local authority. There are some special water boards and irrigation commissions invested with powers under legislation in respect of the conservation and protection of water supplies.

There are 14 Commonwealth health laboratories, which give service in the fields of pathology, bacteriology and biochemistry. These laboratories are additional to those which serve the various large hospitals and the state government laboratories.

Each state government has its own legislation for the control of food and drugs, administered by the state health department. The National Health and Medical Research Council has set up expert subcommittees to deal with standardization and to encourage uniformity in state legislation.

**BRITISH SOLOMON ISLANDS PROTECTORATE**

The Solomon Islands lie between 5° and 13° south and between 155° and 170° east. The population, estimated at 100,000 in 1954, consists of 94,000 Melanesians, 4,350 Polynesians, and a number of smaller groups, including 600 Europeans. Nearly half the Melanesians live on the island of Malaita, while the Polynesians inhabit outlying atolls and small islands. The larger islands are mountainous and forest-clad and the total land area is nearly 30,000 square kilometres. Most of the population inhabit areas within easy reach of the sea-coastal areas of the larger islands, islets (some of them artificial) in the lagoons, and some outlying islands. Villages are small, the largest having about 400 inhabitants, and many family groups live in isolated conditions. The people still follow the customs and traditions of the close family group, and this group is responsible for the care of the old, infirm and disabled.

The economy of the territory depends almost wholly on the production of copra, and restoration of this industry has been one of the main tasks of the Government since the end of the war. Agricultural policy was reviewed in 1954 with the object of improving the management of coco-nut plantations and the storage of copra; the establishment of cocoa as a cash crop; a rice research scheme; and an endeavour to restock the plantations with cattle.

Education is not compulsory, but free education is widely available. The missionary societies, which formerly provided the only educational facilities, continue to provide pre-primary and primary schools, many of which receive government subsidies. Local government councils assist in the provision of equipment and encourage the establishment of schools by communal effort. The central Government has set up seven primary schools, operates the King George VI Secondary School at Auki on Malaita, and has built a training centre for teachers and craftsmen at Honiara. The Education Department administers the government subsidies to schools and supervises schools operated by the Government. There are two private fee-paying schools in Honiara, run by the Chinese community and a mission body respectively. Normal age ranges are from 9 to 14 in the primary schools and from 13 to 19 in the post-primary schools. Instruction in the first is usually in the vernacular, but the use of English is increasing rapidly, while in the second it is invariably in English. In 1950, five per cent of the population were estimated to be reasonably literate in English, and 20 per cent. to be enrolled in schools.

Honiara, the capital, which now has a population of over 2000, is administered by a Town Council. In Honiara most of the buildings are of permanent materials—concrete, fibro cement, timber and corrugated iron or aluminium. Elsewhere the houses are, with a few exceptions, built of local timber and leaf.

**Health**

A medical officer was first appointed to the territory in the early 1900's, and the Medical Service developed steadily until the outbreak of the Second World War. Immediately after the war the entire Medical Service was reorganized and reconstituted and has been considerably extended.

The organization of the Medical Department is centralized, and health projects are carried out by district medical officers with the help of assistant medical officers and dressers. The missions take an active part in the hospital service, and undertake a great deal of general medical work. The Central Hospital in Honiara has 132 beds, and includes a maternity department and a 33-bed tuberculosis section. There are three district hospitals (with a total of 127 beds), of which two are being completely rebuilt. A leprosy hospital at Tetere, some 50 kilometres from Honiara, accommodates 100 patients and is visited weekly by a medical officer. Two mission hospitals, one in the west and one on Malaita, are subsidized by the Government and have a total of 130 beds; each has a resident doctor. There are also 63 rural dispensaries.

The curative services offered in district hospitals and rural dispensaries have been supplemented by preventive measures against communicable diseases. Yaws has been a great problem, but a campaign against this disease, which was carried out in 1958 with assistance from WHO, has reduced it considerably. Tuberculosis is prevalent and, with malaria, constitutes the principal threat to the health of the people, although there is also widespread helminthiasis—especially hookworm—and an estimated 1500 cases of leprosy. Active planning is now under
way with a view to introducing antimalaria and antituberculosis campaigns in the territory.

Dental services are provided by a private dentist from New Guinea twice a year, and also by assistant medical officers trained in the Central Medical School in Suva, Fiji. There are no private doctors or dentists in the territory. Maternal and child health services are conducted in conjunction with the Central Hospital, and similar services are available at the district and mission hospitals.

Health

The State Medical and Health Department provides hospital, rural dispensary, maternal and child health, environmental sanitation, tuberculosis, dental, antimalaria, municipal and port health services throughout the territory. In an oilfield in the southern end of Brunei, the petroleum company concerned provides all these services for its employees and their dependants. There is close liaison between the government and company medical services.

The development programme 1953-58 provides for expenditure of Str. $21.8 million in 1956, and Str. $26 million (US $8 580 858) in 1957. Expenditure on the Medical and Health Department in 1957 amounted to Str. $2 195 976 (US $724 745), or about 5.9 per cent. of the total budget of the territory for the year.

The birth rate for 1957 was 45.23, the death rate was 15.09, and the infant mortality rate was 127.11. Great attention has been paid to the collection of statistics, and it is thought that these figures may be within 10 per cent. either way of accuracy.

A general hospital with 150 beds is maintained in Brunei Town in the north, while in Kuala Belait in the south there is a district hospital with 75 beds. The petroleum company mentioned above also maintains a general hospital with 140 beds in Kuala Belait. There are two rural dispensaries with ward accommodation, four river and two road travelling-dispensaries, six major maternal and child welfare centres, and numerous subsidiary centres. There are three main dental clinics, and dental care is given to schoolchildren by two dental surgeons, who travel by road and river. A school dental service based on the New Zealand model has been started.

BRUNEI

The territory of Brunei lies north of the equator, on the north-west coast of the island of Borneo in the South China Sea. It consists of two separate territories bounded on land by Sarawak. The country is mountainous and is interspersed with several river valleys. Large sections are covered by dense forests. The climate is tropical, and is characterized by uniform temperature, high humidity and copious rainfall. The heat is usually tempered by a slight breeze and the temperature rarely exceeds 32° C; the usual daily range is between 23° and 30° C.

The area is 5765 square kilometres, and the estimated population in 1957 was 75 046. The principal indigenous groups are Malays, Kedayans, Dusuns, Bisaya and Muruts; of the immigrant races, Chinese are the most numerous, with an estimated population of over 14 000. A number of Europeans are concentrated in the Seria and Kuala Belait areas, and 329 were employed in the oilfields in 1957. There are also small numbers of Indians and Arabs.

The territory is divided into four administrative districts, in each of which there is a Malay District Officer responsible to the Resident. In Brunei Town, Tutong and Kuala Belait there are sanitary boards responsible for general environmental sanitation whose members are appointed by the Government.

The Malays are fishermen, cultivators of wet paddy, rubber and fruit plantations, and they also have small domestic industries such as silverwork, carpentry and basket-making. The Dusuns and Dyaks are mostly land cultivators.

The main export industry, which has raised the standard of living, is the production of oil. The principal imports are rice, petroleum products and machinery.

The development programme 1953-58 provides for expenditure of Str. $100 000 000 (US $33 003 300) over and above annually recurrent costs of public works. Actual expenditure on the development programme and public works together amounted to Str. $21.8 million (US $7 194 719) in 1955, Str. $21.8 million in 1956, and Str. $26 million (US $8 580 858) in 1957. Expenditure on the development programme alone has so far amounted to nearly Str. $60 000 000 (US $19 801 980) between 1953 and 1957.

Health

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A vigorous campaign against tuberculosis has been put into operation, using mass miniature radiography, tuberculin-testing, and contact survey, together with hospital and out-patient treatment of confirmed cases. This work is greatly facilitated by a scheme of monetary allowances paid by the Government to those patients and their dependants who are in proved need of financial help.

By means of an annual programme of DDT residual spraying of dwellings in the rural areas, together
with drug therapy, malaria has been reduced to insignificant proportions. Filariasis is endemic, as are the helminthic diseases. Anaemia and protein and vitamin A deficiency are widespread in the territory.

A school feeding scheme, which is entirely free, is run by the Education Department and provides either a daily meal or a daily fortified drink to 11,260 schoolchildren each school day.

The training of nurses, hospital assistants, assistant nurses, assistant health nurses and midwives is under-

taken at the nurses’ training school at the State Hospital. Dental nurses, laboratory, x-ray and dental technicians, and health inspectors are sent to the Federation of Malaya for training.

Treated piped water is supplied in the three major towns, and small supplies are being conveyed to villages. No major water-borne sewage-disposal scheme has yet been started, although complete plans for such schemes in Brunei Town and Kuala Belait are now ready. Sanitation at the present time is of the septic tank type or bucket system.

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**CAMBODIA**

Cambodia occupies the south-west part of Indo-China, and is bordered by Thailand, Laos, Viet Nam and the Gulf of Siam; it has an area of about 175,000 square kilometres. The country is mountainous in the west and there is a central depression—the Mekong Valley—where, in the rainy season, the Great Lake is formed by overflow from the Mekong River. The climate is monsoon and tropical.

According to the latest census, the population is estimated at 5,010,000, with a density of 28 per square kilometre. The capital, Phnom-Penh, has a population of 375,000. The Cambodians, who make up the majority of the population, are of Khmer race, but there are also minority groups which include Vietnamese, 250,000 Chinese, and Laotians in the border region of Stung Treng. There are also some 3000 people of European origin.

The population is unevenly distributed: it is very sparse in the wooded regions, fairly dense in the plains, and extremely concentrated in the Mekong Valley, where the land is fertile and fishing is abundant.

Cambodia is an agricultural country, and the predominant occupation of the people is farming, but there are also artisans. There are no important metallurgical or chemical industries. The principal resources are rice, fish, cereals, game, rubber and wood.

The country has 1653 primary, elementary and post-primary schools, 1500 modernized pagoda schools (where general education is now given as well as religious instruction), 20 secondary schools and 24 provincial technical schools, with a total of 375,719 pupils.

In the capital there are also a teachers' training college, a professional training institute, faculties of law and medicine, and training schools for forestry inspectors, leaders in public works and other technical subjects, such as forestry, agriculture and cadastral survey.

**Health**

The health services are directed by a Minister, assisted by a Director of Health Services, who is a physician. There are 15 medical divisions, corresponding to the 15 provinces, each directed by a chief medical officer under the administrative authority of the Governor of the province, as the representative of the Minister of Public Health at the provincial level.

Medical care is provided in 22 hospitals (seven in the capital and 15 in the provinces), with a total of 3500 beds. Among these establishments are an Institute of Ophthalmology, a leprosy settlement with 600 beds, and special units for venereal diseases, communicable diseases and tuberculosis. In addition, there are 26 dispensaries in the capital and 119 in the provinces. All the hospital staff are employed on a full-time basis.

Cambodia has a psychiatric hospital, which is well known as a treatment centre where modern methods are used, and which deals with both mental diseases and drug addiction.

A medical school, which is under the patronage of the Faculty of Medicine in Paris, has been established for the training of doctors and health officers. Special training courses for nurses and midwives have been organized for the existing staff, and a school of nursing is being set up in Phnom-Penh.

The scope of dental care is somewhat limited; there are seven dental clinics in the capital of which two are public and five are private; in the provinces most of the dental care is undertaken at the hospitals.

At the present time the Government is giving serious attention to the problems of chronic disease and the care of the aged sick. No definite plans have yet been put forward for an industrial health programme, and there are no special centres for rehabilitation. However, existing legislation prescribes that any enterprise employing more than 50 persons must provide a nursing station for medical care of the workers. The rubber plantations have their own medical service, which possesses small hospitals and employs foreign doctors.

Regulations in force require all doctors and midwives, as well as administrative authorities, to notify the provincial authority of every known or suspected...
case of infectious disease, such as typhus, cholera, plague and smallpox. The necessary isolation and disinfection measures are then taken. There are special wards for epidemic diseases in the various hospitals.

There is a Pasteur Institute at Phnom-Penh.

In general, the results of the malaria control campaign have been encouraging so far, and there is close co-operation with the neighbouring countries of Laos, Viet Nam, Thailand, Burma and the Federation of Malaya, with the object of eradicating this disease.

As a first step in the control of tuberculosis, a BCG vaccination campaign has covered almost the entire population.

Until now, maternal and child health services have been limited to the capital, but they are to be extended gradually to the provinces. A special children’s hospital is to be established in the near future.

Noteworthy progress in the school health programme has included: medical inspection of the various schools in Phnom-Pen; courses in hygiene, child care and nutrition for student-teachers and physical education instructors; distribution of milk to the school population; improvement of the school dispensaries; and the establishment of a domestic science demonstration and training centre.

By the application of health education methods, the rural population has been given an understanding of the basic principles of hygiene and has been helped to build wells, latrines, and pit-privies.

Considerable efforts are being made to improve environmental sanitation. At the present time approximately one-half of the population of Phnom-Pen and the provincial capitals are provided with safe drinking-water; the remainder of the urban population and the entire rural population depend on rain-water, wells or rivers, for their water supply.

In Phnom-Pen, a municipal health service is responsible for sanitation and for preventive measures such as vaccination. The scope of this service is still very limited, owing to the lack of funds and qualified staff.

With a view to the improvement of rural hygiene, a health centre, destined to serve as a rural health demonstration area, is being set up in a district very close to the capital.

REPUBLIC OF CHINA

Taiwan, the seat of the Republic of China, known also as the island of Formosa, lies between 21° and 25° north and 119° and 112° east. The island is about 630 kilometres long and 135 kilometres wide and has an area of 35 961 square kilometres. It is highly populated, the latest estimated figure being nearly 9.5 million.

Taiwan Province is divided into 16 counties, five cities and one special administrative area. A magistrate or mayor, elected by the people, heads each of these districts, which are further divided into townships or villages, totalling 368 in number.

Health

The Taiwan Provincial Health Administration is generally responsible for the public health services in the Province, including both curative and preventive medicine, the training of health personnel and quarantine. It discharges its duties through two main channels. One (a direct channel) is through the 12 provincial hospitals, 13 quarantine stations, the Malaria Research Institute, the Serum and Vaccine Laboratory, and the Institute of Laboratories, and one Provincial Health Demonstration Area and Centre. These institutions are under the provincial budget and under the direct control of the Commissioner of Health of the Provincial Health Administration. The second channel, which is indirect, is through the health centres and health stations.

In the county and city governments, the health authority is termed the “health centre” and is equivalent to the county or city department of health. Under these centres are the health stations, one in each township or village. A health centre therefore directs the work of as many health stations as there are townships, villages or city districts within its area; it carries out in detail the curative and preventive medical services allotted by the provincial health administration, and further directs the work of the health stations, which in their turn are actually responsible for providing the clinical and preventive medical service in the local community. The remoter health stations are in fact small clinics controlled by the health centres. A very small fee is charged for treatment of the sick and free service is provided for the poor. Mornings are spent in clinical work and afternoons in health work such as maternal and child welfare. A health station of this kind usually serves a population of up to 30 000.

The health personnel of Taiwan consists of just over 4000 doctors, 1700 herb doctors and 700 dentists. There are over 1800 midwives, 700 nurses and a considerable number of auxiliaries, such as pharmacists and nursing aides.
The main work of health education is carried out in the elementary schools. In Taiwan there were 1118 such schools in 1955, with about 1,200,000 pupils. Health knowledge is imparted through the routine educational courses, and the schools hold various active health education programmes sponsored jointly by the provincial educational and health administrations. The principal methods consist of holding meetings at which films and exhibitions are shown. Services are mainly undertaken by voluntary health agencies.

The statistical section is a function of the provincial health administration. Estimates show that the birth rate reaches the high figure of 44, and the crude death rate is about 8. The infant mortality rate is not accurately known, the estimate given being 34.

In the hospital service, including the small branch hospitals, there are in all 21 institutions with a total of 2,860 beds, and 64 private hospitals with 966 beds. The principal institution is the National Taiwan University Hospital. Medical care units are attached to various industries and other organizations, providing a further 966 beds.

The provincial government lays great emphasis on the in-service training of all categories of health workers. They are called to demonstration centres for refresher courses and some are sent abroad for advanced training. Public health training in the Institute of Public Health began in 1954; courses of two months are offered, and outside lecturers in various fields take part in the work. Trainees are chiefly medical officers of the health centres and stations, with a small number of sanitary engineers, sanitarians and nurses. Up to the present nearly 500 staff have been trained at the Institute.

In Taiwan there are three medical colleges. The National Taiwan University College of Medicine has a seven-year programme, while the other two follow the six-year system. The colleges are under the supervision of the Ministry of Education. The final year of the medical course is spent in a rotating internship at the teaching hospital or one of the affiliated units.

The provincial health administration selected Tainan city and Chia-yi county as demonstration areas for the prevention of dental caries, using fluorine for this purpose. Some 12,000 children were kept under observation, and the oral application of fluoride is being studied. Similar demonstration schemes have been organized in other areas.

Ante-natal examinations are held at the health centres and health stations. Delivery is usually undertaken by private midwives except in the town health centres, and most confinements take place at home. About 40 per cent. of the deliveries in rural areas are carried out by untrained helpers. Every effort is being made, through the health stations, to introduce courses of training and short refresher courses for midwives in the provinces.

Child health care is undertaken at the health stations, where various kinds of immunization are practised. Practically all children between the ages of 6 and 12 are reported to have been vaccinated with BCG. The provincial government and the health and education departments sponsor the school programme. There is a school health committee, with its supervisors, for all the schools. All schoolchildren and the staffs are tuberculin tested and negative reactors are given BCG vaccination.

Within the period 1955-56, over a million schoolchildren were examined for trachoma, and it was revealed that more than half of them were affected, while an additional 10 per cent. had conjunctivitis. All positive cases were treated, and the system was extended to family contacts.

A committee for the inspection of industries was established in 1951 by the central Government. Provincial departments of reconstruction and social welfare carry out the detailed work, including the health inspection of industries. Environmental sanitation conditions are regularly inspected. Training courses are held to teach the personnel basic health knowledge, such as the prevention of occupational diseases. In the mining areas there is a hookworm control programme, and the local health authorities undertake the physical examination of workers and the treatment of industrial defects.

A mental health programme is being developed in co-operation with the Department of Neurology and Psychiatry at the National University Hospital. The Division of Mental Health has organized programmes for instructing school-teachers, public health nurses and nursing students in mental health. Demonstration classes have been set up for this purpose, and mental health booklets have been issued. In 1955 a Chinese Mental Health Association was established, the members consisting of psychiatrists, psychologists, social workers and public health staff. A mental health bulletin is now being published quarterly. A children's mental health centre has been set up, and plans are in progress for building a governmental institute.

Anopheles minimus, the chief vector of malaria in Taiwan, is being effectively controlled by DDT spraying of houses. Between 1952 and 1956 the homes of 7.5 million of the population were sprayed, and the number of clinical cases dropped from well over a million in 1946 to 377 in 1956. There has been no outbreak of cholera or plague since 1946 and
smallpox has not been seen for years. Typhoid and paratyphoid fevers, together with dysentery, still cause a small number of deaths. Rabies is still prevalent and active measures are being taken for its prevention.

With regard to environmental sanitation, water supplies have improved considerably in recent years. Supply areas have now been set up in 180 places and cover a population of nearly 2.5 million, 26 per cent. of the total population of Taiwan province. Chlorination of water has been carried out in the larger waterworks, and bleaching powder is used in the small units. There are four water examination centres in the province. Sewerage and sewage disposal had hardly been developed hitherto, but in 1956 small septic tank systems were constructed. In Taiphe City a complete sewage-disposal system has been planned. A national committee of housing has been established, and between 1953 and 1956 large sums of money were lent for housing construction and nearly 4000 houses were built.

A number of voluntary organizations are connected with the government health services, notably the Red Cross Society, the Taiwan Tuberculosis Association and several other bodies. Those which function at the provincial level are all under the supervision of the Social Welfare Administration. There is a considerable number of voluntary organizations in which the people themselves take part, including some especially for boys and girls. The aim of all these organizations is to train local leaders in health work.

COOK ISLANDS

The Cook Islands consist of 15 small and widely scattered units, spread over an ocean area of nearly 1.5 million square kilometres. The group extends from 8° to almost 23° south, and from 156° to 167° west. The total land area is about 229 square kilometres.

The census taken in 1956 showed a total population of 16,424, the largest concentration being in Rarotonga, the population of which (7,212) is increasing steadily, partly at the expense of the other islands.

Health

There are no private medical practitioners or dentists in the territory. The medical officers in government service hold a New Zealand degree or its equivalent. The Cook Islands medical staff are trained in Fiji and return there for post-graduate study. The nurses in training are given a three years’ course in Rarotonga hospital, and, in selected cases, higher training in Suva. Dental students, dressers, and sanitary inspectors are given local training, and some go on to the full course in Fiji. The medical staff numbers 120, of whom the chief medical officer, the assistant, the matron, and three sisters are from overseas. There are 15 Cook Islands medical practitioners, six appointed health inspectors, 21 trained Cook Islands nurses and 30 trainees, and eight technicians.

On Rarotonga there is a general hospital with a capacity of 57 beds, including a six-bed maternity unit, a dispensary, and limited x-ray facilities. There is also sanatorium accommodation for 64. A few more small hospitals exist, but the majority of the islands are served by dispensaries, linked by radio with the larger units.

For the year ended March 1958, the total number of deaths was 238, with broncho-pneumonia as the highest individual cause. The infant death rate (1955) was estimated to be 150. In Rarotonga, prematurity and gastro-enteritis are cited as the chief causes, followed by measles and malnutrition. The islands are relatively free from the true tropical diseases, but filariasis, yaws, intestinal helminths, and leprosy are prevalent.

In the northern group of islands the inhabitants have in the past had a simple, adequate diet consisting mainly of fish and coco-nut products; but on some islands, the money earned from pearl shells has been used for the purchase of store foods, with the result that dental and general health have suffered. In the southern group the diet has been chiefly composed of carbohydrates, with some fish and canned meat. In Rarotonga, scarcity of sea foods results in increased use of imported foods.

Generally speaking, the average income is not enough to provide good housing for the usually large families, and overcrowding is rife. The New Zealand Government has recently approved an assisted housing scheme.
FIJI

The territory of Fiji comprises about 300 islands (of which a hundred or so are inhabited) with a total land area of 18,230 square kilometres. It lies in the South Pacific, about 2,800 kilometres north-east of Sydney, Australia. The larger islands are mountainous and volcanic. The climate is tropical, with marked variation in rainfall between the areas of the larger units which are exposed to the prevailing south-east trade winds and those which are sheltered from the trades by great land masses. There is a well-defined rainy season from December to March, and the annual rainfall varies from a maximum of 290 centimetres on the exposed side to a maximum of 140 centimetres on the sheltered side. The exposed coastline consists usually of open sandy beaches with flat alluvial soil bearing many coco-nut palms, whereas the sheltered parts and the mouths of the larger rivers are screened by wide areas of mangrove swamp. Where rainfall is heavy, the hills are covered in dense forests but the drier areas have been cleared.

The population is estimated at 358,000, of whom 26,000 live in the capital, Suva. The Fijian, East Indian and European communities represent three separate cultures. The structure of the population is changing fundamentally because the Indian group is increasing more rapidly than the Fijian. Women, as members of many government boards and committees, play an important part in public life.

The Fijian social organization is arranged on a highly developed communal basis, and the unit is always larger than the family. The villages consist of anything from three to fifty houses in which live a group of blood relatives, usually of three generations; but these dwellings are not regarded as the exclusive reserve of one family, and there is free visiting and sharing of clothes, utensils and tools.

The economy of Fiji depends mainly on its agriculture, and the chief crops are sugar-cane, coco-nuts, rice and bananas. Education is free in the district schools, and fees may be waived in others for the poorer families.

In townships housing is controlled by the township boards, and in rural areas it is subject to the approval of local authorities on the advice of the health officer. Numbers of Fijian and Indian labourers are employed to collect and cut coco-nuts at a great distance from their homes, and have only temporary and often unsatisfactory living quarters. There is now a development plan for low-cost housing in such circumstances.

Health

The health services are organized and headed by the Director of Medical Services, who is assisted at headquarters by a deputy director, a nursing superintendent, a chief health inspector, and clerical and accounting officers. The Director is ex officio chairman of the Central Board of Health, which advises on all health matters and holds executive powers in areas where there are no local authorities. Twenty-two local authorities are responsible for carrying the public health ordinance into effect, and they also undertake town planning and subdivision of land in their areas. For administrative purposes, the territory is divided into four medical districts, each in the charge of a district medical officer. He has a staff of nursing sisters, health inspectors, locally trained assistant medical practitioners, assistant health inspectors and nurses. The medical staff is stationed at hospitals, dispensaries and health offices throughout the territory.

Health expenditure represents about 12.5 per cent. of the total budget. Vital statistics for the period under review were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth rate</th>
<th>Death rate</th>
<th>Infant mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>40.2</td>
<td>8.2</td>
<td>55.87</td>
</tr>
<tr>
<td>1955</td>
<td>38.5</td>
<td>7.24</td>
<td>46.11</td>
</tr>
<tr>
<td>1956</td>
<td>35.59</td>
<td>7.52</td>
<td>48.16</td>
</tr>
</tbody>
</table>

The statistical section at headquarters, in the charge of a senior medical officer, keeps routine follow-up records of tuberculosis and leprosy patients and compiles epidemiological returns for outside organizations.

The main government general hospitals are the Colonial War Memorial Hospital at Suva (275 beds) and three district hospitals with a total capacity of 551 beds. There are in addition 14 rural government hospitals, and three private and mission hospitals subsidized by the Government with a total of 57 beds. The more specialized units are the Government Tuberculosis Hospital in Tamavua, with 313 beds, the Mental Hospital at Suva, with 100 beds, and the Fiji Leprosy Hospital in Makogai, with 750 beds. The sanatorium and the leprosy settlement have rehabilitation units. There are also 45 dispensaries.

The dental health service is organized through four main activities: the Dental Centre at the Colonial War Memorial Hospital, the School Dental Service, the Dental Health Education Programme, and the Dental School. Where possible, assistant dental practitioners tour the country districts and a mobile dental clinic is on order.

There are maternity wards in all the hospitals, and one of the mission hospitals is reserved entirely for this work. Ante-natal clinics are held in the hospitals, and in rural areas similar clinics are conducted by health sisters or locally trained nurses. One health sister is fully occupied on school health duties in the Suva area, and other nurses are placed at strategic centres. Mobile child welfare units operate from Suva and Lautoka.

There is no special provision for the chronic sick, except in the case of tuberculosis and leprosy. Homes for the aged are organized by a private society for
Europeans, and by government administration on a district basis for Indians. The Fijian social system provides its own care of the aged. All factories are subject to medical inspection and are compelled by law to install medical and first-aid equipment.

The control of communicable diseases is based on the central epidemiological service at Suva. There are full port health services at Suva and Lautoka, and also at the Nadi Airport. Internal control is part of the regular medical services.

A tuberculosis survey was begun in 1950 and completed in 1953. The BCG programme, which was planned as part of the survey, was continued in 1954, when a mass miniature x-ray unit came into operation. By the end of that year there were 392 beds in recognized tuberculosis wards.

As early as 1886 it was decided to institute a course for auxiliary medical practitioners in the area, and a three years’ course of hospital training was started at Suva. In 1928 this school developed into the Suva Central Medical School, and its doors were thrown open to students from many islands of the Pacific. The graduates are known as “assistant medical practitioners” and they give valuable service in these widely scattered areas. The course was extended to four years in 1931, and a fifth year was added in 1952.

The Medical School is a Fijian institution financed by the Fijian Government and administered by a principal under the general direction of the Director of Medical Services, who is chairman of the Advisory Board. In the clinical years the teaching is carried out almost entirely by the staff of the Medical Department on a part-time basis. In 1955, there were 92 medical and 28 dental students. Teaching is given in English. More and more emphasis is being laid on preventive medicine; the students receive three series of lectures during the medical course. Post-graduate and refresher courses are held on various aspects of public health, nutrition, filariasis, tuberculosis, leprosy, midwifery and maternal and child health. Provision has also been made for training some 250 local nurses, and courses are held for most types of auxiliary worker, such as health inspectors and technicians.

Progress has been made in environmental sanitation, and piped water supplies are provided in all towns and in many villages. The central area of Suva has an ocean outfall for sewage, and its environs depend on septic tanks. Other populous areas have septic tanks or bucket systems, and the rural areas are dependent on deep pit or bore-hole latrines. There are protected catchment areas for the larger towns, and in any case of doubt chlorination is adopted.

The general impression gained from the reports of the Medical Department is that the inhabitants are taking an increasing part in their health services and are co-operating in environmental sanitation work.

FRENCH POLYNESIA

French Polynesia has five principal archipelagos—the Society Islands, the Marquesas, the Tubuai, the Tuamotu and the Gambier Islands—lying in the South Pacific, with a total area of 3998 square kilometres and a total population estimated at 73,000 in 1956. The capital is Papeete on Tahiti in the Society Islands. All the archipelagos have their own administrative districts.

Tahiti is one of the Windward group of the Society Islands. Its 640 square kilometres and 24,820 population make it the largest and most important island in French Polynesia. Mountains extend over most of the island with four prominent peaks rising to about 2330 metres in height. The climate is healthy with an annual mean temperature of 30°C. Fruits, copra, sugar-cane, vanilla, phosphates and pearls are the chief products of the island. The indigenous population is Polynesian.

The Marquesa islands, which are of volcanic origin, lie some 1186 kilometres north-east of Tahiti. They cover a land area of 1240 square kilometres and have a population of 2988 Polynesians. There are two groups of islands: the southern cluster, called the Mendana Islands, comprises the islands of Hiva Oa, Fatu Huku, Tahuata, Motane and Fatu Hiva; while the northern cluster comprises the islands of Marquesa, Caledonia, Fatu Hiva, Hatatu, Eiao, Motu Iti, Usuaia and Us Pou. Nuku Hiva is the largest and Hiva Oa, with the capital Atumona, is the second largest.

The climate is hot and damp, but not unhealthy, and although the islands are mostly mountainous they are also fertile. Copra, tobacco and vanilla are exported and coco-nuts, breadfruit and other fruit are also produced. To a large extent the population subsists on wild cattle and hogs.

The Tubuai Islands, also known as the Austral Islands, are another volcanic group lying about 530 kilometres south of the Society Islands. Here some 3921 Polynesians live in an area of 297 square kilometres. Tubuai, which is 10 kilometres long, is the site of the chief town of Mataura; it is the largest island, the others being Rimatara, Rurutu, and Raivavae. Despite their general mountainous terrain, these islands are fertile, growing pandanus, ironwood and coco-nut trees, and producing coffee, arrowroot, some copra, and livestock.

The Tuamotu Islands, or Low archipelago, are a coral group of 854 square kilometres and 5127 inhabitants, which lie about 480 kilometres south of the Marquesa Islands. Some 80 atolls are included in this 2000-kilometre chain of small, flat islands. Rangiroa is the largest of the islands, and Fakarava is the most important. Pearl shell and copra are the chief products, and coco-nut, pandanus and breadfruit trees grow in abundance.

The last group—the Gambier Islands, or the Mangarevas—are another coral group in the South Pacific comprising about 19 square kilometres and 6696 inhabitants, all Polynesians.
There are four islands and numerous uninhabited islets. Man- gareva Island is the largest and the only important one of the group. Its chief village is Rikitea, rising in hilly terrain up to some 430 metres. As in most of the other islands of the South Pacific, copra and coffee are produced, pearl diving being almost the only other occupation.

Health

In November 1843, when the first troops arrived in Tahiti, a health service was started, and in 1859 a religious institution was giving assistance to poor patients. A hospital was built in Papeete in 1884, and since that time various hospitals and dispensaries have been constructed.

Nearly 50 per cent. of the French settlers live on the island of Tahiti and most of the medical officers are in the capital. The estimate of the general birth rate was 47 in 1956; the death rate was 10.8; and the infant mortality rate appears to have fallen during the three years 1954-56 from 106 to 80. The head of the health service of the French settlements has been assigned to Papeete (Tahiti) and is responsible for the general organization of health services for the territory. On the health staff are 24 medical practitioners of whom 13 are working full time; 11 dentists, five pharmacists and 86 nurses (42 male). There are also 24 midwives and 20 student nurses on the staff. All medical officers, pharmacists and dentists hold a State diploma. Health education is carried out in the schools and also in pre-natal and post-natal clinics. Nurses and teachers carry the service to the remote islands by means of broadcast talks.

The medical service consists of one general hospital at Papeete with about 200 beds, including 30 for maternity care and 17 for mental health. There are also health centres at Uturoa (Windward Isles), with 60 beds, at Taichae (Marquesas Islands), with 10 beds, and at Taravao (Tahiti), with 30 beds; a centre for lepers at Mahina (Tahiti), with 130 beds; and a private hospital in Makatea, with 30 beds. Scattered throughout the islands there are 23 dispensaries and clinics.

Each hospital and medical care centre has a maternity section and a centralized maternity and child health service is being developed. The treatment of children is carried out by a medical officer. The main chronic diseases are tuberculosis, leprosy and filariasis. Tuberculosis patients receive treatment in hospital centres and there are special institutions for lepers. In Papeete there is also a home (with 40 beds) for aged people. One industrial firm, the Phosphate Company in Makatea, has two medical officers and maintains a hospital. There is one mental hospital in Papeete.

As regards environmental sanitation, practically all the inhabitants of the High Islands are amply supplied with water. The inhabitants of the atolls use rain-water gathered in tanks. Water collected in the high valleys is usually unpolluted.

In the course of the year 1956 the chief activity of the Institute of Health has been a campaign against filariasis. A tuberculosis survey and a BCG vaccination campaign began in 1955. Of the sick in hospital at Tahiti 3.4 per cent. are tuberculous, and it seems that the figures are a great under-estimate of the total frequency of the disease. Apart from the Research Institute, Papeete has one chemical and one bacteriological laboratory. One school has also been provided for male and female nurses and midwives. The course for nurses is of two years' duration and that for midwives lasts three years. A 300-bed hospital in Papeete and a 15-bed unit in the Marquesas are under construction.

GILBERT AND ELLICE ISLANDS

The territory of the Gilbert and Ellice Islands consists of the Gilbert, Ellice and Phoenix groups, the Line Island, and Ocean Islands—amounting in all to about 37 atoll formations scattered over the central Pacific. They lie between 4° north and 11° south of the equator, about half-way between Honolulu and Brisbane, and have a total land area of 956 square kilometres.

Of the total population of the territory (about 40,000), it was estimated in 1955 that 28,000, including 150 Europeans, lived in the Gilbert Islands, the largest group. The Ellice group had 4574, with five Europeans, and the Phoenix group 1461, with 179 Europeans. Ocean Island has about 3000.

Nearly all the cultivable land is planted with coco-nut, and copra is the principal agricultural product. The only manufacturing industry is phosphate mining on Ocean Island, but there are a number of rural crafts.

Primary education is largely in the hands of the missions, which provide free, rudimentary education in village schools for the bulk of the children. Education is compulsory between the ages of 6 and 16. Post-primary teaching is practically confined to King George V School for Boys at Tarawa, which can take 120 boarders. A small number of students are sent overseas every year for secondary and higher education.

There is no serious housing problem. A construction scheme was started in Tarawa in 1953 to provide new dwellings of permanent materials under the direction of experts.

Health

The senior medical officer, with headquarters at Tarawa, has an assistant medical officer, a qualified
The high school, which has nearly 2000 pupils, includes classes modernized and more are being built.

Vegetables, fruit and domestic animals.

Ignorance rather than to poverty. Efforts are being made to produce on the island, and importation from the United States government and private agencies.

Few of the population are now solely concerned with agriculture and fishing, and no large industry exists.

Agana, the capital, and Agat are the chief centres.

The territory is divided into 13 districts or municipalities. Agana, the capital, and Agat are the chief centres.

The economy of the island has become largely dependent on the activities of the government and military services. Very few of the population are now solely concerned with agriculture and fishing, and no large industry exists.

In 1956, nearly 8000 Guamanians were employed by military, government and private agencies.

Only about 15 per cent. of the total food requirement is produced on the island, and importation from the United States of America is very great, amounting to US $7,000,000 in 1956. Malnutrition is very rare, and when it does occur it is due to ignorance rather than to poverty. Efforts are being made to encourage the production of more local food, especially vegetables, fruit and domestic animals.

Many of the territory's public schools have been rebuilt or modernized and more are being built. At the end of June 1957 there were 21 public elementary schools and one high school. The high school, which has nearly 2000 pupils, includes classes in agriculture, office practice, metal working and electricity.

The territorial college has expanded its programme to include teacher training, and there are standard two-year college courses. An increasing number of local teachers are trained in the United States, but about 80 per cent. of the 362 teachers in public schools were recruited locally. A programme for adult vocational education is being developed.

Health

The Department of Medical Services of the Government of Guam has a Division of Hospitals and a Division of Public Health.

The Division of Hospitals controls the modern 160-bed tuberculosis hospital and the newly opened general hospital (the Guam Memorial Hospital), which has 161 beds and includes surgical, medical, obstetrical and paediatric wards, a small psychiatric ward, an out-patient department, an operating theatre, a physiotherapy wing, and laboratory and x-ray departments.

The Division of Public Health shares administration, maintenance and housekeeping, and laboratory and x-ray facilities on a pro-rata basis with the Division of Hospitals. This division comprises sections for sanitation, vital statistics and epidemiology, dental hygiene, and nursing (the last-named including maternal and child health and tuberculosis control). The central public health clinics and offices are located in the Guam Memorial Hospital. Seventeen
small village health units, each headed by a Guamanian public health district nurse, who usually lives in her district, complete the facilities of the Public Health Division.

There are two clinics on the island sponsored by religious bodies and staffed by three physicians in all.

The general mortality rate has fallen rapidly from 10.4 to something less than 6 in 1956. The reasons for this sharp decline are the increase in the percentage of younger age groups. Only 13 per cent. of the total population are above 45 years of age. A more important factor in the decline is the improvement in medical care and public health activities, including sanitation and health education. The infant death rate has recently been computed with some accuracy, the present figure being about 39. Prematurity is by far the most important factor in infant mortality, and the majority of infant deaths occur in the first week of life. The birth rate, although falling, is still high (38.5) and a steady increase in the population may be expected during the next few years.

The responsibility for dealing with vital statistics for the whole island has been undertaken by a special section of the Division of Public Health, and great advances have been made during the past two years. The error in registration of births is now believed to be less than 3 per cent. Since 1950 all deaths occurring without medical attention have been reported to the authorities and the causes have been determined either by post mortem examination or by recourse to available medical records.

There are at present four physicians in private practice on the island; all four are in general practice, and two of them also specialize in surgery and obstetrics.

Close cooperation with the Naval Hospital and its 21 physicians affords consultative services for the civilian hospital in surgery, medicine, orthopaedics, radiology, dermatology, ophthalmology, neuro-psychiatry, urology and pathology.

The public health programmes include environmental sanitation, control of food-handling establishments and hairdressers' and cosmeticians' premises, control of food products, water pollution, quarantine control, rodent and insect control. Law enforcement is kept to a minimum, great stress being laid on health education.

The tuberculosis control programme consists of case-finding with an x-ray mobile unit, examination of contacts, follow-up of discharged patients and BCG vaccination of the new-born, students, contacts and especially-exposed groups such as teachers and hospital and public health employees. This programme was introduced in 1956; it has been accepted enthusiastically by the population and has had considerable value as an educative measure.

Regular public health clinics are held in all the outlying villages. These village clinics are primarily intended for preventive work with infants and schoolchildren, pre-natal cases and communicable diseases, but owing to transportation difficulties the physician accepts all patients seeking his advice for examination, minor treatment, and referral to private physicians and/or hospital, and he may also make home visits.

At the age of three months, all infants are referred as a routine measure to the public health physician for examination before their immunizations are started against smallpox, diphtheria, pertussis, tetanus, typhoid and poliomyelitis.

Since July 1955 a qualified psychiatrist has been employed on a part-time basis with the Department, and has held weekly clinics in the hospital. A Guamanian social worker attached to this service has also been of much value as an interpreter. This first step towards a mental health programme has now been followed by employment of a part-time psychologist who, in cooperation with the psychiatrist, is providing in-service training for all district nurses in mental health problems.

A dental hygiene programme was started in 1955. Dental hygienists visit all schools, giving lectures and demonstrations in dental hygiene, examining all students and making appointments for treatment in the hospital dental clinic. Prophylactic fluoride treatment is also given to schoolchildren.

Great stress has been laid on all aspects of health education. Beyond the general programme, several films on such subjects as tuberculosis, sanitation and disease-carrying insects have been shown at village meetings, parent-teacher associations, and other gatherings. Films have been used to accompany campaigns for BCG vaccination and the co-operation of the press and the radio has been secured.

**HONG KONG**

Hong Kong consists of a number of islands lying close to the south-east coast of China (about 20° north) and the adjacent territory on the mainland. The total area is just over 1000 square kilometres, of which Hong Kong Island itself, containing the capital city of Victoria, comprises about 82 square kilometres, the Kowloon peninsula eight square kilometres, and the leased New Territories—including the remainder of the mainland territory and the islands—910 square kilometres. The chief physical feature of Hong Kong is its generally mountainous terrain, the highest peak being nearly 1000 metres. The climate
is subtropical with a mean temperature of 22°C. Rainfall comes mainly with the south-west monsoon, from May to August, and there are occasional typhoons. In 1931 the population was only 840,473, but it has been increasing enormously in the post-war years and is now (1956) estimated at 2,500,000, of whom over two million live in the urban areas of Victoria and Kowloon. Over 99 per cent. of the population are Chinese, mostly Cantonese.

Hong Kong's prosperity was founded on its entrepôt trade, but in recent years there has been a rapid expansion of local industries and in 1956 some 30 per cent. of the exports were of local manufacture. The largest group is the cotton textile industry, covering most processes from spinning to finished garments: a wide range of light industries is also represented. Heavy industry includes shipbuilding and repair yards, iron foundries and mills rolling steel bars and rounds. Agriculture, fishing and some mining are the main primary industries.

Education is not compulsory or free, but in many schools the fees are very low and in some cases are remitted entirely. There are 11,500 schools with over 260,000 pupils; 37 per cent. of all schools are financed wholly or in part by the Government. The University of Hong Kong has a full-time residential strength of 905.

Health

Hong Kong's earliest hospitals were run by missionary bodies. The first government unit was the Civil Hospital founded in 1859. A sanitary commissioner was appointed in 1882, and a sanitary board was set up as a result of his recommendations. This board continued in existence until 1936, when it was replaced by the Urban Council.

The responsibility for the administration of the services safeguarding the public health in Hong Kong is shared mainly between the Medical Department, the Urban Services Department, the New Territories Administration (for the principal rural area of the territory), and the Labour Department. The Medical Department, under a Director and his Deputy, consists of two main divisions—medical and health—each in the charge of an Assistant Director. The Department is responsible for the administration of all government hospitals, clinics, maternal and child health centres, and other health establishments; for the study and control of communicable diseases; for port health, and international health matters, vaccination campaigns, etc. The Urban Services Department is concerned with questions of hygiene and sanitation; it administers the public health laws relating to environmental sanitation, food inspection, etc., and is also responsible for such matters as the control of hawkers, disposal of the dead, upkeep of public beaches and parks and playgrounds. The main work of this Department is concentrated on cleanliness and hygiene and most of the staff are engaged on street cleaning, removal of refuse and related duties. The New Territories Administration is responsible for public health in the New Territories, with the assistance of a medical officer seconded from the Medical Department, who also supervises generally all the clinics, maternity homes and government medical services in the New Territories. The Commissioner of Labour is responsible for health and sanitation in factories, in which he is advised by an industrial health officer, particularly on the prevention of industrial health hazards and occupational diseases. Voluntary organizations are working in tuberculosis control, blindness, deafness, leprosy, family welfare and family planning.

The total expenditure of the Medical Department, including subventions to voluntary bodies, was approximately 8 per cent. of the total government expenditure for the year ended 31 March 1957, although this does not include amounts spent on health services by the other departments mentioned above.

During 1956, 96,746 births and 19,295 deaths were registered, giving an estimated crude birth rate of 39.7 and a death rate of 7.9. There was a further drop in the infant mortality rate from 66.4 in 1955 to 60.9 in 1956.

Apart from dispensaries, private nursing homes and the Armed Services' hospitals, there are 28 hospitals in the territory. Eleven of these are the responsibility of the Medical Department and the other 17 are run by various voluntary or private organizations, of which seven receive substantial financial grants each year from the Government. Treatment in government hospitals is generally free, and a total of 1999 beds are provided, while government-assisted hospitals have 2477 beds and private hospitals have 1172 beds. Various government dispensaries provide a further 98 beds for maternity cases, mainly in the New Territories, and there are 520 beds in private maternity and nursing homes. There is therefore in the territory a total of 6266 beds for all purposes. A new 1300-bed government hospital is planned for Kowloon.

The Director of Medical and Health Services has a staff consisting of 291 doctors, 1013 nurses, 71 pharmacists and 3332 other workers.

The Hong Kong College of Medicine was founded in 1887, and in 1908 was expanded into the University of Hong Kong. The Medical Department co-operates closely with the University in the training of medical students. The main hospitals constitute centres for clinical study and many members of the government medical staff act as part-time lecturers. After qualification, medical graduates are required to do one year's post-graduate work under supervision before registration, and many posts are made available for this purpose in the government hospitals. The training of nurses, health inspectors, health visitors and
technical assistants is also conducted in Hong Kong.

The general dental service is staffed by nine dental officers, and in addition the school dental service has six officers for the 50,000 schoolchildren who subscribe to the service.

In the years 1953-56 the territory remained entirely free from the six quarantinable diseases and there were no significant outbreaks of any other notifiable communicable disease.

Owing to the enormous increase of population since 1945 (including some 700,000 refugees) and the resulting appalling overcrowding, tuberculosis has become a serious problem. However, excluding the immediate post-war years, when statistics could not be regarded as reliable, the mortality rate for 1956 was the lowest on record (13.6 per cent. of total deaths). Ambulatory chemotherapy was started in the chest clinics in 1950; since then the scope and magnitude of this service has steadily increased and it has now become the spearhead in the control of the tuberculosis problem. The Hong Kong Anti-Tuberculosis Association (in its Ruttonjee Sanatorium) and the Tung Wah group of hospitals maintain beds for conventional treatment. The BCG vaccination campaign (started in 1952 under the sponsorship of UNICEF and WHO) continues, with emphasis on new-born children. Radiographic service for periodic checking is available for all civil servants annually, and all teachers are similarly checked before taking up their posts. Arrangements are also made to x-ray any workers whose employers are prepared to guarantee paid sick leave to those with active disease.

Malaria is no longer a problem in Hong Kong, because of the active anti-larval measures, which protect practically the whole population.

The vast majority of leprosy patients are treated at out-patient clinics, and infectious cases are cared for in the Hay Ling Chau Leprosarium. Systematic attempts are being made to rehabilitate arrested cases of leprosy, with moderate success. It has been possible to accommodate a certain number of such cases in resettlement estates.

In maternal and child care, the government midwifery service has 35 district midwives working from 19 widely scattered centres in the urban areas and in the New Territories. Twelve centres, all in rural areas, have maternity homes attached, with a total of 98 beds. The remaining centres provide a domiciliary service only. Furthermore, maternal and child health clinics provide the public with free ante-natal, post-natal, infant and child welfare services. During 1956 five centres and 14 sub-centres holding clinic sessions provided these services.

As regards environmental sanitation, a new reservoir was completed recently, but the water supply is still insufficient. The water-borne sewage-disposal system still serves only a portion of the urban area, but is constantly being extended. There is an extensive system for the collection and disposal of night-soil. The Government has now entered on a large programme to provide low-cost housing, both of the conventional type and in the form of multi-storey re-settlement estates in which over 200,000 people had been re-housed by the end of 1956.

JAPAN

Japan is situated in the North Pacific and consists of four large islands and many small ones with a total land area of 369,766 square kilometres. The main islands are traversed by a range of high mountains with lateral spurs. Many of these are volcanic, and the country as a whole is subject to earthquakes. The climate ranges from humid subtropical to humid continental; most of the land is well watered and the warm ocean current makes the northern part relatively mild. Only one-sixth of the surface is suitable for cultivation, because of the many mountains. At the 1954 survey the total population was estimated at 88,293,000 (89,274,900 in 1955, and the provisional figure for 1956 is over 90 million). The density is nearly 241 per square kilometre.

The main occupation of the people is still agriculture, in which some 17 million are engaged; but industry, which at present employs five million workers, is increasing considerably. Rice is the largest crop, and its cultivation occupies more than half the area available. The fishing industry is an important source of food. Textile manufacture is the main branch of industrial production, but iron and steel are also important.

Education is free and compulsory up to the age of 15, and attendance for a further three years in high school is optional. Japan has six main university centres, with a total of 499 universities and colleges both public and private; these were attended by 531,613 students in 1955.

Health

At the national level the responsibility for the public health programme rests with the Ministry of Health and Welfare. The administrative machine is operated through a secretariat and seven bureaux, which include public health (with a division for environmental sanitation), medical affairs, pharmaceutical and
supply, social affairs, and a children's bureau. Industrial hygiene is under the Ministry of Labour, and the School Health Service is conducted by the Ministry of Education. The country is divided into 46 prefectures, each with its own governor, elected by popular vote. Although these regional authorities enjoy considerable autonomy, most of the programmes in the health field are sponsored and subsidized by the national Government. The prefectural and municipal governments divide their boundaries into "health centre districts", in each of which a local health centre is established; there were altogether 783 of these centres in 1956 (788 in March 1957). For geographical reasons most of the health centres have branch units. They stand in the front line of the entire public health programme, carrying out both personal and environmental functions, as well as health education. They were staffed in 1956 by 5198 physicians, 8037 public health nurses, and 28197 other health staff as the official standard. In addition to work carried out in the centres, the public health nurses made over two million home visits. The centres supervise medical examinations for the detection of tuberculosis, and preventive inoculation against communicable diseases.

The birth rate in 1947 was at the abnormally high figure of 34.3, and this was considered to be due to the restoration of family life after the war. The rate then started to decline rapidly, falling to 20 in 1954, 19.4 in 1955, and 18.5 in 1956. It is believed that this change was due to the decreased marriage rate, the encouragement of birth control, and the prevalence of artificially induced abortion. In any case, the population of Japan has more than doubled since the beginning of the century, and the death rate has fallen steadily over the years to 7.8 in 1955. The infant mortality rate for the same year was estimated at 63.9 years for males and 68.4 for females.

The most recent figures (1956) for hospital accommodation — including general, mental, tuberculosis, leprosy and communicable diseases — give the bed capacity as 559,249 and the occupation of beds as over 481,000. There is an acute shortage of beds and staff for tuberculosis and mental cases. The number of hospitals and clinics (general and dental) in 1956 was as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>5,418</td>
</tr>
<tr>
<td>General clinics</td>
<td>52,846</td>
</tr>
<tr>
<td>Dental clinics</td>
<td>25,429</td>
</tr>
</tbody>
</table>

As regards personnel, there is the usual difficulty caused by the concentration of medically qualified men in the urban areas and the shortage of staff in the public health service, especially in public health nursing.

Deaths from tuberculosis continue to fall; in 1956 the rate was 48.6 per 100,000 population. A nationwide ascertainment survey was made in 1953, by means of random sampling, from which it was estimated that there were nearly three million sufferers — a ratio of 3.4 per cent. — who needed medical care, and a further two and a half million who required careful watching and medical supervision. In consequence of these findings a new law has been promulgated, requiring health examinations for all persons over six years of age. Further sampling surveys have been made in subsequent years.

In planning the control of communicable diseases great attention has been paid to vaccination. Periodic inoculation covers smallpox, diphtheria, typhoid and paratyphoid, and whooping-cough, and special immunizations are employed as required for typhus, cholera, and certain other epidemic diseases.

The programme for maternal and child health has made good progress in recent years. It is noteworthy that the proportion of deaths among the new-born is rising. The decrease in the maternal death rate, which was 1.6 in 1955 and 1.5 in 1956, is largely due to the intensive work in the health centres and the increasing interest taken by rural community organizations. Schemes for handicapped children have also made good progress in recent years, through the development of consultation clinics, short-term orthopaedic treatment in general hospitals, and the provision of rehabilitation in special homes.

The occupational health programme employs 2350 inspectors, whose work includes the periodic inspection of health conditions, and personal examination of workers. Silicosis is the major problem, and the regular medical examination of workers exposed to the dust is compulsory. Patients have the benefit of a workmen's compensation scheme and free treatment. The larger factories are obliged to appoint health supervisors.

Local health centres have nutritionists on their staff, and training courses, as well as personal consultations, are provided. A national nutrition survey has been carried out every year since 1946, and its findings determine the nature and extent of the yearly programme.

The problem of mental health has been attracting public and professional attention to an increasing extent. A new mental health law was passed in 1950 which went far beyond the previous custodial legislation and set up a scheme of community care and preventive work. Mental hygiene clinics have been opened in the local health centres, and a number
of child guidance clinics have been provided in connexion with the child welfare services. A selective survey was carried out in 1954 with the object of obtaining basic data about mental disabilities. This survey, which was carried out by psychiatrists, revealed that 1.55 per cent. of males and 1.41 per cent. of females could be regarded as mentally sick and in need of treatment. Of these, 3.9 per cent. were under the domiciliary or institutional care of psychiatrists; 4.8 per cent. were under other types of professional care; and the remaining 91.3 per cent. were receiving no skilled attention.

Under the present law the cities, towns, and villages are responsible for the collection and disposal of night-soil, garbage and refuse, and for the control of insects and rodents under the technical guidance of the prefectures, and demonstration areas have been established. Under the existing system about 37 per cent. of the population are supplied by water-pipe systems. New schemes are being developed which will increase this figure to 74 per cent. in urban areas and to 27 per cent. in the rural districts. The Minister of Health and Welfare may offer subsidies for the establishment of water supplies or the acquisition of land, up to one-fourth of the total cost.

There have been considerable developments since the war in the re-establishment and extension of the major research institutes. The Institute of Public Health now offers 10 regular courses and 13 short courses, most of its graduates being in the public service. The National Institute of Health, which was founded in Tokyo in 1947, is concerned with providing a scientific background to public health administration. Its main tasks are related to field investigations and to the assay of biological preparations, etc. More recently, national institutes have been set up to deal with the problems of leprosy, food standards, and (in 1952) mental health. The National Institute of Nutrition was founded as early as 1920.

**REPUBLIC OF KOREA**

Korea is a peninsula on the Pacific coast of Asia, between 120° and 128° east and 34° and 43° north, with many islands off the south and west coasts. The soil is fertile and the climate equable and healthy, with a marked rainy season in July and early August. The amount of arable land is limited by the great mountain ranges which traverse the country. The mean summer temperature is about 24° C and in winter the cold continental climate supervenes, with temperatures as low as −17° C. The total area (north and south) is 220 792 square kilometres.

The population of South Korea at the 1955 census was 21 526 374, with a density of 230 per square kilometre. (In 1944 the population of the whole peninsula was 25 million, with a density of 114, and the annual rate of increase was stated to be 1.42 per cent.) The ethnic grouping is uniform, closely related with other Turanian races of North Asia. The people of South Korea are mainly agricultural.

The staple foods—rice and fish—were produced in sufficient quantity before the war; but the country's economy has not yet recovered from that disaster, and the people depend largely on assistance from abroad.

Primary education is compulsory, and in 1955 there were 4220 primary schools with 2 877 405 pupils; 949 intermediate schools with 475 342 pupils and 577 high schools with 260 613 pupils. For higher education there were, in the same year, 74 colleges with 90 000 students. Nine government colleges and one graduate school have been united in Seoul to form the National University.

**Health**

Since the end of the war the health organization of South Korea has suffered some vicissitudes, but in 1949 a Ministry of Health was created; in 1955 it was amalgamated with the Ministry of Social Affairs, with a joint title: the Ministry of Health and Social Affairs, which has three Bureaux—Preventive Medicine, Medical Affairs, and Pharmacy. The health services are administered at three levels, with the Ministry supervising the general policy. The provincial governments are responsible for carrying out national policies, mainly through the development of health centres. Each provincial authority has a public health section to supervise the local health centres and dispensaries. At present there are 17 health centres and 520 dispensaries, which undertake both preventive services and medical care for the poor. As funds become available the dispensaries are being converted into health centres. A number of voluntary agencies are also engaged in public health activities, their main contribution being in tuberculosis control and in emergency work.

The essence of the present situation is that the medical services have been disrupted by war, and it has been difficult to make substantial progress on account of financial and personnel deficiencies. Statistical data on a national scale are not yet available, but a sampling survey of 500 000 people has been made by the Ministry of Health, with the following results for the years 1954 and 1955:
The number of health personnel has been rising steadily during the past three years, but not at a pace to satisfy the need for a long time to come. In 1956 there were 6436 doctors, 1040 dentists, 2579 midwives, 2672 nurses, 1613 pharmacists and 2217 herb doctors. It is stated that in the year 1955, 1.3 per cent. of the national budget was allocated to the health service the per capita cost for health and medical services being 52.89 Korean dollars (Hwan) (US $0.10).1

By the end of 1956 there were 83 hospitals in service, under the following administrations: the national government hospitals (14, with a total of 2025 beds); the provincial and other public hospitals (39, with a total of 2481 beds); and the private hospitals (29, with 1988 beds). In addition, there were six sanatoria, with a total of 1423 beds. There are ten institutions for rehabilitation services; nine of these are at present able to undertake only vocational training. The National Rehabilitation Centre in Tongnac is completely equipped for rehabilitation services.

The health centres and dispensaries have a fixed programme for maternal and child health care, and this is regarded as a basic health service. School health services are usually carried out by the health centres in collaboration with the school authorities concerned. Home visiting is hampered by the shortage of nurses.

Health education of the public is being carried out systematically at all three levels of government. Special efforts have been directed to the control and prevention of the major communicable diseases, and many voluntary agencies contribute to the success of the work.

The successful control of communicable diseases has indeed been the most encouraging feature of health activities in South Korea during the past three years. In the years 1951-53 inclusive the median incidence for the three-year period was 3969 for typhoid fever; 3349 for smallpox; and 923 for typhus. For the year 1956, the corresponding figures were reported to be 351, 9, and 92 respectively. The incidence of Japanese-B encephalitis in 1956 was 316, and that of diphtheria was 410.

Although some of the acute infectious diseases are being brought under control, the chronic disease group—notably tuberculosis and venereal disease—are still presenting problems, with 23 021 and 25 452 cases respectively reported in 1956; 630 cases of leprosy were reported in 1955 and 464 in 1956. To meet this serious situation, the Government has launched specific control programmes for these three diseases. The principal emphasis during this period has been placed on training of staff, especially in tuberculosis and venereal disease control. In leprosy work there has also been a significant development in the establishment of a mobile clinic to carry out a survey and to supervise treatment in the most heavily infected areas.

An intensive campaign of mosquito control has been carried out in the suburbs of cities, but the difficulties are admittedly very great in a rice-growing country. Attempts at fly control have reached the stage of the sanitary improvement of latrines and the introduction of larvicides.

The National Institute of Health is serving as a reference laboratory in bacteriology, serology and virology and also as a vaccine and biological production centre. The National Chemistry Laboratory is a reference laboratory for food and drug administration.

There are nine medical schools and 24 nursing schools in South Korea, and refresher courses for health personnel, including doctors, nurses and sanitarians, are organized by the Ministry of Health and Social Affairs.

There are 56 waterworks in the large cities of South Korea, supplying an average of 60 litres per person daily to 14 per cent. of the total population; the remaining 86 per cent. of the population are dependent largely on wells for their water supply. Human and animal excreta are widely used as fertilizers by farmers, and this custom complicates the sewage-disposal problem in Korea. However, efforts are being made to educate farmers to use night-soil after it has been treated by storage. In 1956, the construction of Tongyang Organic Fertilizer Plant was completed, and a maximum daily output of 70 metric tons of fertilizer produced from bacterial digestion of mixed night-soil, garbage, beancurd and peat is expected in the near future.
LAOS

The Kingdom of Laos occupies the north-west part of former French Indo-China. It is separated from Burma and Thailand by the Mekong river. China lies to the north and Viet Nam covers the whole eastern boundary, giving no access to the sea. On the south is Cambodia. The northern part in particular is very mountainous with deep valleys cut by the tributaries of the Mekong. The area is 237,000 square kilometres. The mid-1954 population was estimated at 1,360,000, with a density of six per square kilometre. The main occupations are agriculture, forestry and stock-raising.

There are approximately 900 primary schools in the Kingdom, with nearly 40,000 pupils, five secondary schools with approximately 1000 pupils, and one teacher-training college.

Health

In 1953 the public health service was reorganized. At first the Minister, who was medically qualified, acted as Director of Health and was assisted by a deputy director. In 1957, however, the Minister ceased to act as Director of Health. Instead, the post of Director-General was created. There are at present two deputy directors under the Director-General. The main problems before the health services are, first, to train medical and auxiliary staff, as there is at present only one doctor per 50,000 inhabitants; and secondly to create hospital centres in the main cities, and to train nurses for hospital work and also for work in dispensaries within each province. The third problem is the general control of communicable diseases.

At the national level the Director-General, under the supervision of the Minister, is responsible for all health problems. He is assisted by a deputy director, who is in charge of the main hospital and deals with medical supplies. At the provincial level there is a chief medical officer in charge of health services and locally a head nurse takes care of the dispensary under the provincial medical officer.

The exact birth and death rates are not known, but the infant mortality rate is estimated at approximately 100 in the cities and at least 200 in the rural areas.

A number of voluntary organizations, including the Laotian Red Cross in the capital and the Association of Laotian Women in the provinces, take an active part in the health services.

The main hospital in Laos is the Mahosot hospital in Vientiane, which has 100 beds. Secondary hospitals exist in the provincial towns, and have between 40 and 80 beds. Dispensaries, with 12-20 beds and in the
The Portuguese Province of Macao lies on the south coast of China, between latitudes 22° 5' and 22° 13' north and longitudes 113° 27' and 113° 37 east. It forms a peninsula joined to the mainland by an isthmus, and includes two islands off the coast—Taipa and Coloana. The total area is 15.5 square kilometres, of which the mainland occupies 5.5 square kilometres and is the more densely populated. According to the 1950 census, the population numbered 187,772, of whom 96 per cent. were of Chinese origin and 4 per cent. were Portuguese. In 1954-56 the population was estimated at approximately 400,000.

The province is administered by a local Governor, whose seat is the city of Macao, and who controls all the public services.

Health

The structure of the health services is based on a Decree of 1945, under which the health services in the Portuguese overseas provinces were reorganized. A central Health Department is in charge of all the services and various bodies, such as the Health and Hygiene Council, hospitals, laboratories, and special units for the care of mentally disordered persons and drug addicts, for social welfare and infant care, and for the control of leprosy and malaria. There is only one district health service in the province—in the city of Macao—and it is responsible for public health activities, for the improvement of social hygiene, for the control of endemo-epidemic diseases and for the organization of medical care.

Curative and preventive medical care, whether of a general or of a specialized nature, is provided through government or private hospitals, dispensaries and health units. In 1956 there were the following government establishments: two general hospitals, one military medical station, one venereal disease clinic, and 20 out-patient dispensaries for general medicine, chest diseases, ophthalmology and dentistry. Private establishments subsidized by the Government consisted of two hospitals, with a total of 1057 beds, providing services for general medicine, paediatrics, surgery, maternity, tuberculosis, infectious diseases, mental disorders, drug addiction and cancer.

The medical and health personnel consisted of 50 physicians, 40 dentists, five pharmacists, 87 nurses (male and female), 186 auxiliary nurses, 42 midwives, 19 pharmaceutical assistants, 29 health visitors, five x-ray technicians and two laboratory technicians.

The percentages of the general government budget and municipal budget allocated to the health services are 9.23 and 10.3 respectively. This money is devoted solely to the cost of running the services; construction and equipment of hospitals and other establishments are covered by another fund.

It is not possible to give any figures for vital statistics, since births are not registered, and neither general nor infant mortality rates can be established in the absence of complete records of over-all and infant deaths.

No cases of quarantinable diseases have been recorded during the period under review, and there has been no significant change in the general situation with regard to the principal diseases.

The health services give constant attention to the control of malaria; apart from a control programme organized on a permanent basis, special sanitation and insect control measures are undertaken at regular intervals. There is also a permanent venereal disease control programme, and a similar programme for the control of tuberculosis is being started.

Maternal and child health services have been developed during the period under review; pre-natal clinics have been established, and care of expectant mothers is also provided in the dispensaries. Child-birth care in the government maternity homes is free of charge for the families of government officials and for needy persons. It has also been possible, with the help of the 42 graduate midwives (Chinese and Portuguese), to organize a domiciliary midwifery service.

The Tong Sin Tong Benevolent Society does a great deal of home visiting of mothers and children. The government child welfare organization runs nurseries, crèches and reformatories. The Santa Infancia Hospital provides meals and medical care for children in need of them.

The Government is fully aware of the importance of health education, and all the health services staff carry out health education activities as part of their normal duties.

There is a serious housing shortage in Macao. Urban development schemes include the building of new roads and the widening of existing ones, as well as the cementing or asphalting of their surfaces. In the city area, filtered and chemically treated water is supplied to private houses and is also available from 21 public fountains and from 20 other fountains, where it can be bought. Non-potable water for domestic purposes is provided throughout the Province by 252 wells, which are protected against pollution.

Almost the entire area of the city of Macao is served by a main drainage system.
The Federation of Malaya, an independent country within the British Commonwealth, occupies the southernmost part of the Kra Peninsula as well as the southernmost part of the continent of Asia. Jutting into the China Sea on the east and the Strait of Malacca on the west, some 1200 kilometres in length and 320 kilometres in width at its widest, it borders Thailand on the north and is bounded by the Straits of Johore (or Singapore) and the island of Singapore on the south. Extending between latitudes 1° and 7° north, and longitudes 100° and 105° east, its climate is characterized by a fairly uniform temperature, averaging from 21° to 32° C, and high humidity, the average annual rainfall being about 250 centimetres. Its area is 131,285 square kilometres, with a population in 1956 of 6,251,649; of the latter the Malays constitute the majority, with Chinese (44 per cent. of the total), Indians, Pakistanis and Europeans forming the principal minorities.

Economically the Federation enjoys a favourable position, and should continue its prosperous development unless there is a serious drop in the world prices of rubber and tin, its primary export items, which constitute 80 per cent. of the total value of exports. In 1955 rubber exports represented no less than one-third of the world production. The main agricultural products are rice (amounting to 45 per cent. of annual domestic consumption), sweet potatoes, tapioca, maize, sago, groundnuts and pineapples. Fish, the most important protein element in the local diet, is marketed almost entirely by Chinese, although fishing is carried on by the Malays. The Federation's principal imports are rice and other foods, beverages and tobacco, mineral fuels, chemicals and textiles.

A rubber replanting scheme, introduced in 1952 to rehabilitate the industry over the next six years, has since been expanded. A grant of £35,000 (US $98,000) was approved in 1954 for research on and development of cocoa production. Grants totalling £47,558 (US $133,162) were approved for the mechanization of rice cultivation. Similar grants were made to increase off-shore fishing through mechanization and training of personnel.

School administration is the concern of the state and settlement governments, each of which has its respective education department. The great majority of the schools are financed by the Federation, either directly or through its grants-in-aid. Other schools, also subject to government registration and inspection, are those sponsored by missions; they are mainly for girls and the language of instruction is English.

Housing may be classified as follows: (a) the housing of government servants and of estate and mine workers, standards for which are enforced by legislation and administrative action; (b) the housing of rural communities, in which progress is made by the slower method of education; and (c) private houses in urban areas, where building is controlled to prevent sub-standard results. In contrast to the rural dwellings of the Malayan subsistence farmers, which require little improvement, those of the Chinese farmers are usually unsatisfactory. However, the great need is for more suitable urban housing, which in 1954 led to the Federal Town Planning Department schemes for establishing 35 new villages. This move was inspired by the successful establishment of a satellite town near Kuala Lumpur, which by 1954 encompassed over 600 completed houses with accessory roads and services.

**FEDERATION OF MALAYA**

**Health**

Until 1957, when the Federation attained independence, the Federal Medical Headquarters was responsible to the Member for Health (later the Minister for Health), and directly responsible for the institutions for leprosy, mental diseases, quarantine and port health. Each state and settlement had its own medical organization responsible to its own government, which in turn had executive control of the medical services. The Federal Government was the advisory and co-ordinating medium, and as shown in its annual budgets it stimulated greater interest in the health needs of the Federation. In 1956, for instance, the health budget was M $56,561,984 (US $18,667,321), or 9.4 per cent. of the total budget, in comparison with M $43,631,000 (US $14,399,670), or 1.6 per cent., in 1952. In 1956 this provided a per capita expenditure on health of M $9.70 (US $3.20).

Urban health is becoming increasingly associated with local government. The municipalities, being independent of state and settlement governments, have complete control over their finances, their staff and their programme of works, while the town boards' staff are financed by the state and settlement governments. Health officers in municipalities and town boards have supervisory and advisory roles. The work undertaken in both municipalities and town boards includes maternal and child health, sanitation, supervision of markets and street trading, rodent control and investigation of infectious diseases. The local committees of town councils are responsible for health and sanitary care.

The vital statistics of the Federation in 1956 were as follows: birth rate, 45.5; death rate, 11.3, and infant mortality rate, 74.0. Principal causes of death appeared to be fevers of unknown origin, infantile convulsions, pneumonias, gastro-enteritis and colitis, and pulmonary tuberculosis.

In 1956 there were 30 general government hospitals with bed capacity for 8,638 patients; 38 district hospitals with a further 8,093 beds, and 162 private hospitals with 6,416 beds. There were also 4,200 beds in two mental hospitals and 3,419 in leprosy institutions.

High priority is given to the rural health scheme, which will affect well over half the population of Malaya; plans include the provision of a midwife for every 2000 persons, a sub-centre for every 10,000 persons and a district centre for every 50,000 persons.
A pilot scheme to build eight rural district health centres in eight different states has been launched, and during 1956 four had been completed and opened.

Contributing to the Government's expansion programme for rural health services, the rural health training school at Jitra was completed and officially opened in early 1956. Two courses were held during 1956, attended by 48 students, who were organized into teams and comprised midwives, assistant nurses, sanitary overseers, dispensers and male nurses. The personnel trained at this school will ultimately staff the rural health centres. Rural health facilities at the end of 1956 were as follows:

- Dispensaries: 151
- Mobile dispensaries: 85
- Maternal and child health clinics: 72
- Maternal and child health sub-clinics: 518
- Red Cross teams in operation: 18
- St John's Ambulance teams in operation: 16
- Mission stations doing medical work: 17

The medical and health staff in the Federation in 1956 were as follows:

<table>
<thead>
<tr>
<th>Government established</th>
<th>Private actual staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered medical practitioners</td>
<td>393</td>
</tr>
<tr>
<td>Research medical officers</td>
<td>19</td>
</tr>
<tr>
<td>Dentists (qualified)</td>
<td>68</td>
</tr>
<tr>
<td>Dentists (registered)</td>
<td>1</td>
</tr>
<tr>
<td>Pharmaceutical chemists</td>
<td>4</td>
</tr>
<tr>
<td>Nurses of senior training</td>
<td>1301</td>
</tr>
<tr>
<td>Partially trained nurses</td>
<td>250</td>
</tr>
<tr>
<td>Assistant nurses</td>
<td>995</td>
</tr>
<tr>
<td>Midwives</td>
<td>785</td>
</tr>
<tr>
<td>Sanitary inspectors</td>
<td>187</td>
</tr>
<tr>
<td>Laboratory assistants</td>
<td>94</td>
</tr>
<tr>
<td>X-ray assistants</td>
<td>36</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>17</td>
</tr>
<tr>
<td>Hospital assistants</td>
<td>1086</td>
</tr>
<tr>
<td>Dental technicians</td>
<td>37</td>
</tr>
<tr>
<td>Dental nurses</td>
<td>125</td>
</tr>
</tbody>
</table>

Medical education is effective, though on a small scale. The medical school — part of the University of Malaya in Singapore — offers a six-year course followed by a one-year internship in approved hospitals. Upon graduation full registration is accorded by the Federation and recognized by the General Medical Council of the United Kingdom. About 50 doctors qualify annually. Dentists and pharmacists are also trained in the University. In 1950 a programme was begun to improve the standard of basic and graduate nursing education and the quality of nursing services, to prepare local nurses for administrative and teaching posts, and to develop a training programme for midwives; there is now provision at the Regional Nurses' Training School in Penang for the training of 250 nurses and 25 male nurses, and the training of assistant nurses is progressing in all states and settlements.

In recent years the Federation has been free from serious infectious diseases. Tuberculosis, however, is causing increasing concern, especially since there is a serious shortage of accommodation for in-patients. There is also need for more complete information on the extent of this disease. In the rural areas worm infestations, diarrhoeas and dysenteries are not uncommon, although the incidence of malaria is falling. Diphtheria infection remains high, and anaemias are still the chief nutritional problem. In 1956, 8528 cases of tuberculosis were reported, 4017 of dysentery, 472 of diphtheria and 931 of typhoid fever. Sanitation in crowded urban areas needs improvement, and some rural water supplies are of doubtful quality.

A yaws control campaign, begun in 1953 in Kelantan and Trengganu, was continuing in 1956, and a BCG campaign which was started in 1951 is now carried on throughout the Federation, particularly in schools and infant welfare centres, and in certain rural areas.

Three thousand beds are provided in government hospitals for the treatment of acute tuberculosis, and the Lady Templar Tuberculosis Hospital at Kuala Lumpur was completed and functioning in 1956. A tuberculosis settlement at Pulau Jerejak, Penang, with 400 beds, and a tuberculosis camp at Kota Bharu, Kelantan, with 98 beds, provide further accommodation; there are nine tuberculosis and chest clinics in the country and one convalescent home for tuberculosis patients.

The Special Federation Committee on Nutrition has initiated a limited number of school feeding programmes in some states and settlements. Estate labourers' and mine-workers' health was cared for, in accordance with the Labour Code, by estate medical practitioners under Government Health Department supervision.

The Federation maintains an institute for medical research administered as a branch of the Medical Department, with its main buildings in Kuala Lumpur. In 1954 new laboratories for the study of virus diseases were added to those investigating yellow fever vectors, scrub typhus, filariasis, malaria and tuberculosis, as well as nutrition problems such as the enrichment of rice.
After the war, Netherlands New Guinea became a separate residency, the capital being Hollandia. The area is about 416,000 square kilometres, lying between 130° and 140° east; the island reaches the equator in the north and the 9th parallel in the south. The total population was roughly estimated at the end of 1955 at 700,000, giving a density of about 2 per square kilometre, with, however, great local differences. The approximate race distribution for areas under regular administration is: 281,000 registered and 100,000 unregistered Papuans, 16,000 Asians and 14,000 Europeans.

In the rural areas, the Papuan belongs to a village community, bound by tradition, which determines social relations and the rights and obligations of its members. A community of this kind has its own system of administration and justice and its own holdings in land, crops, etc. Mutual assistance is an important feature in all these traditional communities. The adaptation of the Papuan to modern civilization is being steadily accelerated.

The indigenous economy is agricultural and the principal export is copra. Rice, maize, vegetables and fruit are grown mainly for home consumption. Some crude oil is also produced. The soil is generally poor and local agriculture is mostly shifting cultivation. Sago is the principal food crop in the lowlands. Various agrarian projects have been started with the object of combining rice production with cattle breeding.

On account of the level of development of the country and the wide dispersal of the population, education is not yet compulsory. By the end of 1954 the number of Papuan children attending school was about 35,000—approximately 46 per cent. of the children between 5 and 12 in the registered population. Except in a few town schools, education is free. Government and private sources, primarily missions, make equal contributions to school teaching.

There is still a great shortage of housing and the lack of skilled labour is a serious handicap. Social welfare is, in the first instance, the responsibility of the churches and private organizations. There is now a section for social welfare in the Department of Social Affairs. Surveys undertaken in 1953 showed that in many regions the people's diet was deficient, especially in protein.

**Health**

In 1950 the Department of Public Health, Social and Cultural Affairs was established, and the public health service became a division. In 1953 it became a separate department with its own divisions. The central office of the department is at Hollandia and there are divisional offices in various other areas. The head of the central department is a Director, assisted by a medical and administrative staff. Medical organization consists of divisions of hospitals, pharmacy, health education, the major communicable diseases, dentistry and the training of personnel. Government medical officers are stationed at district centres and are regularly on tour to the areas assigned to them.

The territory is divided into 23 medical districts under the supervision of qualified medical officers, and this number is being extended as circumstances allow. Sixteen of these districts have full hospital facilities, while seven have out-patient departments with hospital accommodation for a small number of patients. The hospital at Hollandia, which was used mainly for indigenous patients, was closed in the middle of 1956, and a central hospital for indigenous patients at Hollandia-Binnen has been established, where the training of staff has been centralized. The hospital for Europeans is at Ifar. The physicians working in this hospital go on regular tours to the other residency hospitals, six of which have facilities for major surgery.

At the end of 1956 there were 32 Papuan infant welfare nurses, working in villages under the supervision of European nurses. The Papuan nurses have wide responsibilities ranging from medical treatment to advice on housing and nutrition, and each supervise areas with populations of up to 9000 people.

An estimate for the controlled areas suggests a birth rate of about 55, a death rate of 45, and an infant mortality of at least 350. Differences in infant mortality from district to district are mostly connected with the prevalence of malaria.

Tuberculosis was introduced into New Guinea comparatively recently. The present distribution is mainly in the centres of population. In the coastal area BCG vaccination was started in 1956, supported by measures for health education to make people understand the danger of infection and the means of prevention. X-ray equipment is also available in the main hospitals.

Leprosy was apparently introduced into New Guinea in 1903, and its spread since then has been considerable, especially in the western areas, where a figure of 10 per cent. infection is given. Campaigns are also being conducted against yaws and filariasis.

There is no medical school in the territory and medical students study overseas. There are three-year courses for Papuan nurses for the New Guinea Certificate at Hollandia and Sorong. The course, started in 1954 to train village nurses for maternal and infant care, is being steadily developed.
NEW CALEDONIA AND DEPENDENCIES

New Caledonia is a group of volcanic islands which has formed part of the overseas territories of the French Union since 1946. The islands comprise 18,000 square kilometres of land, lying in the south-west Pacific, in Oceania, about 1125 kilometres east of Queensland, Australia. New Caledonia, with its capital Nouméa (12,000 inhabitants), is the largest and most important of the group, which includes the dependencies of the Isle of Pines, the Wallis Archipelago, the Loyalty Islands of Maré, Lifu, Uvea and some smaller islands, the Huon Islands, Futuna and Alofi Islands, the Chesterfield Islands, Walpole Islands and the Belep Islands.

Racially the indigenous population of the New Caledonia Islands are a mixture of Melanesian and Polynesian stocks, while the contract labourers are predominantly Javanese and Tonkinese. The estimated population for 1956 may be divided as follows: indigenous, 36,000; European, 23,000; Vietnamese, 4000; and Indonesian, 3000, making a total of 66,000. The sparse population of 3.5 persons per square kilometre is largely due to the mountainous nature of the islands.

New Caledonia Island is 400 kilometres long and 50 kilometres wide, with interior plateaux and coastal plains separated by mountain ranges which reach a height of 1650 metres. The climate is healthy with an average temperature of 24°-27° C. The mean annual rainfall is 110 centimetres. Hurricanes expose the inhabitants to periodic danger. The mineral resources are extensive although as yet comparatively unexploited. Apart from the nickel and chrome mines, there are deposits of cobalt, manganese, iron, mercury, antimony, cinnabar, gold, silver, lead and copper. A considerable amount of smelting is carried on at Yaté and Doniambo. There is a big livestock industry and there are coffee plantations. Nickel, chrome and coffee are the principal exports. The Kauri pine, coco-nut trees and tree ferns are also found to a considerable extent.

Health

The establishment of the health service in New Caledonia and its dependencies goes back to 1853. The organization, which was under the supervision of the French Naval Ministry, passed to the Ministry for the Colonies and later became practically independent under the authority of the director, responsible to the High Commissioner of the Republic. In certain international and maritime relationships, the French Overseas Ministry is responsible.

The health service is under the general control of a department at Nouméa with a director of health and two deputies—technical and administrative. General health services include medical inspection and its medical problems, in spite of its position, are essentially those of temperate zones. BCG vaccination is being introduced.

Apart from leprosy and tuberculosis, both of which are being studied, New Caledonia has no serious epidemic diseases. It is fortunately free from malaria and its medical problems, in spite of its position, are essentially those of temperate zones. BCG vaccination is being introduced.

Environmental sanitation is carried out by the municipal health department. Running water exists in practically all the townships, and analysis of water samples and water purification are undertaken where necessary. Refuse and excreta disposal is carried out by incineration and septic tanks. The Director
of Health undertakes the supervision of housing. Campaigns against rat infestation are in operation. Laboratory research is undertaken at the Institut Pasteur at Nouméa.

Since 1956 a school for the training of nurses and midwives has been established at Nouméa. The course of study lasts for two years and covers the whole range of nursing.

NEW HEBRIDES

The New Hebrides lie between 13° and 21° south and 166° and 170° east, and form an irregular double chain about 704 kilometres long with a total land area of 14,763 square kilometres. Between the Banks Islands and the Torres Islands in the north and the islands of Erromango and Tanna in the south, there are a number of large islands—including Santo, Malekula, Efate, Ambrym, Epi, Aoba, Pentecost and Maewo—and some 60 small islands and islets. Santo and Malekula are particularly mountainous and rugged, parts of Santo rising to over 2000 metres, and there are active volcanoes on three of the islands. The archipelago is generally well-watered, and the larger islands have several small rivers navigable for some distance by boats and small motor craft. There is a hot and wet season from November to April, but the cool season, from May to October, is healthy and pleasant.

The people are mainly Melanesian, but there is also some admixture of Polynesian, especially in the east and north. The total indigenous population at the end of 1956 was estimated to be 48,725, while the non-indigenous population numbered approximately 4,400. Of the latter 3,910 were of French and 490 of British nationality (including some 1,740 Asians and 670 Wallisians and Tahitians).

The territory is at present divided into four large districts, each consisting of widely scattered islands. The chief town is Vila, on Efate, and the only other town is Luganville, on Santo. Most of the population live in villages or hamlets varying in size from 600 or so people to small collections of huts, and they follow their traditional tribal system of organization. The main occupation is agriculture, producing both subsistence and cash crops. In spite of some increase in fisheries and mining, the economy of the territory is still based mainly on copra, the production of which is affected by manpower; at present it is necessary to import labour, since the inhabitants tend to prefer working their own agricultural lands of which there is no shortage, and the group of islands as a whole is underpopulated. The chief exports are copra, cocoa, coffee, and some timber, and the chief imports are rice and petroleum products.

The traditional diet has been mainly vegetarian, supplemented by fish, or by meat obtained by hunting or the sacrifice of pigs. Yams are the staple food crop, but breadfruit, taro, bananas, sugar-cane, paw-paw and other foods are cultivated. Those living in urban settlements or on plantations also eat beef (either tinned or fresh), bread and rice, and these foodstuffs have spread to the villages.

Each of the administering authorities (France and the United Kingdom) subsidizes its own national system of education. Education is not compulsory, the fact that the islands and villages are widely scattered being a serious obstacle to school attendance. The French Administration has established four primary schools, which are free and open to all, and with the help of development funds new primary schools will be built elsewhere. The British Administration runs a primary school for children of all races in Vila. Both administrations subsidize primary schools run by missions, and there is one high school (also run by a mission body). Secondary education is, however, normally provided by sending promising pupils either to New Caledonia or to the Solomon Islands. Students from the various mission schools are the chief source of New Hebrideans for training as clerks, wireless operators, teachers, and auxiliary medical and health personnel. The 1955 budget of the Joint Administration included for the first time a small subvention towards the cost of education, to be shared equally by the two national administrations.

The aged and infirm are cared for by the indigenous people themselves, and social welfare work is mainly undertaken by missions, subsidized to some extent by the administration.

Health

The New Hebrides have no fully constituted joint medical service, although there is the nucleus of a Condominium Medical Service, for which legal provision has existed since 1938. Among its various functions the service subsidizes the treatment of New Hebrideans at national or mission hospitals and maintains two sanitary squads, one at Vila and one at Santo, for mosquito control and general sanitary work of limited extent. In practice, however, medical and health work is carried out by the two national administrations separately, with considerable support from mission bodies. The Senior French Medical Officer is also the Chief Condominium Medical Officer, and he is assisted by four medical officers. The British Medical Officer is assisted by five Assistant Medical Practitioners. There are also three Assistant Medical Practitioners under the Condominium administration.

Other health personnel in the territory are: 31 nurses of senior training (15 in the French service, 16 under missions); 17 midwives of senior training (one in the French service, and 16 under missions); over 40 locally trained nurses under missions; 44 locally trained dressers (one in the British service, 11 under the Condominium, and 32 under missions); two private dental practitioners; one locally trained dental worker in the French service; and two sanitary inspectors, one mental hospital guardian, and one hygiene assistant, all under the Condominium.

Medical and health establishments in the territory in 1956 were as follows: five general hospitals (three
French, two mission) equipped to deal adequately with all general medical and surgical cases, with a total of 242 beds; nine cottage hospitals (three British, one French, two Condominium, three mission) equipped to handle less serious cases, with a total of 186 beds; 42 dispensaries (two Condominium mission and 40 mission), and one leprosarium run by a mission body, with 37 patients.

Expenditure on medical and health services in 1956 amounted to £A 116 200 (US $260 305), of which £A 41 100 (US $92 070) was for the Condominium service, £A 60 900 (US $136 425) for the French administration and £A 14 200 (US$ 31 810) for the British administration; expenditure by missions is not included.

Malaria is one of the most important causes of death in the islands, and together with pneumonia and respiratory tuberculosis is largely responsible for infant mortality. Anti-mosquito measures in Vila and Luganville are undertaken as part of the routine work of the sanitary squads, and have contributed much to reducing the prevalence of malaria in these two urban areas; elsewhere, free issues of antimalarial drugs are made in certain areas, but no general control campaign is yet in operation. Other major causes of morbidity are yaws and helminthic infections; influenza and bacillary dysentery are endemic, as are amoebiasis and filariasis in certain areas, and there are about 100 known cases of leprosy.

By reason of the widely scattered population and the large number of islands, there is no central organization for maternal and child care. Pre-natal and post-natal consultations are given in the various dispensaries and out-patient clinics, and various forms of sickness are treated in the course of these consultations. Mothers are also given advice about infant feeding and on various hygienic measures.

Children in the public and private schools at the main centres of Vila, Santo and Lamap are examined annually; a medical record is provided for each pupil, and vaccinations are carried out against small-pox and tetanus.

Health education had not made much progress until recently, but following investigations by the French authorities an attempt has been made with the assistance of the village chiefs to obtain direct access to the people. An experimental area was established in the village of Mele, close to Vila, and some progress was made in linking preventive medicine to treatment.

Malnutrition is rare and has been observed chiefly in artificially fed babies or infants at the weaning stage. Diet is in general adequate; there is no shortage of food, since arable land is plentiful and the population is small.

There are no facilities in the New Hebrides for higher education. Assistant medical practitioners are trained at the Central Medical School in Suva, Fiji, as are some nurses and dressers. Some student nurses are also sent to the nursing school in Nouméa, New Caledonia, but the majority of nurses and dressers are trained locally, most of the institutions providing courses and in-service training.

The town of Vila has a piped water supply, and although no purification system has yet been installed, an analysis of the water carried out at Nouméa showed an absence of colibacilli. In the villages, water supply generally depends on the collection of rainwater. In Vila and some other areas sewage disposal is mainly by septic tank, and the Condominium Sanitation Service provides a daily garbage disposal service in the Vila urban areas. Elsewhere, disposal of waste is of the usual village type, by means of latrines and ditches.

NEW ZEALAND

New Zealand consists of two main islands in the South Pacific Ocean, separated only by a narrow strait, and a number of small islands scattered widely over the ocean. A large part of the main islands are mountainous, the principal range being the Southern Alps, which extend along the whole length of South Island. Some of the mountains of North Island are volcanic.

In general terms, two-thirds of the total area of 267 985 square kilometres are suitable for agriculture and grazing. About 68 500 square kilometres are still under forest. The climate is moist-temperate marine, with abundant sunshine and at the lower levels a small range of temperature.

The majority of the people are of European descent; in 1958 there were 147 800 Maoris (the aboriginal Polynesians) out of a population of 2 275 515.
Health

The health organization is under the control of a Minister, with a professional staff including the Director-General and his Deputy, and divisional officers whose duties cover the whole range of health services. The divisional directors at headquarters work through and with the district medical officers of health. The Dominion is divided into 14 districts, each of which is in the charge of a medical officer of health who has full local responsibility for the health services. The public health personnel include 80 doctors, 59 dentists, 808 dental nurses, 271 nurses and five pharmacists. The percentage of budget allocated to central health administration is 10.84.

In 1957, the birth rate was 26.20, the death rate was 9.34, and the infant mortality rate was 24.31.

In the hospital services, the ratio of beds per 1000 population in 1957 was 8. The total number of beds in public institutions was 14,986 and in private hospitals 2425. There were also 111 beds for treating the sick in old peoples' homes. In some areas there is an acute shortage of beds for long-stay chronic elderly patients, orthopaedic cases and those suffering from acute injuries, for children, for maternity cases, and for certain groups needing isolation facilities. On the other hand, there is a surplus of beds for tuberculosis patients, especially in sanatoria. Difficulty is experienced in obtaining adequate nursing staff, especially for maternity beds, and admission to some of the larger hospitals has to be regulated according to the staff available. The number of whole-time medical officers was 469 in 1957, including junior house surgeons. During 1957, 14,378 persons were under the care of mental hospitals at one time or another; the weekly average of occupation was 9,847.

Vaccination against poliomyelitis has progressed very satisfactorily, and by the end of 1958 all children in the 2-16 age group should have been offered vaccination. Vaccination of special groups and pregnant women has also been undertaken.

Attention is given to health education. and good progress has been made by the issue of films and booklets and by specific instruction in such subjects as the control of hydatid disease. In conjunction with the Department of Agriculture a vigorous health education campaign has been undertaken for this purpose. Four health education vans have recently been equipped and sent out to the more remote areas.

In the Division of Child Hygiene in 1957 there were 21 whole-time and 20 part-time medical officers. Great attention is paid to the examination of preschool children, as an educative and preventive measure. In the primary schools, inspection is carried out by nurses in the first instance and only those suspected of defect are referred to the doctors. The work in the post-primary schools was confined mainly to giving BCG vaccination. There are now five child health clinics, which deal with child guidance as well as with general physical defects.

The position of environmental sanitation is not yet satisfactory. It has hitherto been the practice of towns or boroughs to discharge crude or inadequately treated sewage into the sea or a nearby river, but with the growth of population this is giving rise to serious problems of river and beach pollution. Major sewage works have recently been approved for a considerable number of small towns, and additions to public water supplies are also being undertaken.

Since the war, the Department has found it necessary to organize its own training scheme for health inspectors. This has been done in co-operation with Wellington Technical College, and a full-time course was started in 1949.

NIUE ISLAND

Niue Island is situated in the South Pacific at 169° west and 19° south. It has an area of about 259 square kilometres. It is an isolated unit, not forming part of any recognized group of islands. The 1956 population was 4,634, of whom 45 were Europeans. The population seems to be following the usual pattern of Polynesian countries, with a steady decline after European contact and the introduction of new diseases; this is followed by a long static period, and then comes an increase, gradual at first and then accelerating.

Health

There are no private medical or dental practitioners on the island; free medical and dental care are provided by the Medical Department under the control of the Chief Medical Officer with, in 1957, a matron, a child welfare sister, a ward sister, one medical and two dental assistants, and 18 nurses. A further 15 persons are employed in auxiliary services, including an assistant health inspector, a laboratory and x-ray assistant and a dispenser. In January 1958 the staff was increased by two assistant medical officers. The Niuean assistants are graduates of the Central Medical School in Fiji, and selected nurses are trained in Apia Hospital (Western Samoa). Expenditure
on health in 1957 amounted to 13.8 per cent. of the total expenditure of the island.

In 1957 there were 45 deaths, mainly in the chronic and elderly group; the infant mortality rate improved (from 30.2 in 1956) to 26.7, and the birth rate rose to 50.0. This does not imply a considerable increase in population, as many people migrate to New Zealand. There is one hospital to serve the island, but minor ailments are treated by means of a mobile clinic. Every schoolchild has a complete dental examination once a year, and pre-school children also receive care at the school clinics.

In the latter part of 1956, a campaign against yaws was carried out, covering 75 per cent. of the people. Filariasis has been reduced to a low level. Tuberculosis is still a problem, but preventive work through BCG vaccination is applied widely to children, and is a routine procedure at school age. The fact that there are no serious health problems in the island is due to increasing co-operation between an understanding people and a keen administration.

Niue is not troubled by housing problems, as every man is his own builder. All the materials except roofing iron and cement are abundant and cheap. A few palm-leaf thatched houses remain. Spraying with dieldrin has been valuable in reducing the insect population. Rubbish collections are made weekly in the main settlement and monthly in the outer villages.

NORTH BORNEO

North Borneo consists of the northern end of the island of Borneo in the Malay Archipelago. The territory is largely mountainous and widely forested, and contains some inland plains and alluvial coastal flats. The narrow plain on the coast supports the main agricultural and rubber production of the territory. The climate is cool for an island on the equator, the average mean temperature ranging from 19° to 31° C. The annual rainfall ranges from 150 to 450 centimetres according to the locality, with no clear division between wet and dry seasons.

The area is 76 115 square kilometres and the estimated population is nearing 400 000. The distribution in 1956 showed an indigenous population of about 262 000, 95 856 Chinese, 1794 Europeans and the remainder of varied nationalities.

Trade is largely dependent on rubber exports, but by 1954 yields were diminishing because of the age of the trees. North Borneo is slowly recovering from the effects of the war, and as its economy depends on rubber, timber, coco-nuts and copra, the prospects are good. The Government undertook a large-scale reconstruction programme in 1954 to encourage rubber planting and other industries. There is a Standing Committee of the Legislative Council under the development and welfare schemes. Rice is the most important food crop. The chief imports are textiles, clothing, machinery and oils.

In 1954 the Government decided that primary education should become free, commencing with vernacular education, and that it should gradually assume responsibility for all schools. Whilst mission and some Chinese schools retain direct responsibility, a fully representative Board of Education has been set up and is supplemented by a system of local education committees for each of the 14 school areas. The present educational system provides for six years of primary education in Malay, Chinese or English, followed by three, five or six years of secondary teaching in English or Chinese.

In spite of the mixture of races there is no serious problem of cultural relations. The Government's declared policy is to encourage the enterprise of the Chinese and other immigrant communities and to do everything possible for the progress and welfare of the indigenous people. Great emphasis is placed on teacher training, and all this encourages a rise in the standard of living and an improvement in health. In some areas native reservations have been set up to prevent the indigenous people from being submerged by the immigrants.

The large townships and many of the principal urban areas were almost totally destroyed during the war, so that the housing problem in the main towns has been acute. A central Town and Country Planning Board has been set up to deal with the seven chief towns, and plans have also been drawn up for the smaller townships. Private building has been slow and a system of sponsored building loans was begun in 1955.

Health

The Medical Department is under the Director of Medical Services, who is responsible for both medical care and public health. Expenditure on medical and health services in 1954 amounted to Str $2 143 384. (US $707 387); this figure represents only the cost of running the services and does not include municipal-conservancy services, capital expenditure on new buildings, or grants received under development schemes.

Government medical and health personnel in 1956 were as follows: 13 medical officers, one surgeon, one dental surgeon, one matron, six nursing sisters, 15 staff nurses, 18 trained nurses, 26 probationer nurses, 90 dressers, 37 certified midwives, one dental technician and 15 health inspectors. There were also, either in private practice or appointed by missions, 30 physicians, four nursing sisters, 52 dressers, and 49 midwives.

Medical care is provided by two general hospitals (324 beds) and five cottage hospitals (300 beds); there is a mental hospital at Sandakan with an average of 120 in-patients; the leprosarium has an average of 45 in-patients. A tuberculosis hospital is being completed at Jesselton. There are two health centres, in Jesselton and Sandakan, which provide ante-natal and infant welfare clinics in addition to general services.
Thirty dispensaries serve the rural areas, and 12 for them have a total of 177 beds for light cases. An ambulance dispensary serves districts within 30 kilometres of Jesselton, and on the east coast a motor launch pays regular visits to the more remote stations.

There is no medical school in North Borneo, the nearest being the University of Malaya, to which the Government provides scholarships. There is, however, a training school for nurses, both male and female, under the tuition of a fully qualified sister-tutor, and 24 male and 15 female student nurses are at present under training. There is also a scheme for training assistant nurses in Jesselton and Sandakan, and temporary courses are given for unregistered midwives. During 1954 and 1955 a health inspector from New Zealand trained nine students, and a laboratory expert from Australia gave training in laboratory techniques.

The most serious diseases are malaria, tuberculosis and intestinal infestations. As in many tropical areas, where standards of hygiene and sanitation are rather low, gastro-intestinal infections form a high proportion of the diseases, and efforts are being made to reduce this.

A pilot scheme for malaria control was begun in 1955 and, if successful, will be extended to cover the whole territory.

Facilities for diagnosis and treatment of tuberculosis are improving; during the period under review, new x-ray equipment was installed in the two general hospitals, and plans were made for the establishment of special wards for tuberculosis patients at various centres throughout the territory, where rehabilitation services as well as treatment will be available. In the control of this disease the Government is assisted by the North Borneo Anti-Tuberculosis Association, founded in 1953, which is active in health education work and spends a large part of its funds on relief and welfare work among tuberculosis patients and their families.

Maternal and child health services are provided at health centres and dispensaries, and although few reliable statistics are available, it is evident that infant mortality is declining, particularly in districts well served by maternal and child welfare clinics. In one such district, for example, the infant mortality rate decreased from 129.4 in 1951 to 84.1 in 1954.

There is some lack of vitamins in the diet that could be relieved if more use were made of the vegetables and fruits which are, or could be, grown. The remedy lies mainly in broader education, particularly of the housewife. For this purpose advice and diet supplements are offered at the health centres and at the government dispensaries. People who live in the coastal districts and can get fish are on the whole better nourished than those who live in the interior.

The rebuilding of the larger centres of population and the provision of public works to improve water supply and drainage has made progress and has brought modern sanitation into the towns. Rural communities rely on unprotected wells and polluted rivers and streams for their water supply, but there is a rural well improvement scheme.

**PACIFIC ISLANDS**

The Trust Territory of the Pacific Islands comprises about 2000 islands with a total land mass of 1691 square kilometres spread over 7,770,000 square kilometres of ocean. The population in 1957 was estimated at 67,199. There is no urban population; the people live in small villages scattered throughout the islands.

In the report on the Saipan District for the years 1954-56 it is noted that the population is gradually increasing and is now over 7000. The district consists of 12 single islands and one group of three small islands. The total land surface is approximately 400 square kilometres, and two-thirds of this is made up of the two principal islands, Saipan and Tinian.

**Health**

All public health services are under the Director of Public Health and include both clinical care and preventive work; the entire staff participates in this dual function. The total health costs are estimated at about 10 per cent. of the entire budget for the territory.

Efforts are being made to secure the compilation of vital statistics for the islands, and one of the Navy medical officers investigates each death in the Saipan district.

There are eight hospitals in the territory, and nine is under construction. There are four leprosaria, 10 dental clinics, and — in the outlying communities — 123 dispensaries. Saipan Hospital functions as a sanatorium, with 40-70 patients suffering from tuberculosis, and some 30-50 with other diseases. Medical field trips are made periodically to the more remote areas, and health assistance is regularly available to the population. The combined staff for all these services consists of 11 military personnel, one United States Civil Service nurse, and 71 indigenous staff.
Micronesian medical and dental students, nurses and technicians are given advanced training in schools and hospitals outside the territory, in addition to the continuous in-service training they receive while in the public health service of the territory. A nursing shortage exists, and nursing aides are being trained in the hospitals. A health centre, which also serves as a practical teaching area for nursing students, was recently put into commission and has been greatly appreciated by the people.

The most prevalent diseases are tuberculosis, infestation with helminths, gastro-enteritis, dysentery, respiratory infections and skin infections. The leading causes of death during 1956 were pneumonia, tuberculosis and diseases of the heart.

Most babies and children and a large percentage of the adults have been vaccinated against smallpox, and some inoculations against tetanus have been given. Immunization against tuberculosis with BCG has begun in the territory.

Maternal and child health activities include prenatal clinics, held once a week, and post-natal clinics, held twice a week, at the hospital and the outlying dispensaries. Emphasis is being given to the teaching of health and sanitation practices, both in the schools and among adult groups. The nutritional status of the people is generally good.

A psychiatrist from Guam visits Saipan once a quarter to examine and treat cases of mental illness.

At the district centres and in some adjacent areas, water is supplied by means of pipelines from dependable and supervised sources. In other areas, fresh water is obtained by rain catchment or from springs, streams and shallow wells. District sanitarians check and supervise the water supply, including chlorination and examination of samples.

PAPUA AND NEW GUINEA

The territory of Papua and New Guinea comprises the eastern half of the island of New Guinea, with four groups of adjacent islands. It is wholly within the tropics and is separated from Australia by the Torres Straits. It thus extends north to south from the equator to 11° south, and west to east from 141° to 160°. The total area is 475,350 square kilometres, most of which is extremely mountainous. There are, however, extensive plains and a number of wide, grass-covered valleys in the main ranges. Many of these are favourable to tropical cultivation and the climate is pleasant.

In 1956, the population was estimated at 1,739,451, including 21,166 non-indigenous inhabitants.

The principal crops are vegetables and fruit. Copra and rubber provide the main exports. Livestock production is on a small scale and is far from satisfying consumption requirements. The general vegetation inland is forest, which restricts to some extent the areas suitable for agriculture. There is a certain amount of mining. The principal imports are food, metals and machinery. There is an increasing trade in salt and fish from the coast and foodstuffs from the highlands.

Education is free for boys and girls in both the government and the mission schools. A law passed in 1954 provided for compulsory education, inspection of schools, and registration and classification of teachers. Correspondence courses are provided by the Department of Education for teachers, both to extend their own scholastic knowledge and to prepare them for examinations. Handicraft work as a part of adult education is being developed by the Department. During 1954, special courses were given for 19 teachers going to out-stations.

In the highlands, people live in villages which are largely self-contained communities, and they subsist by growing food in their gardens and by hunting. On the coasts there are also villages and larger communities. Men come down from the highlands to work, and their employers are required to give them suppressive treatment against malaria.

Inland, housing consists almost entirely of primitive huts. The housing specialist of the South Pacific Commission has been acting as adviser and many Papuans are showing an interest in improved design and lay-out.

Health

Health services were inaugurated soon after the establishment of the two territories. In the early days, a curative approach was necessary in order to gain the confidence of the people, but a gradual advance was made towards preventive medicine. The primitive though reasonably effective institutions of the past are now being replaced by hospitals and clinics of modern standards, in which the newer techniques of medicine are being employed. Lack of staff and want of facilities for research delayed developments in public health during the years before the Second World War, but there was substantial and gradual progress. Many problems, however, remain to be overcome—the difficulties of terrain, population distribution, multiple languages and social organization have so far prevented cohesive social and political unity.

Since the war, the Commonwealth Government has been speeding up the development of these territories. The Department of Health was inaugurated in 1945 and is in the charge of a Director. The territory has been divided into 14 administrative districts in each of which a District Medical Officer is responsible for health matters.

There are 15 hospitals of the European type, of which 11 are governmental, and 115 hospitals of one kind
or another are for indigenous patients. Most of the
government hospitals have separate wards for tuber-
culosis patients.

At the local level, in addition to hospitals in the
main centres, there are 1191 aid posts and health
centres dispersed throughout the territory, staffed
by indigenous orderlies who are capable of giving
simple treatment; serious cases are transported to the
hospitals. Every health centre takes part in infant
and maternal welfare services, and mobile units cater
for the needs of the scattered communities. The
branch of the Australian Red Cross Society in Port
Moresby has a blood transfusion service. There are
also medical stores at Port Moresby, Lae and Rabaul,
each with its own pharmacist under the direction
of a Chief Pharmacist at Headquarters in Port
Moresby.

In some respects the demand for medical services
has outstripped the capacity to provide them. It is
the policy of the Government to use trained indigenous
staff wherever possible, and their training is being
carried out not only within the territory but also at
the Central Medical School in Suva, Fiji.

During the period 1954-56 the Department of Health
had four dentists and there were also eight private
dental practitioners. This gives only a skeleton
service and great difficulties have been encountered
in recruiting additional staff.

There are not at present sufficient data to give
accurate birth and death rates. It is known that
infant mortality is high among the indigenous people
and may be of the order of 250-300.

Broadly speaking, the main health problems are
those of a tropical country, but because of the rural
nature of the life of the people the transmission of
disease is lessened. On the other hand, the difficulties
of communication increase the problems involved
in bringing medical services to the people. The
main causes of death are malaria, pneumonia,
dysentery and tuberculosis. Malaria is also the major
source of widespread debility and morbidity. Extensive antimalaria work is carried on in the territ-
ory, and assistance in this connexion is given by
WHO through fellowships. A Malaria Control
School provides courses of training for indigenous
and non-indigenous personnel.

A mass BCG vaccination campaign has been
undertaken, and a very large number of people have
been vaccinated.

Health education of the public is primarily the
responsibility of the central Department of Health,
particularly the nutrition and infant and maternal
welfare sections, which are very active in this
connexion.

The school medical service is developing gradually
and a school nurse has been appointed for Port
Moresby.

Responsibility for the aged and infirm is generally
undertaken by the indigenous inhabitants as part of
the collective obligation of the family.

Nutritional and dietary surveys have been made
from time to time in various areas and are still in
progress.

Fully equipped laboratory services have been
organized in Port Moresby, Lae and Rabaul, with
full-time pathologists in charge. There are also a
number of smaller laboratories under the care of
trained technicians.

Port Moresby has a piped water system, but in
other towns the water supply is derived mainly from
rain-water storage with supplementary supplies from
wells during the dry seasons. The total water supplies
in the towns cater for approximately two per cent. of
the population. Outside the towns, streams and
rain-water storage are the principal sources. Sewage
disposal is chiefly by the conservancy system in the
towns, with trenching or discharge into the sea.
There is one small sewerage scheme in Port Moresby.

**REPUBLIC OF THE PHILIPPINES**

The Philippines are a group of islands in the South China Sea,
about 800 kilometres from the south-east of the Continent of
Asia. The islands are mountainous, the ranges running generally
in the direction of their axes. In many parts the mountains
lie close to the sea and there are narrow and interrupted coastal
strips, fertile valleys inland, and many forests in the mountain
areas. The total area is 299 404 square kilometres. There is
a great variety of climate; the prevailing winds are north and
east, and typhoons are not uncommon.

In 1956 the population was 21 856 857. It was estimated in
1948 that 62 per cent. of the population over ten years of age
were literate.

Public schools are co-educational and no fees are charged.
Teaching is mainly in English but Spanish is obligatory in all
high schools. In addition to the State-supported University of
the Philippines, which had over 9000 students in 1952, there are
some 90 accredited private institutions of higher learning.

The economy is predominantly agricultural, the chief products
being rice, coco-nuts, maize, sugar-cane, manila hemp, fruit,
tobacco and timber. There is a preponderance of home-made
goods, but the number of factories is increasing.

The main ports of entry to the country are Manila, Cebu,
Iloilo, Zamboanga and Davao. There is a good deal of coastal
and river traffic. Highways have been considerably extended
since the war and now approach 30,000 kilometres. There are 1200 kilometres of railways, of which the main service is in Luzon. A national airline maintains a network of local stations and there are international connexions with the main cities of the world.

Health

The national health administration is vested in a Department of Health, headed by a Secretary of Health with the rank of cabinet member. The Office of the Secretary includes an Administrative Division, a Division of Tuberculosis, a Division of Health Education and Information, and a Nursing Division. The Department is otherwise composed of a Bureau of Health, a Bureau of Quarantine, and a Bureau of Hospitals—each under a Director—and also includes the Institute of Nutrition, the public health research laboratories, and all city health departments. At the provincial level, health matters are administered by provincial health officers acting as direct representatives of the Director of Health and the Secretary of Health. Health activities at the local or municipal level are under the municipal health officer, who is responsible to the respective provincial health officer.

Vital statistics for the years 1954, 1955 and 1956 were as follows:

<table>
<thead>
<tr>
<th></th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
</tr>
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<tbody>
<tr>
<td>Birth rate</td>
<td>33.2</td>
<td>34.1</td>
<td>34.7</td>
</tr>
<tr>
<td>Death rate</td>
<td>10.3</td>
<td>9.9</td>
<td>10.1</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>94.2</td>
<td>84.3</td>
<td>83.9</td>
</tr>
</tbody>
</table>

There have been important developments in health legislation during the period under review. In 1954 a rural health law was passed, whose object was to improve the health conditions of the rural inhabitants, who constitute two-thirds of the population; it provided for the establishment of senior and junior rural health units in the municipalities and the appointment of public health dentists in each congressional district. A second law passed in 1954 effects a reorganization of the Division of Tuberculosis and the planning of a national programme; among its important provisions are the construction of a national tuberculosis centre and a national clinic. A third law relates to nutrition, particularly to the eradication of beri-beri by means of enrichment of rice; it provides for the compulsory admixture of pre-mixed rice in the rice mills throughout the country, regardless of location, in the proportion of one part of pre-mixed to 199 parts of other types of rice.

There are 80 government hospitals in the Philippines, five of which provide specialized services (for communicable diseases, maternity and paediatrics, orthopaedic cases, and mental patients); the 75 general hospitals have a total of 4675 beds, and the special hospitals have a further 5400 beds. In addition, 217 private general hospitals provide 7036 beds, and 19 private special hospitals have a bed capacity of 1614. The total number of beds available in all types of hospitals is therefore 18,725. In the orthopaedic units a considerable amount of rehabilitation of the handicapped is being carried out, especially in relation to poliomyelitis. Under the terms of the rural health law mentioned above, and of its successive amendments, 1300 rural health units and 262 dental units are to be established throughout the country; by 1957 a total of 952 senior and 132 junior rural health units had been set up and were already contributing considerably to the strengthening of the national health services. Senior rural health units are assigned to a municipality or group of municipal districts with a population of not less than 5000; for a municipality of 35,000 or more an additional junior rural health unit is assigned. A senior unit is staffed by a physician—the municipal health officer—as head of the unit, a public health nurse, a midwife, a sanitary inspector and a clerk-driver (if the unit is provided with jeep transport). A junior unit is made up of a physician or public health nurse as head of the unit, and a midwife or sanitary inspector as member of the team.

The control of communicable diseases is one of the major functions of the Bureau of Health. Consultative and advisory services are provided for the provincial and municipal health offices, including ad hoc epidemiological investigations. Systematic progress has been made in vaccination and immunization of the general population and the amount of research on both acute and chronic preventable diseases is increasing.

The tuberculosis control programme has made noteworthy progress; a National Chest Centre Clinic for research and training has been established and put into operation; four new static chest clinics and six mobile chest clinics have been set up; 30 BCG teams are in operation; three additional tuberculosis wards have been established in provincial hospitals; a pilot project has been started in Ilocos Norte, and better coordination has been achieved with the work of the Philippine Tuberculosis Society. Furthermore, a rest-settlement house is under construction.

The Bureau of Quarantine is active in the prevention of quarantinable diseases, of which no cases were registered in the Philippines in 1956 or 1957. The Director of Quarantine is authorized by law to promulgate and enforce, with the approval of the Secretary of Health, such rules and regulations as are in his judgement necessary to prevent the introduction, transmission or spread of quarantinable diseases from
foreign countries. This refers to plague, cholera and smallpox, since no case of yellow fever, typhus or relapsing fever (also quarantinable diseases) has ever been registered in the Philippines. Quarantine inspection of international aircraft and ocean-going vessels is performed regularly, the latter including all vessels from foreign ports, any vessel with communicable diseases on board, and vessels from domestic ports where quarantinable diseases prevail. During the years 1956 and 1957, there was a total quarantine inspection of 188,233 passengers and crew of 5,217 aircraft, and of 322,219 passengers and crew of 6,077 vessels.

Maternal and child health work is carried out both through the rural health units and through 508 child welfare centres, which are supported partly by the Government and partly by voluntary contributions. At the national level, these centres are co-ordinated by the Section of Puericulture Centres in the Bureau of Hospitals; they provide pre-natal, delivery and post-natal care (including a domiciliary obstetrical service), training for auxiliary staff, and mother-and-parent-craft classes. In areas where both rural health units and child welfare centres exist, the former undertake public health work other than maternal and child health, which is the responsibility of the child welfare centres.

School health services are dealt with by the Division of Medical and Dental Services under the Department of Education. The Bureau of Health maintains a public dental service which carries out both educational and preventive work in addition to treatment by travelling dental units. In private schools the law requires the employment of a dentist when the enrolment exceeds 300, and in the public schools dental health is handled on a semi-voluntary basis with financial contributions from the school pupils.

Health education of the public is the responsibility of the Office of the Secretary of Health; a six-year programme was started in 1954, and assistance is given by this Division in all aspects of public health work, including the distribution of literature, films, posters, and other equipment, as well as the assignment of health educators to programmes as required. An active training programme is in progress, and a number of health educators have been assigned as members of rural health unit teams.

Health care of the chronic sick and the aged is dealt with entirely by voluntary agencies.

Occupational health is the concern of a section of the Bureau of Health, which undertakes field work, laboratory services both for research and for factual findings on industrial hygiene, and educational activities. Seminars on industrial hygiene and occupational medicine have been held at regular intervals during the past five years for physicians, dentists and nurses employed by industrial concerns. A survey made in 1950 showed that there were some 50,000 mentally sick and mentally defective individuals in the Philippines, and this does not include the large penumbra of psycho-neurotic cases. At the present time there is only one hospital for the care of the mentally ill, and there are relatively few psychiatrists either in practice or in training, and probably not more than a dozen fully-trained psychiatric nurses and social workers. The mental hospital is seriously overcrowded and has to accommodate at present 4,000 patients, which is more than twice its normal capacity. It has only limited facilities for therapy; facilities for shock therapy exist, but there are none for surgical procedures or specialized diagnosis. Recreational and occupational therapy is given to a limited extent as far as staff is available. In view of the urgent need to train more staff, the hospital is being used by all the medical and nursing schools as a training hospital in psychiatry, in spite of its limited facilities.

The main laboratory services are located in Manila but several other towns are developing both research and production.

Postgraduate training in public health is offered at the Institute of Hygiene in the Philippines, leading to the certificate of master of public health. Physicians, nurses, dentists, sanitary engineers and health educators are qualified for admission to this advanced training course. There are in addition, special training courses for midwives, public health nurses and a number of auxiliaries.

Considerable progress has been made in environmental sanitation and by 1956 nearly 15,000 water-supply systems had been developed, operated and maintained by the Government, serving one-third of the total population. Progress made in treating wells and protecting springs has been encouraging. Water samples are submitted to the Department by provincial health officers, and approximately one-third have been found satisfactory.

Outside the city of Manila it is estimated that about half the families have some type of sewage-disposal system, but this does not mean that the effluent is satisfactory in anything like that proportion of cases. A good deal of attention is being directed to the pollution of streams by factory effluents, and corrective measures have been taken.
PORTUGUESE TIMOR

The Portuguese Province of Timor, which consists of about half the island of the same name (the other half being Indonesian territory), has a total area of 18,909 square kilometres and lies between latitudes 8° 7' and 9° 28' south and longitudes 124° 2' and 127° 22' east.

The population of Portuguese Timor was estimated in 1956 at 478,688, with a density of 23.3 per square kilometre.

The province is administered by a local Governor, who has authority over all the State services.

Health

The structure of the health services is based on a Decree of 1945, under which the health services in the Portuguese overseas provinces were reorganized. The highest authority in matters of health is the central Health Directorate, which is in charge of three sections — medical, pharmaceutical, and administrative.

There is a district health service in Dili, the capital, and six subsidiary district services throughout the province.

Curative and preventive medical care is provided in Dili by the Central Hospital, a maternity hospital with a pre-natal clinic, and a health centre. In the rest of the province there are three government hospitals and 48 health units with some in-patient accommodation. The health units are staffed by male nurses and are visited periodically by medical officers attached to the subsidiary district health services. There is also a private hospital at Natubessi owned by the Agrícola, Pátria e Trabalho Society. In the government health establishments all medical care is entirely free of charge to the indigenous inhabitants and State officials. A programme of hospital construction and further development of health care of the population is being drawn up.

In 1956, the staff of the health services consisted of 11 physicians, 54 nurses and nine midwives.

It is not possible to establish crude death rates or infant mortality rates; from records available, however, the total number of deaths in 1954 is given as 6,156, in 1955 as 8,425 and in 1956 as 7,784.

There were no very marked changes in the health situation in Timor during the period under review. No quarantinable diseases were notified.

A Permanent Mission for the Survey and Control of Endemic Diseases is to be formed with the object of investigating the principal diseases so that their epidemiology will be better known and appropriate treatment can be applied.

During the years 1954-56 a malaria survey was carried out, which is to form the basis of a campaign for the control of this disease. Residual insecticide spraying has been carried out for a number of years in the main centres of population, accompanied by chemotherapy, and the beneficial results of these activities are already being felt by the urban population. Plans are being made to set up mobile units for malaria control, which will come into operation when the Permanent Mission has been established.

Plans are also being made to organize a tuberculosis control service for both preventive and curative purposes.

Maternal and child health activities have developed considerably both in the hospitals and through the district health services, and a programme for further development is being drawn up. A training course for auxiliary domiciliary midwives has been established and was attended by six students in 1954 and three in 1956. There is also a training course for auxiliary male nurses, which was attended by 25 students in 1954 and 23 in 1956.

Progress is being made in housing, urban development, and drinking-water supplies, particularly in connexion with the programme of reconstruction of the chief urban centres which were destroyed during the war; this programme is being carried out as quickly as the economic resources of the province permit.

SARAWAK

Sarawak is in the north-west part of the island of Borneo, in the South China Sea. The country generally is well watered and traversed by many navigable rivers. Towards the interior the land becomes mountainous and the eastern boundary is formed by a broken range rising to peaks of about 3000 metres. The climate is healthy and the heat is never extreme. The area of the country is approximately 122,000 square kilometres.

The estimated population at mid-1957 was 640,141, including about 435,000 indigenous inhabitants, some 193,000 Chinese (the largest non-indigenous group), and about 2,200 Europeans.

The principal exports are oil, rubber and pepper. In agriculture, with the exception of the few rubber estates, smallholdings predominate and agricultural policy is directed to the encouragement of the small native farm rather than the large plantation. Rice is the main food crop. Poultry and pigs are kept widely, and the breeding of goats and cattle is being developed. Of the mineral resources, only bauxite and oil are at present being worked to any extent.

In many parts of the interior, a village normally consists of one "long-house". Elsewhere similar houses are built raised about two metres from the ground; this provides a good aid to
ventilation, but sanitation is usually primitive. In addition to the permanent villages, many tribes have temporary settlements near the rice-fields, to which they move during the planting season.

There was a serious shortage of imported foodstuffs immediately after the war; supplies were brought in by the military administration and distributed at controlled prices. The situation has now returned to normal, but the export of rice is still prohibited.

Health

The Central Government is responsible for the organization of nearly all the medical and health work in the country. The Department of Health is under a chief medical officer, the Director of Medical and Health Services. The local authorities also have certain health services, especially in the larger centres. In small places the only health personnel are the midwives.

Voluntary organizations such as the Social Welfare Council, the Anti-Tuberculosis Association of Sarawak and the British Red Cross Society, work in close liaison with the government medical services.

At the present time the health personnel consists of 24 doctors, four dental officers, 15 matrons and sisters, 226 nurses (male and female), 85 assistant nurses, and 67 midwives and assistant health visitors. There are also 42 sanitarians, 22 laboratory technicians and six x-ray technicians.

There are government hospitals at Kuching, Simanggang and Sibu, and a government tuberculosis hospital is established at Miri, where there is also a hospital run by an oil company. The total number of general beds is 666. There is also a new mental hospital just outside Kuching, which has 350 beds, with room for expansion to double its present size. In the same area there is a tuberculosis sanatorium with 36 beds. Considerable extensions are in progress at Sibu hospital, where several new wards have already been completed and others are under construction. The new Simanggang hospital, which will have about 100 beds, was started in June 1958 and building is proceeding rapidly. The Government has a well-equipped dental department at Kuching and Sibu, and fully qualified dentists visit other centres from time to time. There is only one fully trained private dentist in Sarawak, but there are quite a number of assistants in private practice.

Registration of births and deaths is still very incomplete, although considerable progress is being made in bringing records up to date. The following rates were reported from urban areas for 1957: birth rate, 23.9; death rate, 6.6; infant mortality rate, 72; and maternal mortality rate, 5.6.

There is an extensive maternal and child health organization in the main centres, which is being rapidly expanded by the use of locally trained midwives in the more isolated districts. No specific school health service has been created, but schoolchildren are treated without charge at all government medical institutions. Support for the chronic sick and aged is provided largely by voluntary organizations, in some cases with indirect government subsidy.

Since 1952 large numbers of rural midwives have been trained and have returned to their own districts, so that the standard of rural midwifery has been very considerably raised. The principal centres for the training of midwives are Kuching and Sibu, but a few are also trained in Simanggang, Miri and Brunei. Legislation for the licensing of midwives has been introduced, but at present it is only operative in the municipal areas of Kuching, Sibu and Miri.

Hospital returns still show a fair number of patients suffering from lack of vitamins and anaemia. There is also evidence of widespread protein deficiency among the country population. The Medical Department is taking active steps to distribute dried skim milk free of charge to pregnant and nursing mothers and children, and the Department of Agriculture is increasing the number of pigs and poultry and encouraging the building of fish-ponds.

Overcrowding in the chief towns of Sarawak remains a serious problem. In Kuching, the first municipal housing scheme of 532 units has been completed. A low-cost housing scheme of 92 units has also been completed in Miri. In other towns, progress has been made with slum clearance and rebuilding.

SINGAPORE

Singapore Island, which is at the southern extremity of the Malay Peninsula, covers an area of about 362 square kilometres. Included within it are the City of Singapore, the naval base, a number of military installations, five airports and some small islands. A causeway connects it with the mainland across the Straits of Johore and brings in road and railway traffic in addition to a water supply by pipeline. In general conformation the island is similar to the mainland.

The population, according to the 1957 census, was 1,474,063, with a density of over 4,000 per square kilometre. More than 30 races are represented (with Chinese predominating), each distinguished by its own way of life, its customs and traditions.
At the end of 1957 there were 668 schools, with a total of 260,000 pupils. These are divided between government and government-aided schools, and a few private institutions.

Health

The City Council administers a very thickly populated area of some 900,000 people, and is responsible for all the environmental and some personal health services. The remainder of the territory is under the jurisdiction of the Rural Board, and the Government Health Division, under the Director of Medical Services, is responsible for all health services in this area. The Assistant Director of Medical Services (Health) is adviser and ex officio member of the Rural Board.

The Ministry of Health is responsible for providing hospitals and out-patient departments services throughout the territory. The development of an island-wide school medical and dental service, air and port health quarantine service and maternity and child health services in the rural areas is at an advanced stage. In addition, a large number of voluntary bodies play a very important part in the medical care and welfare of the people.

The Institute of Health, which was donated to Singapore by the Government of the United Kingdom, was opened in May 1958. It houses the University's department of social medicine and public health, a modern maternity and child health centre run by the City Council, and the government school health service.

The total expenditure in Singapore on medical and health services in 1957 was over M $35.5 million (US $11,716,172).

There has been a steady increase during the post-war years in the demand for hospital care, and the various government hospitals provide a total of 6084 general beds, including 250 beds for infectious diseases, 1000 in the leprosy settlement, 120 orthopaedic beds, a mental hospital of over 2000 beds, and 1147 tuberculosis beds. The general hospital is the only one in the territory for the treatment of general medical and surgical conditions. It is continually overcrowded, and a figure of 1200 given as the basic bed-strength is still inadequate for the needs of the territory. The most significant increase of patients has been in the out-patient department. The problem of the chronic sick continues to handicap the efficient running of the hospital, partly because of the high cost of a general hospital (which does not permit of long occupation), and partly because there is no alternative hospital provision for chronic cases. A district hospital is, however, under construction which will also provide accommodation for chronically sick patients. The Kandang Kerbau Hospital is the only government institution which deals with the therapeutic aspect of maternity and gynaecology, and it has 316 beds, of which 50 are reserved for gynaecological work. This is also a teaching hospital for students from the University of Malaya, and it trains midwives for the Certificate of the Central Midwives Board.

The estimated birth rate in 1957 was 43, showing a rise since 1931, when it was 36. The general trend in the infant mortality rate is a steadily descending one; from 285 in 1944, it has declined to 41 for all races in 1957; the Malay rate, however, still remains very high, at 87. The crude death rate, which was 12 in 1951, fell to 7.3 in 1957.

Both in the city and in rural Singapore the principal infectious disease is pulmonary tuberculosis. The Health Division has been concentrating on education of the public and the prevention of tuberculosis in schoolchildren. During 1957, 31,796 children were tested and 26,338 were protected by BCG vaccination. Under the Australian Colombo Plan assistance, a tuberculosis case-finding programme by free mass radiography was initiated in June 1958, with a view to determining the nature and extent of the disease in Singapore and providing a basis for the future tuberculosis control programme.

Leprosy has been a diminishing disease since 1900, owing to modern methods of treatment and the segregation of complicated cases in hospital. The Trafalgar Home is the institution for the treatment of infectious leprosy; it has undergone considerable expansion in recent years and has been developed on the open village principle, now housing over 1000 patients.

With its unique geographical position, large numbers of passengers, ships' crews and air crews pass through Singapore, and the island maintains an effective port health and quarantine service. There has been no outbreak of epidemic diseases during the last nine years; malaria has been eradicated. The pandemic outbreak of influenza reached Singapore at the beginning of May 1957; it spread rapidly and had spent itself by the end of May. The number of cases in Singapore was estimated to be at least 150,000.

In October 1958, Singapore experienced a minor outbreak of poliomyelitis. Voluntary immunization of all children under 10 years of age with Sabin vaccine was undertaken, and it was expected that over 100,000 children would be immunized.

There are seven maternity and child health centres in the city, while in the rural areas there are 19 main child health centres and seven midwifery centres.
besides 25 clinic session centres. The rural maternity and child health staff consists of 10 medical officers, one public health matron, 11 health sisters and 33 health nurses, in addition to 60 midwives and several health attendants.

Facilities are provided for nurses to gain experience in domiciliary midwifery by posting them to one of the clinics in the rural area. Departmental midwives have been provided with residential accommodation in all the main clinics and some of the outlying islands. Midwives attended half the total confinements in 1957.

The school health service provides routine examination of schoolchildren, treatment of minor ailments and nutritional defects, and reference to specialists as required. It is also concerned with the control of tuberculosis and other infectious diseases. Dental defects are referred to the school dental service, which has a central clinic adequately staffed by dental officers. There are also three dental travelling dispensaries for scheduled regular visits to schools. The tuberculosis control section of the school health service carries out a thorough system of BCG vaccination and x-ray control, including contacts among both children and teachers.

The department of psychological medicine has been developing steadily and now offers a very comprehensive service to the community. In the Woodbridge Hospital the usual standard treatments are carried out. The hospital gives instruction to final-year medical students and to post-graduates studying for the Diploma in Public Health. A training school for nurses in mental diseases has also been set up and a two-year course is being organized.

Almost 90 per cent. of the population is now served by a piped water supply, although in certain parts of the rural area it is unfortunately still necessary to rely on local wells. The entire piped water supply has now been fluoridated, an achievement of considerable importance in preventive dentistry.

Building projects are proceeding favourably in the rural area, and large sanitary and modern housing estates have appeared in many places. Some of these developments consist of low-cost housing projects for workers in the rural area. In all these new housing estates and private buildings water-borne sewage disposal has been introduced.

**TOKELAU ISLANDS**

The Tokelau Islands are a group of atolls, three of which (Fakaofo, Nukunono and Atafu) are New Zealand dependencies. A census of the New Zealand group taken in 1956 showed a total population of 1875.

**Health**

The medical services are administered from the Health Department of Western Samoa, from which regular visits are made by European medical officers. For the year 1956, the expenditure on health amounted to 18 per cent. of the total budget.

A medical practitioner is now stationed in each of the three islets, and nurses and dressers are distributed throughout the territory. The entire staff was trained at Apia Hospital (Western Samoa) and is able to deal with all but the more serious surgical conditions. Emergencies are dealt with by means of a radio service. Each islet has an active women's committee, which does a great deal to improve village sanitation.

The main diseases are yaws and filariasis, but eye and skin troubles are common, the latter being due to local conditions resulting from the limited supply of fresh water. In January 1956 there was a severe, but short, outbreak of poliomyelitis, and special services had to be introduced to deal with the emergency. In April 1957, almost the entire population contracted measles; the epidemic was mild, and by June only a few isolated cases were occurring. In general, the communications between the Tokelau Islands and Samoa are sufficient to ensure reasonable control services against the common infections.

Housing conditions are fairly good, the most persistent problem being overcrowding. The islanders take pride in their villages, and the appearance of the homes and the village paths and grounds is very pleasing. As there are no sources of fresh water except rain, the people are dependent on methods of collection and storage; in recent years the Government has eased the situation by the provision of tanks.
TONGA

Tonga, also known as the Tongan or Friendly Islands, is located about 480 kilometres east-south-east of Fiji in the Southern Pacific. It has an area of 700 square kilometres, and a population (at the beginning of 1956) of 56,292, comprising 54,661 Tongans, 286 Europeans, and 1,345 others. Geologically the islands are mostly coral, and some of them are of volcanic origin.

The cultivation of grain and rice is being introduced to an increasing extent; previously the population depended almost wholly on root crops such as yams, taro and sweet potatoes. The principal industry is copra, which in 1955 returned an active trade balance of £T 525,067 (US $1,176,225).

Health

Today there are three government hospitals: Vaiola General Hospital at Nuku'alofa, Tongatapu (the capital island), which has 95 beds for medical surgical, and infectious cases, including a tuberculosis ward and a maternity ward; Ngu Hospital at Neiafu, Vava'u, with a capacity of 60 beds; and Niu'ui General Hospital, at Pangai, Ha'apai, with 20 beds. Six rural dispensaries extend the services of the above hospitals to the remote areas.

The health personnel consists of two doctors, one acting as the chief medical officer at Vaiola Hospital, and the other as the consulting physician at Vava'u; 22 assistant medical practitioners; four dispensers; one sanitary inspector; two assistant pharmacists; one government dentist, and 17 staff nurses. There are also some 20 assistants assigned to doctors, sanitary inspectors and laboratory personnel.

The population maintains a steady annual increase of about 3 per cent. The crude birth rate is high and steady at around 38 (37.8 in 1956), while the death rate shows a tendency to decrease (6.9 in 1956). The infant mortality rate was about 33.75 in 1956, as compared with 58.7 in 1954.

A yaws control campaign is under consideration, and assistance in conducting it has been requested from WHO.

Some interesting arrangements have been made for carrying out the health work in this small but well organized island group. Both medical and dental care are free to Tongans, with the exception of those admitted to the tuberculosis ward, who pay a daily fee of three shillings (US $0.35). The Infant Welfare Service is staffed by one New Zealand-trained sister, two staff nurses, and one trainee. The Child Welfare Service is gradually assuming responsibility for the care of pre-school children, although this work benefits from the co-operation of all the health services. Schoolchildren are examined regularly, and BCG and antityphoid immunization programmes are carried out. The majority of the aged and the chronic sick, except those suffering from chronic infectious disease, are cared for at home, where medical services are supplied free by the Government. Health examinations are obligatory at three-monthly intervals for all food-handlers in shops and stores.

A nutritional survey of government and mission schools in 1956 showed that there existed a general protein deficiency among the pupils, and that they suffered commonly from skin lesions, such as impetigo, scabies and tinea, as well as from respiratory diseases.

In 1955, short-term fellowships were granted to local nurses to attend nursing seminars, and in 1956 similar fellowships were given for refresher courses in village hygiene and preventive medicine.

A serious public health problem in Tonga is water pollution due to the insanitary condition of the wells (the sole source of drinking-water in some places during the dry season), and to inadequate safeguards for sewage disposal and latrines.

The authorities are well aware that further improvements are still needed, despite the great progress made during this century. Future health plans for the Kingdom of Tonga include: a new dispensary in Vava'u; a leprosy station to be established in Tonga, thus avoiding dependence upon Fiji for this service; the organization of a district nursing service; the expansion of the maternity and surgical facilities at the main hospital of Vaiola; the acquisition of x-ray equipment for Niu'ui Hospital to make the antituberculosis campaign more effective; and a more efficient organization of the Tongan Public Health Department, with a view to subsequent expansion of its activities.
VIET NAM

Viet Nam occupies the eastern part of former French Indo-China, with a long coastline on the South China Sea. By a decree of 1949, the area was divided into three zones—North, Centre and South. After the Geneva Agreement in 1954, the northern zone and a part of the central zone north of the 17th parallel were separated off and became North Viet Nam. South Viet Nam (south of the 17th parallel) consists of part of the Central Region, the Southern Region and the mountainous area of the south (Pays Montagnard du Sud), which is now directly under the Government of the Republic.

The greater part of Viet Nam is mountainous, but there is a narrow coastal plain and in the south a fertile plain in the Mekong delta. The combined area is 329,600 square kilometres.

In 1954, the population of the whole country was estimated at 26 million, with a density of 79 per square kilometre. Of these, some 12.5 million lived south of the 17th parallel. The capital, Saigon, has a population of over 1.5 million.

The majority of the people are of Vietnamese stock, but a number of other racial types are found in the mountainous areas, particularly in the Pays Montagnard du Sud.

The main occupations are agriculture, fishing and forestry. There is some industrial development in the former Northern Region and a tendency in this direction is noticeable in and around Saigon.

The economy of the country has suffered severely from the effects of war. A ten-year development programme for industry and a three-year plan for agriculture were announced by the Government in 1954 and are now being carried out. The main products are rice and rubber, but forestry and fishing are growing in importance.

General public education is given in some 3500 primary, 230 secondary and 68 technical schools. The University of Saigon is controlled and operated by the Government. About three-quarters of its teaching staff are Vietnamese and the remainder are foreign.

The principal ports are Saigon and Tourane. In 1956, there were about 14,500 kilometres of roads, of which 3000-3500 kilometres were asphalted. The railway system has now been repaired, and runs from north to south through the whole length of the country, with a number of branch lines. Civil aviation has been managed, since 1953, by a joint company in which the State controls more than 51 per cent. of the shares.

Health

In 1956, when the Constitution of the Republic came into force, the Ministry of Health was placed under the authority of a Secretary of State, who is directly responsible to the President. The functions of the Secretary of State are:

(1) preparation and implementation of legislation on health establishments and organizations, the practice of the medical and para-medical professions, pharmacy and dentistry;

(2) supervision of pharmacies and laboratories (health, bacteriological and for medical analyses), and of the distribution and use of toxic substances or narcotics;

(3) control of venereal diseases, cancer, tuberculosis, leprosy, malaria, trachoma and epidemics;

(4) prevention of communicable diseases and social hygiene;

(5) education and training of auxiliary health personnel and para-medical personnel;

(6) the drawing up and implementation of a national plan for improvement of medical and health facilities;

(7) liaison with the Vietnamese Red Cross, the International Red Cross, the World Health Organization, and congresses of international medicine.

A National Board of Health was created in 1951 as a consultative body to deal with all questions concerning improvement of the public health. At the national level the Secretary of State is assisted by a Director of Cabinet, a Director-General of Health and Hospitals, and a Director of General Administration, who is in charge of the central staff.

Up to 1956 no statistical service had been established in the Ministry of Health, but a central statistical bureau deals with demographic data; the organization of more-developed services in the Ministry of Health is envisaged.

Hospitals for general medicine and surgery, as well as specialized units, have been established in the cities and the provincial capitals. In Saigon, the Hôpital populaire has 375 beds and acts as a teaching unit of the University. A new children's hospital with 260 beds has recently been opened and is extremely active. In 1956 some 60 beds were already in service, and an out-patient department was dealing with 300 children a day. The Cho-Ray Hospital (also a University teaching hospital) has 870 beds for general and special care. Infectious diseases are dealt with at the Choquan Hospital, which has 320 beds. The tuberculosis hospital (formerly the President Thinh Hospital) has 400 beds. In Saigon there are also two large maternity homes and several other medical establishments.

The main institutions in the provinces include a mental hospital (1100 beds) at Bien-Hoa and a large number of general and specialized units distributed throughout the country.
The Ministry has set up three dental health centres in Saigon. There is a shortage of dentists, and a number of private practitioners give part-time help in the hospitals and dental clinics.

Until 1954, progress in maternal and child health work was slow, owing to lack of staff and financial resources. There are not enough centres for prenatal care, but training of rural midwives has begun under the direction of the provincial medical officers. In 1954, the Department of Health drew up a large-scale plan for the extension of maternal and child health services in Viet Nam, and considerable assistance has been received from WHO and UNICEF in its implementation.

A special unit has been set up to deal with insect vector control, and modern methods are being introduced in the control of malaria, tuberculosis and leprosy. There is a laboratory service at the national school for medical biology.

The Medical Faculty of the University of Saigon offers a six-year medical course after a pre-medical year of studies in physics, chemistry and biology. Altogether more than 900 students are enrolled in the Faculties of Medicine and Pharmacy. There are schools for nurses and midwives at Saigon and at Hué.

The cities and most of the district capitals have piped water supplies, and some have relatively satisfactory sewage-disposal systems. The construction and installation of septic tanks is also being developed in these areas.

The Institut Pasteur in Saigon has prepared various vaccines, including BCG, and has a public health laboratory service, which is active in the control of water pollution.

In the large cities, straw huts are gradually disappearing and are being replaced by concrete houses. In recent years the Government has paid special attention to the shortage of housing, and is building low-priced apartments in the cities and provincial capitals, which it makes available to the population on a hire-purchase basis.

WESTERN SAMOA

The territory of Western Samoa lies between 13° and 15° south and 171° and 173° west. It comprises two large islands, Savai’i and Upolu, the small islands of Manono and Apolima, and several islets lying off the coasts, and has a total land area of about 2929 square kilometres. The formation is mainly of volcanic rocks, with coral reefs surrounding the coasts. Rugged mountain ranges form the core of both main islands, with heights reaching over 1100 metres. The climate is tropical with a wet summer and a drier winter, and no great range of temperature. The population at the 1956 census was approximately 97 000, with 18 000 living in Apia, the capital, and the remainder on the coasts, in some 400 villages. After the New Zealand occupation, the Samoans are the largest Polynesian race, and they speak a Polynesian dialect. Most of them live within a social system based on the aiga, or extended family group, headed by a matai. The matai is elected by the common consent of the family members, and he assumes responsibility for directing the use of the family lands; he also represents his family group in village and district councils.

Economically, Western Samoa is primarily an agricultural country and, with the fishing industry, is largely self-sufficient. Copra, cocoa, and bananas are produced for export.

The structure of Samoan society has changed little in the past century. The members of an aiga need not live under the same roof or in the same village, but they will assemble as of right when anything occurs to affect their interests. As organized groups women have an important part to play in Samoan society and in public health and welfare; but individually their status changes with that of their men. Women may hold any public office and exercise all public functions on equal terms with men, and there is no differentiation between the sexes in the right to work. Girls and boys have equal opportunities to compete for scholarships.

On the educational side, there is as yet no provision for a compulsory system. As more schools are built and teachers are trained it should be possible to extend the compulsory system district by district, and even at present wherever there are government village schools there is free primary education for boys and girls. Secondary education is available for children selected by competitive examinations. During the past eight years the Government has carried out an extensive school building programme with assistance from the respective districts and villages, and modern well-constructed schools are now numerous.

Health

A non-official member of the Executive Council, as the member for health, is responsible for the affairs of the Department of Health. He is assisted by a standing committee of the Legislative Assembly. The administration of health services is exercised by the Director of Health. There is one central 250-bed hospital at Apia and 14 district hospitals at convenient points in both islands, providing a total of 200 beds. In recent years the Director of Health has also held the position of medical superintendent of Apia Hospital, but in 1958 a separate superintendent was appointed. The Director is assisted by five qualified medical practitioners and 43 Samoan medical practitioners, the latter being men who have graduated from the Medical School in Fiji.
They are experienced within the limits of their training and do practically all the day-to-day medical work outside the capital.

In 1957 there was a total of 234 Samoan nurses, of whom 94 have completed full local training. The staff is headed by a matron, an assistant matron, a sister-tutor and nine nursing sisters, all of whom are nurses registered in New Zealand.

No accurate figures for the principal causes of mortality have yet been worked out. Work is now proceeding to analyse statistics about the causes of infant deaths. The number of deaths reported in 1957 was 659, of which 164 were infants. During the same year, 3931 live births were reported.

Owing to its isolation, Samoa is free from plague, malaria, cholera and smallpox. Filariasis and yaws are endemic, but their prevalence is decreasing. Leprosy stands at a low level; only 16 new cases were reported during 1957.

The principal pre-natal clinic is at the Apia Hospital and provides a service which is growing rapidly. Child health clinics, especially for the younger groups, are a regular feature of the work of district nurses and the major part of the preventive programme. There are no reliable figures about the extent to which the mothers have skilled attendance by doctor or midwife during child-birth, although a reporting system has now been set up.

Housing presents no difficulties in Samoa. The great majority of islanders still live in their traditional well-built thatched “fales”. There are also quite a number of part Europeans and some full Samoans in and around the capital who live in European or semi-European type houses.
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