THE
FIRST TEN YEARS
OF THE WORLD HEALTH ORGANIZATION

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FOREWORD

Ten years ago today, with the coming into force of its Constitution on 7 April 1948, the World Health Organization took its place among the specialized agencies established under the Charter of the United Nations.

In this anniversary publication, which it is my privilege to present, an effort has been made not only to review the history of these past ten years but also to place the events of that period against the background of previous achievements, and to indicate the broad lines along which future activities could develop.

The problems raised, the difficulties encountered, the solutions adopted, have been recorded as soberly and objectively as possible. Although the period under review is short as compared with the tasks to be accomplished, I believe that all those who from the outset have had faith in the Organization's aims and ideals will find in this Report the justification of their hopes and evidence that tangible, even if as yet modest, results have been achieved.

For me, this measuring, this looking back over the road we have travelled, vindicates my constant optimism and reinforces my own confidence in the Organization's destiny. The increasing desire on the part of our Member States to co-operate in the Organization's activities is yet another sign of this same confidence: if they had no faith in the Organization's future they would not co-operate with such wholeheartedness in its activities — and this applies not only to governments but also to scientific institutions, to administrators, as well as to thousands of scientists and research workers the world over who every day, in their laboratories, are quietly pursuing our common ends.

It is because of this persistent faith and hope that the Organization, in this auspicious year, finds itself, in spite of some setbacks, once more on the highroad to that universality which was its primary ideal and is now very nearly the world organization its founders intended it to be.

Not without importance too is the place in which our activities are conceived, and today seems to me to be an opportune time for the expression of our indebtedness to the spiritual atmosphere, to the climate of understanding and to the noble tradition of international co-operation of the country in which
it is our good fortune to have our headquarters. Everyone, whether he be a representative of a Member State or one of the Secretariat will, I am sure, wish to be associated with the tribute which on this occasion we should wish to pay to the Swiss Confederation and to the Republic and Canton of Geneva.

May I conclude with the hope that from the perusal of the chapters that follow we shall all be able to learn from a short but fruitful past and find the encouragement we need for the future.

Geneva, 7 April 1958

[Signature]

Director-General
PART I

EVOLUTION OF INTERNATIONAL PUBLIC HEALTH
International public health had its origin, just over a century ago, in the International Sanitary Conference which opened in Paris on 23 July 1851. Twenty years before, cholera had for the first time in history reached western Europe, and its successive visitations were a cause not only of consternation but also of speculations—interminable as they were fruitless—about the nature of epidemic diseases in general and cholera in particular and their relation to sanitary, meteorological, and geophysical conditions. During these two decades, the development of the industrial uses of steam power, of railways, and of steam navigation had laid the foundations for international commerce on an unprecedented scale. It was also in the year 1851 that there was held in London the first great International Exhibition, at which over six million visitors were able to see side by side the products of the technical skill and craftsmanship of many nations.

But the increased speed and facility of transportation which were such a stimulus to international commerce also made possible the more rapid and extensive spread of cholera, which found a ready foothold in the squalid and overcrowded conditions which were largely a product of the industrial revolution.

In an address to the participants in the first International Sanitary Conference, the French Foreign Minister referred to the age as one in which all the industries of the universe seemed to have forgotten their former rivalries to join hands at the International Exhibition in London. If the conference achieved its aim, he added, it would not be the least remarkable accomplishment in a century "so fruitful of new and great things". Yet the century was also fruitful of conditions in which filth and disease flourished. In the same year in which the nations of the world were demonstrating their technical
progress at the great International Exhibition, there appeared Henry Mayhew's classic of social casework—*London Labour and the London Poor*—described by its author as

the first attempt to publish the history of a people, from the lips of the people themselves—giving a literal description of their labour, their earnings, their trials, and their sufferings, in their own "unvarnished" language; and to portray the condition of their homes and their families by personal observation of the places, and direct communion with the individuals.

This work by a private individual, which came nine years after a famous official publication—Edwin Chadwick's *General Report on the Sanitary Condition of the Labouring Population of Great Britain*—gave a vivid and terrible impression of the poverty, suffering, and vice which were widespread among the poor of a great city. Yet, only one year later, William Farr, the pioneer health statistician, was to describe England—with "22 deaths annually to 1000 living"—as "the healthiest country in the world" by comparison with France with 24, Prussia 27, Austria 30, and Russia 36.\(^1\)

International public health, then, came into being at a time of great contrasts and upheavals in which unprecedented material prosperity went hand-in-hand with grossly insanitary conditions in the spreading but over-populated towns. The world, as it was to the founders of international public health, was largely a European world, with the peoples of the Americas as distant cousins and other parts of the inhabited globe either completely isolated from the new age of material progress or brought into contact with it only through colonization by European powers. Europe itself was in rapid evolution, and a mere enumeration of the twelve governments which participated in the first International Sanitary Conference—Austria, France, Greece, the Papal States, Portugal, Russia, Sardinia, the Two Sicilies, Spain, the Sublime Porte [Turkey], Tuscany, and Great Britain—is an indication of the extent of the changes which were to take place in the following decades.

But the radical changes that were taking place were not only such as could be recorded on a map. In the words of a distinguished historian:

As the nineteenth century proceeded, the stock of ideas, beliefs, and habits which European man had inherited from long distant times underwent a profound transformation. History and scholarship, economics and physical science, the zeal of reforming prophets and the profuse ingenuity of mechanical inventors, made of Europe in many important respects a new society.

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\(^1\) Farr's conclusions from these crude death-rates would hardly be considered justified today.
Ideas arose out of Europe which, for better or worse, were to influence the future of the entire human race. New political creeds were challenging the whole basis of contemporary society, and a natural scientist, Charles Darwin, issued in his *On the Origin of Species by Means of Natural Selection* a challenge to contemporary ideas on the origin of Man himself and his place in Nature. Many other great changes were taking place in traditional conceptions of human relations. Organized labour was coming into being, and great humanitarian movements were to result in the abolition of the slave trade, restrictions on the traffic in women and children, prison reforms, and improvements in the care of wounded during wars. Free and compulsory education, aided by power-operated printing presses, started to bridge the gap between the illiterate poor and the educated middle classes. Private philanthropy became organized, and through medical missions extended its sphere of action beyond national boundaries.

Basic health legislation was enacted with a view to improving the sanitation of towns and working conditions in factories and preventing the widespread adulteration of foods, and the appointment of salaried medical officers of health was a further step in the recognition by governments that it was their responsibility to ensure a healthy environment for their peoples.

It was in such a setting that the first of the International Sanitary Conferences inaugurated in 1851 a new era of international action in public health. This was, however, not an isolated example of international co-operation, but rather one of many symptoms of a new international movement—a movement born, in an age of nationalism, as a necessary adjunct to the enormous growth of international intercourse and commerce which had been made possible by developments in transport and communications.

During the first half of the nineteenth century, many bilateral conventions had been concluded between individual countries on technical questions. For example, conventions for the regulation of postal communications were arranged between one country and another. But it became apparent that technical problems which required simultaneous and expert consideration by many nations could not be handled expeditiously by the traditional methods of bilateral negotiations between professional diplomats. These methods gave place, in the second half of the nineteenth century, to international conferences convened with the object of enabling nations to reach agreement on many non-political subjects.

Reference has already been made to the International Exhibition of 1851. This provided the stimulus and the occasion for the first discussions between English, French, German, “and even American” scholars which
led to the convening in Brussels in 1853 of the first international General Statistical Congress, at which it was recommended that an international nomenclature of causes of death should be established.¹

Among the subjects of other international conferences were postal and telegraphic communications; weights and measures; patents, trademarks, and copyright; railway freight transportation; navigation and the safeguarding of life on the high seas; the slave trade; and labour legislation. In some cases, public international unions with permanent offices were established, and among them may be cited the International Telegraphic Union ² (1865), the Universal Postal Union (1874), and the International Union of Weights and Measures (1875). As will be seen later, the first permanent international health office did not come into being until after the close of the nineteenth century.

All these international conferences and unions were governmental, but the latter half of the nineteenth century saw also a great development of non-governmental international congresses and associations. Prominent among these was the long series of International Medical Congresses, the first of which was held in Paris in 1867—the year in which Lister first announced the new principle of antiseptic surgery to which he had been led by Pasteur’s work on fermentation. By the end of the century, a total of twelve of these congresses had been held in eleven different countries.

The object of the first International Sanitary Conference was that the twelve nations represented should reach agreement on minimum maritime quarantine requirements and thus, in the words of the President of the Conference, render “important services to the trade and shipping of the Mediterranean, while at the same time safeguarding the public health”. The original initiative for convening the conference, which was held in Paris, was taken by the French Minister of Agriculture and Trade, who described himself as “placed at the head of the sanitary and commercial administration” of his country. Each participating government was represented by two delegates—one a diplomat and the other a physician.

In the course of the conference, forty-eight plenary sessions and numerous committee meetings were held until, almost exactly six months after the opening session, it was declared closed on 19 January 1852.

¹ More than a hundred years later, the nations of the world are still acting on this recommendation by combining, through the World Health Organization, in the periodical revision and publication of the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, of which the latest edition appeared in 1957.

² Now the International Telecommunication Union
The product of these immense labours was an international sanitary convention to which was annexed the text of international sanitary regulations containing 137 articles. A draft of this convention was signed on 19 December 1851 by all of the twenty-four delegates representing twelve nations, and they also all signed an amended draft on 16 January 1852. But they did not commit their governments, and four months later only five of the twelve powers—France, Portugal, Sardinia, the Sublime Porte, and Tuscany—had signed the convention. However, these signatures still remained to be ratified. On 18 May 1852, instruments of ratification were exchanged between France and Sardinia and the convention came into force between these two countries. Later Portugal adhered to the convention, but in 1865 both Portugal and Sardinia withdrew and the convention became completely inoperative.

The reasons for this failure may have been partly procedural, for, after a long discussion as to whether voting should be by the powers represented or by individual delegates, the latter method was adopted by a large majority. The practical effect of the choice of this method was that each of the two delegates representing the same government might vote in a contradictory sense, and that the voting might represent a difference in outlook between administrators and physicians rather than the views of a majority of participating governments. But, while such a method of voting might in any circumstances have rendered nugatory the decisions reached, the main reason for the meagre results of this and later conferences is to be sought elsewhere. In his address at the closure of the first conference, the French Minister of Agriculture and Trade congratulated the participants on their discretion and wisdom in divorcing themselves not only from all questions of politics—but also of science. For both diplomats and doctors who participated in these six-month discussions had in common their total ignorance of the nature and mode of propagation of the three diseases—cholera, plague, and yellow fever—under consideration.

The cholera pandemics of the nineteenth century made this the most discussed of all the diseases which are now known to be communicable, and, from 1831 onwards, there was a vast outpouring of published literature on cholera. Even before the disease had reached western Europe, the private and official publications on cholera which started to flow from the printing presses bear witness to the sense of fearful apprehension aroused by the calamitous outbreaks in Russia, Poland, Prussia, and Austria. The disease was, in the words of a contemporary writer, "so new, imposing, deadly, overwhelming, and terrible". Slightly more than a year before France was
struck, the Minister of the Interior addressed an official request to the Royal Academy of Medicine that it should urgently prepare instructions for warding off and treating cholera. The Academy appointed a special committee for this purpose, and a few months later published its report in which it was concluded, *inter alia*, that cholera had never been shown to be transmissible. Across the English Channel, the Privy Council published in the *London Gazette* of 20 October certain rules and regulations proposed by the Board of Health, for the purpose of preventing the introduction and spreading of the disease called Cholera Morbus in the United Kingdom, together with an account of the symptoms and treatment of the said disease.

It was assumed by the Board of Health that the chief danger would come from illicit cross-channel smuggling activities which could not, from their nature, come under the control of quarantine measures. But, in the event, cholera broke out in Sunderland on the east coast of England some months before it invaded France.

The cholera literature published during the first three decades of cholera in Europe includes some of the most thorough epidemiological investigations undertaken in respect of any disease, and one of the earliest of these was the report of an official commission on the first cholera epidemic to strike Paris. The disease had reached Calais from England on 15 March 1832, and soon broke out in Paris, where it claimed over 21,000 victims within seven months—a toll of life which represented a mortality rate of nearly 23 per thousand inhabitants. The introduction to this report gives an impression of the contemporary attitude to such a disaster:

> When a deadly scourge, such as famine, pestilence, or an epidemic strikes a great city, the first feeling that it arouses is terror. Everyone has but one thought, one object: to escape the evil. Those whose position or wealth allows it flee in all haste; those—and they are in the majority—for whom flight is impossible, forced to remain, give way to fatal despondency, already considering themselves doomed to an early death, living in continual terror, more afflicted by the real misfortunes which they bring upon themselves than by the scourge which they dread but which may not assail them.

The report itself contains sixty-seven detailed statistical tables in which cholera deaths are analysed by reference to age, sex, duration of the disease, atmospheric temperature, locality, exposure, elevation, soil humidity, population density, social class and occupation, and other factors. Even more elaborate epidemiological studies were made by William Farr of the cholera

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1 This faith in quarantine measures was not to survive for many years. (See p. 10.)
epidemic of 1848-49 in England\textsuperscript{1} and by a committee, of which Farr was a member, on the 1854 epidemic, but these led only to the tentative conclusion that there might be a causal relationship between cholera and elevation of the ground.\textsuperscript{2} These and other exhaustive reports prepared at the time demonstrate the limited value of the massive accumulation of mere facts.

The idea that an invisible living agent might play a part in cholera—sometimes referred to as the "hypothesis of insect life"—was periodically ventilated in different forms from the time when the disease was first manifested in Europe. The clearest statement of this theory was propounded by John Snow, first in 1849 and later, in greater detail, in 1855. Although the terms in which Snow expressed his hypothesis—for it was nothing more—are in striking conformity with modern knowledge, it was not until a quarter of a century after his death in 1858 that Robert Koch established the specific relationship between cholera and the comma bacillus.

Even Koch's crucial discovery did not result in a universal discrediting of the current view that some general external factor was instrumental in the causation of cholera epidemics, and it must be recognized that in the first exciting years of medical bacteriology the host-parasite relationship was greatly oversimplified. In 1892, nine years after Koch's discovery, Max von Pettenkofer postulated that three major elements were involved in the etiology of cholera, which he designated respectively as $x$, $y$, and $z$. The first was a germ propagated by human intercourse; the second, an external factor which he called "temporospatial disposition" (zeitlich örtliche Disposition); and the third was the individual disposition. At the age of 74 he demonstrated his own faith in his views by swallowing 1 cm\textsuperscript{3} of a broth-culture of cholera vibrios on an empty stomach—after having previously neutralized his gastric juices with sodium bicarbonate. The result of this experiment was mild colic and diarrhoea and the excretion of cholera vibrios in the stools for a week. Another sceptic was the great epidemiological historian, Charles Creighton, who, as late as 1894, ridiculed the "microbic theory" of cholera.

\textsuperscript{1} Farr's report on this epidemic was described by The Lancet (1852, i, 268) as "one of the most remarkable productions of type and pen in any age and country".

\textsuperscript{2} In his report on the cholera outbreaks in England of 1865-66, Farr amplified and confirmed Snow's findings on the relation of cholera incidence to polluted water-supplies, and stated, "simply as a hypothesis, that the cholera is propagated epidemically by a material substance" analogous to "the substances which produce, under given circumstances, smallpox, cow-pox, syphilis, erysipelas". To this hypothetical substance Farr gave the name cholrine, which he conceived as a "zymotic matter" which lived "irregularly distributed in air or in water". It was "evident that the amount of zymotic matter evaporated from cholera flux, and entering the system through air, must be inconsiderable as compared with the amount that may enter through a water supply contaminated by sewage".

To return to the first International Sanitary Conference: early in the proceedings one of the Austrian delegates proposed that the subject of cholera should be struck from the agenda, on the ground that it was a "purely epidemic disease" and that it was therefore of no avail to use against it the quarantine measures which were supposedly successful in the cases of plague and yellow fever. This view was strongly supported by several delegates, including those of France and the United Kingdom, but others were of the opposite opinion.

In an attempt to settle the question, a committee consisting of four physicians and three consular officials was appointed. They not only deprecated as futile the incarceration of passengers from infected ships but deplored the practice on the ground that the passengers should be dispersed by all possible means. Quarantine measures for cholera were "impossible and illusory, dangerous even in certain cases, and contrary to the purpose for which they were intended". However, the convention which finally emerged from the conference provided for quarantine measures for cholera as for the other diseases.

The arguments advanced against quarantine for cholera sound strange to modern ears, but at that time words such as "epidemic", "contagion", and "infection" had meanings which were never precise and often varied widely as between one writer and another. "Epidemic" disease was widely believed to occur only in the presence of certain conditions of climate and soil, and to strike large numbers of people simultaneously without transmission from one to another. "Infection" conveyed the idea of transmission of disease from a sick to a healthy person by a poisonous exhalation or miasma, while "contagion" implied conveyance by direct or indirect contact of a materies morbi which some thought to be living and others not. To Jacob Henle, one of the most progressive and influential medical scientists of his time, a contagion was a living material which had started its career as a miasma and assumed its present form after passage through the human body. He classified "epidemic" diseases as (i) Miasmatic (malaria); (ii) Miasmatic-contagious (exanthemata, cholera, plague, influenza); and (iii) Contagious (syphilis, itch, rabies). Contagions were either "volatile" and conveyed by the atmosphere or "fixed" and conveyed by physical contact. While Henle's views were, as he conceded, conjectural, they stimulated many attempts at the microscopic examination of disease products. During the 1849 cholera epidemic in England, several claims were made to have discovered a causative organism, and in the same year a French physician identified vibrios in rice-water stools without, however, suggesting that they had a causal relation to cholera. In the report on the 1854
epidemic in England to which reference has been made earlier, there appeared
the statement that “vibriones are constantly present in the rice-water discharge of
cholera” and the report contains a number of coloured plates showing these and
other forms of life revealed by microscopic examination of water from wells,
piped supplies, and sewers. But the knowledge and techniques required for
appraising the findings accumulated were to await another generation.

Such was the state of medical knowledge at the time of the first Interna­tional
Sanitary Conference and for three decades after it. The medical dele­gates had, in fact, nothing to contribute but unverified and often contradictory
hypotheses, and in such circumstances it is hardly surprising that so little was
achieved.

The second International Sanitary Conference, in which no medical
delegates were included, was held in Paris eight years later, in 1859, and lasted
for five months. A new draft convention was agreed upon by a majority of
delegates, but nothing more was heard of it. The third International Sanitary
Conference, which lasted for seven months, was held in Constantinople in
1866 and marked an advance in that agreement was reached on a number
of technical questions, although some of the conclusions were later shown
to be scientifically incorrect.

There was unanimous agreement that cholera was endemic in India
and nowhere else, and that it was transmissible. It was also agreed unanimously,
with one abstention, that air was the principal vehicle of the causative agent.
However, it was conceded that:

Water appears, according to observations made principally in England by Dr Snow
and in Germany by Dr Pettenkofer, to contribute, in certain circumstances, to the develop­
ment of cholera in a locality.

Delegates were unanimous in declaring that the portal by which the causative
agent—whether it be called a contagion, germ, or miasma—gained access to
the body was “principally the respiratory passages and very probably also
the digestive tract”. The conference was therefore far from reaching a clear
conception of the nature of cholera or of the way in which it was disseminated.

On 1 July 1874 the fourth International Sanitary Conference opened
in Vienna. This conference was noteworthy because it lasted only one month;
it was the first of the International Sanitary Conferences to be held since
the opening of the Suez Canal in 1869; and Germany sent as its two illustrious
delegates Alexander Hirsch and Max von Pettenkofer, the last of whom was,
eighteen years later, to show his confidence in his mistaken theories of cholera
by wagering his own life.
Delegates of the twenty-one nations represented reviewed the scientific recommendations of the previous conference in Constantinople and unanimously endorsed the following conclusions: cholera was endemic to India and was always imported into other countries; it was always transmitted by man coming from an infected place; it could also be transmitted by personal effects; corpses of cholera victims should be considered dangerous; air was the principal vehicle of the causative agent, but reports of atmospheric transmission at one or several miles' distance were not conclusive; the causative agent rapidly lost its pathogenicity in the presence of fresh air; while no certain and specific means of disinfection were known, the great value of hygienic measures such as aeration, "lotions profondes",\(^1\) cleansing, etc., combined with the use of substances then regarded as disinfectant, was recognized. The conference was unable to reach unanimity on the questions of: transmissibility by food, drink, animals, and goods; the duration of the incubation period; and whether any known procedure of disinfection might have some chance of destroying the causative agent or diminishing its activity. On questions of quarantine, there was much agreement but no unanimity on all points.

Perhaps the most interesting feature of this conference was the plan for a Permanent International Commission on Epidemics which was introduced, and advocated for many years later, by Dr A. Proust, a member of the French delegation. The conference unanimously recommended that such a commission should be established, and Vienna was proposed as its seat. The commission was to be composed of physicians appointed by the participating governments, and would concern itself with "purely scientific questions", its main task being to study the etiology and prophylaxis of cholera. As the first objectives of research, the study of the rainfall and telluric conditions in the Eastern Mediterranean and Black Sea regions, the epidemiology of cholera in ships and ports, and its incubation period were suggested.

The next International Sanitary Conference, which took place in Washington in 1881, was the first in which the United States of America participated, and the only one of this series of conferences to be held in the Western Hemisphere. This time an alternative proposal for a "permanent International Sanitary Agency of Notification" was put forward. The agency was to have two offices—one in Vienna, which would collect and distribute information from Europe, Asia, and Africa, and another in Havana to perform the same function for the Americas. It was also suggested that there might be a third office in Asia. The annual budget of the agency would be determined by

\(^{1}\) The meaning of this obsolete term is probably "thorough ablutions".
Austria-Hungary and Spain (Cuba then being a Spanish possession), which would notify participating governments of the contributions required of them. This emphasis on notification is of interest as indicating a growing realization of the importance of an international and reliable system of epidemiological reporting.

But the most remarkable feature of this conference was a truly historic event which passed almost unnoticed. The Special Delegate of Spain representing Cuba and Puerto Rico was no less a person than Carlos Finlay who, in the discussions on yellow fever, claimed that the sanitary precautions generally recommended were founded upon conceptions of the disease which were completely at variance with many observed facts. He maintained that the contradictory opinions of contagionists and non-contagionists both had some justification, but that to reconcile them a “third independent condition” must be sought. This was

the presence of an agent entirely independent for its existence both of the disease and of the sick man, but which is necessary in order that the disease shall be conveyed from the yellow-fever patient to a healthy individual.

Finlay added:

It will be objected that this is a mere hypothesis; and, indeed, it is only as such that I give it. But I believe it is a plausible one, which has, at least, the merit of explaining a certain number of facts which have remained hitherto unaccounted for by the current theories. I do not ask anything else, for my only object is to show that, if my hypothesis, or some other analogous to it, should be realized, all those measures which are now employed in efforts to disinfect and check the progress of the disease would turn out to be without effect, inasmuch as the principal efforts should have been directed against the third condition, by endeavoring to destroy the agent of transmission, or to divert it from the path that it follows in communicating the disease.

Thus Finlay made public for the first time his concept of the role of an intermediate vector in the transmission of an epidemic disease from man to man. In the same year, he read before the Academy of Sciences of Havana a paper in which the mosquito later to be known as *Aedes aegypti* was specifically incriminated as the medium of transmission of yellow fever. Nevertheless, his work was received with general incredulity for nineteen years until it was decisively confirmed by the United States Army Yellow Fever Commission in 1900.

Further International Sanitary Conferences took place in 1885 (Rome), 1892 (Venice), 1893 (Dresden), 1894 (Paris), and 1897 (Venice), each of which resulted in a convention of limited scope relating to cholera or plague.
Scientific differences of opinion had progressively narrowed, but this could not be said of differences prompted by the desire to safeguard national interests.

In retrospect, it is seen that in the first half-century of international public health progress was very slow. Indeed, it could hardly have been otherwise before medical science had found the key to the fundamentals of the problems under discussion. Further, the objectives and orientation of international health work were very simple and very limited. Two main ideas dominated the earlier International Sanitary Conferences. The first was the removal of hindrances to trade and transport, and the second was "the defence of Europe" against exotic pestilences. As was stated by Edouard Sève, of Belgium, at the Washington conference in 1881:

The first striking point which one comes across in examining these documents about international hygiene is that up to the present, under the name of public hygiene, the only researches made in common by the different governments of Europe were to oppose a barrier in the way of the march of epidemic diseases, and especially of cholera.

In its second half-century, international public health was to come of age by the attainment of the ideal of universality and of its present broad humanitarian objectives.
CHAPTER 2

Earlier International Health Organizations

THE OFFICE INTERNATIONAL D’HYGIÈNE PUBLIQUE

In 1903 the eleventh International Sanitary Conference opened in Paris, and its main immediate achievement was to unify and revise the four previous conventions in the form of a single instrument—the International Sanitary Convention of 1903, whose provisions related to both cholera and plague. But perhaps the outstanding feature of this conference was that it was held at a time when a flood of new light had been thrown on the three epidemic diseases—cholera, plague, and yellow fever—which had for most of the previous history of international public health been enveloped in an obscurity which protracted discussions and laborious epidemiological investigation had done little or nothing to illuminate. For the first time there was a body of scientifically established and universally accepted facts about these three diseases and their totally different modes of transmission. In the case of cholera, controversy about fundamentals had ceased before the end of the nineteenth century, and the President of the conference was able to declare, perhaps rather optimistically: “The prophylaxis of cholera is known; it has been reduced to its simplest form.”

In 1894, Kitasato and Yersin independently discovered the plague bacillus, and three years later—the year in which the last of the nineteenth-century International Sanitary Conferences was held—Ogata demonstrated its presence in plague-infected rats. But the 1903 conference was the first at which delegates were armed with the knowledge of the role of the rat in the transmission of plague and of Aëdes aegypti in the spread of yellow fever.¹ From

¹ Nevertheless, yellow fever was not included within the provisions of the 1903 Convention, save for a recommendation that affected countries should bring their sanitary regulations into line with contemporary scientific data on the mode of its transmission and, above all, on the role of mosquitoes.
Colonel W. C. Gorgas himself they were able to receive an account of the work of the United States Army Yellow Fever Commission and of the subsequent campaign to eradicate *Aedes aegypti* from Havana.

Thus, the first of the International Sanitary Conferences to be held in the twentieth century marked also a turning point in the scientific study of epidemic diseases. Many of the fundamental problems had been solved, but it remained to translate scientific discovery into practical public-health measures. A proposal from the French delegation that an international health office should be established was favourably received, and a Committee on Ways and Means was appointed to report on it. The Committee, after studying information on the six existing international offices—dealing respectively with literary and industrial property, postal and telegraph services, railways, and weights and measures—recommended by a large majority that an international health office should be created, that it should follow the pattern of the International Bureau of Weights and Measures, and that its seat should be in Paris. In the discussion of the functions of the proposed office, many delegates emphasized that it should not in any way interfere in national affairs. Conversely, in the words of one delegate, later to be the first President of the Permanent Committee of the new office, it would be truly international and therefore strictly independent of the country in which it had its seat. The aid that it would bring to national health administrations, even of small countries, would be moral—not material. “Its discreet intervention, by means of notifications or advice, would stimulate each country to improve the organization of its public-health services.” It was left to the French Government to present to the States represented at the conference formal proposals for the creation of an international health office when it judged the time opportune, and a provision to this effect was included as Article 181 of the International Sanitary Convention of 1903.

Four years later, on 9 December 1907, delegates of twelve States, nine of which were European, signed the Rome Agreement for the creation, in Paris, of an international office of public health—the Office International d’Hygiène Publique (OIHP). The new office was to be under the authority and control of a committee of delegates of Member governments, and it was stipulated in its Constitution that these delegates should be “technical representatives” of their countries. However, this term was widely interpreted for, although most of the first members of the “Permanent Committee” were medically qualified, several were diplomats. States which had not signed

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1. Belgium, Brazil, Egypt, France, Great Britain, Italy, Netherlands, Portugal, Russia, Spain, Switzerland, United States of America
the Rome Agreement could adhere to it on application, thus accepting the obligation to contribute to the budget of the OIHP and obtaining the right of representation on the Permanent Committee. The Constitution of the OIHP laid down that it should not in any way interfere with the national administrations, and proclaimed its independence from the authorities of the country in which it was situated. It also established its right to communicate directly with national health administrations.

As its main function, the OIHP was to disseminate to Member States information of general public-health interest, and, especially, that relating to communicable diseases—notably cholera, plague, and yellow fever—and the measures taken to combat them. It was also to suggest improvements to the International Sanitary Conventions and to publish a monthly bulletin. The official language of the OIHP and its bulletin was to be French.

To carry out these functions, there were to be a full-time Director and a Secretary-General, both appointed by the Permanent Committee, and such other staff as was necessary. There was no provision governing geographical distribution of staff. Member States themselves chose into which of six categories of membership they should be inscribed; States in the top category contributing twenty-five units to the budget and having six votes, while those in the bottom received one vote in return for payment of three units. In practice, this voting system was not used.

The annual budget was established in the Constitution as 150,000 French francs per annum—a sum which could not be exceeded without the agreement of the signatory Powers. However, it had been decided at the Rome conference that the contributions of States which later adhered to the agreement could be used to increase the budget level.

The first meeting of the Permanent Committee of the OIHP opened on 4 November 1908 at the French Ministry of Foreign Affairs. All but three of the twelve signatory Powers were represented, and in addition there were delegates from British India, Serbia, and Tunisia.

It will be seen that the original membership of the new international health office to a large extent reflected its historical evolution as the product of over half a century of co-operation in health matters by European States. In fact, Mr Camille Barrère, who presided at the inaugural meeting of the

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1 Brazil, Netherlands, Portugal
2 Mr Camille Barrère's long association with international public health stretched from the seventh International Sanitary Conference in 1892, at which he headed the French delegation, to the thirteenth International Sanitary Conference in 1926, of which he was President. He also presided at the eleventh and twelfth International Sanitary Conferences in 1903 and 1911-12 and at the Rome Conference of 1907.
first session of the Permanent Committee, hailed the OIHP not only as being the joint creation of science and diplomacy but also as representing "the fruit of long and persistent European co-operation". Professor Rocco Santoliquido, on his election as first President of the Permanent Committee, pointed out that one of the important functions of the OIHP would be to publicize information about exotic diseases which "are or may become a permanent threat to civilized States". At its inception, therefore, the OIHP was predominantly European in its orientation, although the ultimate adherence to the Rome Agreement of nearly sixty countries was to give it a more truly international character.

At its first session the Permanent Committee had to decide upon several important administrative matters, such as its Rules of Procedure, the election of a Director and Secretary-General, the number and type of staff to be engaged, and the choice of suitable premises as the seat of the office.

A question which evoked wide differences of opinion was whether the Director should be medically qualified. A motion that only medical candidates should be considered was strongly opposed by the President and also by Mr Camille Barrère, who protested that such a restriction would not be in keeping with "the marriage of diplomacy and medicine of which the Convention was a symbolic expression". The motion, he said, proposed a divorce and implied that the OIHP would be purely medical. A vote on the question gave a large majority in favour of Mr Barrère's thesis, but later the procedure for nominating candidates was to give rise to difficulties. Several delegates had not expected that a Director and Secretary-General would be elected at the first session, and moved that the elections be postponed until all members had had the opportunity of making nominations and the vacancies had been publicly notified. But this motion also was outvoted, and on 9 November 1908 the first Director was elected in the person of Mr Jacques de Cazotte — the non-medical nominee of Mr Barrère, and the only candidate whose name was before the Committee.

The Committee then proceeded to the election of a Secretary-General, the choice falling upon Dr H. Pottevin, also of France, who was later to succeed to the directorship of the OIHP. Later there were appointed to the staff an administrative officer, two editor-translators, an accountant, an archivist, and two messengers.

The building originally proposed to house the OIHP was considered inadequate, and at its second session in April 1909 the Permanent Committee met

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1 Reference is made elsewhere (p. 31) to regional organizations in other areas.
2 Not all members were sovereign States.
in the “provisional headquarters” at 195 Boulevard Saint-Germain which was to be the home of the office for the forty years of its life.

The Rules of Procedure of the Permanent Committee of the OIHP provided for an annual ordinary session in October, a possible second session in April, and one or more extraordinary sessions at other times of the year to be convened on the initiative of the President or at the request of at least one-third of the members of the Committee. However, the practice became established of having, in addition to the regular ordinary sessions in October, an “extraordinary” session in April or May of equal regularity, and this rhythm continued until war prevented the holding of the ordinary session of 1914.

The first few years of the work of the OIHP were also years of important scientific developments and of the growth of the public-health professions, which together made possible revolutionary improvements in the control of important communicable diseases. There was not yet the sharp distinction between the medical scientist and the public-health administrator which was to result from increased specialization in later years. These factors, together with the relatively small membership of the Permanent Committee, combined to facilitate fruitful discussions on technical questions, and the minutes of the earlier meetings of the Committee provide an excellent conspectus of the state of the public health sciences at the time. The subjects of these discussions were also reflected in the content of the monthly Bulletin of the OIHP, which for some years provided a unique source of information on a wide range of questions of public-health importance.

The first major technical problem to be studied by the Committee was the destruction of rats on board ship and the prevention of their migration from ship to shore and vice versa. Dr H. Pottevin, the Secretary-General, had been delegated to prepare a very comprehensive report on the methods used, and the reading of this occupied the whole of an afternoon meeting of the session of October 1909. The report was generally approved but, when it was proposed that it should be published, there was considerable discussion of the extent to which the responsibilities of the OIHP would be engaged by publication. These misgivings were not assuaged by the President’s assurance that the OIHP did not make “official science”. It was ultimately decided that the report should be sent in proof form to all delegates, whose observations would be taken into account in preparing the final text for the press. Here, then, had arisen a question of principle which was, over forty years later, to be discussed more than once by the World Health Assembly and the Executive Board.
At the same session, the Director was able to report on the first nine months during which the OIHP had functioned. Studies had been initiated not only on deratization, but also on a wide range of subjects which included yellow fever, plague, cholera, malaria, tuberculosis, typhoid fever (and especially its prophylaxis by vaccination), ankylostomiasis, cerebrospinal meningitis, sleeping sickness, and the suppression of insect vectors of disease. But the interests of the OIHP in its earliest days were not confined to communicable diseases only, for a start was made on work in the fields of food hygiene, the construction and management of hospitals, and the hygiene of schools and workshops. Added to the programme at the October session of 1909 was the subject of biological standardization, although it was agreed that in this field the OIHP should initially limit itself to diphtheria antitoxin.

While the OIHP did not engage in field work in any of these subjects, it provided at the same time an international information bureau and a forum for the discussion of scientific and practical problems between public-health leaders of different nations. The recommendations which were formulated as a result of such discussions, and the supporting documentation available in the monthly Bulletin, provided Member governments with clear and authoritative guidance on questions which had been the subject of doubt and differences of opinion.

By the time that its activities were suspended on the outbreak of war in 1914, the Permanent Committee had prepared the revision of the International Sanitary Convention of 1903 which resulted in the signature of the twelfth International Sanitary Convention in 1912—the first of them to include yellow fever as a quarantinable disease.

It had also recommended (1910) to governments that in their efforts to avoid the importation of plague they should give priority to the destruction of rats and their ectoparasites in ports and ships. In 1910, also, the Permanent Committee called the attention of governments to the need for international agreement on standards for sera and vaccines. In these early years the following recommendations were also made to governments: central health administrations should not leave to local authorities the sole responsibility for the control of drinking-water and effluents (1913); there should be compulsory notification of open cases of tuberculosis and of deaths from the disease (1913); antityphoid inoculation should be added to the traditional prophylactic measures against typhoid fever (1914); there should be compulsory notification, and surveillance or isolation, of cases of leprosy (1914). Such recommendations were not made lightly, but were the fruit of study and discussion based on data provided by many countries. During the five years of war,
all activities were necessarily suspended, save for the publication of the Bulletin, which continued to appear regularly.

But in spite of this creditable record of work in the five pre-war years of existence of the OIHP, the President of the Permanent Committee, Professor Rocco Santoliquido, gave expression at its first post-war session to new ideas for the future which were still to be proclaimed as new more than thirty years later. The chief guarantee of international security from disease lay, he said, in the standard of public health of each national unit. The idea of erecting barriers against disease was outmoded, and the concept of quarantine should be regarded as an obsolete scientific superstition. Endemic foci of communicable disease should be circumscribed and obliterated, and such action presupposed a considerable and rational development of national health services. The health measures taken must be adapted to local circumstances, and what was suited to a large town would not be applicable to a small rural community. But it was not sufficient that the health services should be developed and reorganized. The masses must accept the necessity for the measures taken. This implied that they must understand them, and understanding could come only by education of the public.

Thus were formulated for the first time in an intergovernmental meeting, on 3 June 1919, the precepts which have since become a corner-stone of international health work.

THE HEALTH ORGANISATION OF THE
LEAGUE OF NATIONS

Twenty years of uneasy peace remained before the Second World War was to result in a disruption of constructive effort between nations. The more radical and dynamic approach to international health work for which the President of the Permanent Committee had called at its first post-war session in 1919 seemed to herald an era of reorientation and expansion for the OIHP. But by the time of the following session, less than five months later, any such hopes had become illusory.

The decisive element limiting the further development of the OIHP was the inclusion in the Covenant of the League of Nations of Article XXIII (f)

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1 Professor Santoliquido himself, whose term of office as President had expired, resigned from the Permanent Committee to deploy his energies as Conseiller technique des Services internationaux de Santé publique of the newly-formed Ligue des Sociétés de la Croix-Rouge, which was to undertake large-scale medical relief and reconstruction activities in war-shattered Europe.
which provided that Members would “endeavour to take steps in matters of international concern for the prevention and control of disease”. At the second post-war session of the Permanent Committee in October 1919, the new President, Dr O. Velghe, announced that, as a result of an invitation addressed to him on 15 July by the British Minister of Health, he had attended an informal meeting in London, to discuss the implications of this and other relevant Articles of the Covenant. Delegates from France and the United States of America also participated in the meeting, as well as representatives of the League of Red Cross Societies and Dr H. Pottevin in his capacity as Secretary-General of the OIHP. The meeting had opened on 29 July and closed on the following day, the parties represented having decided to recommend that the OIHP should continue its existence, perhaps with a change of title and some modification of its statutes, and that it should be placed under the authority of the League of Nations. To this proposal the Permanent Committee gave its general approval.

Here it may be asked why it was considered necessary for the League of Nations to concern itself with health matters when there already existed in the OIHP an intergovernmental organization which represented the culmination of some seventy years of international health co-operation. No specific reason is to be found in the published records, but the following elements were no doubt of importance: in the first place, the general desire for co-ordination was beginning to manifest itself. As a former member of the League of Nations Commission of the Peace Conference expressed it, it was “clearly desirable” that the League should be “a central organism through which international activities of every sort can be co-ordinated”. In conformity with this principle, Article 24 of the Covenant of the League laid it down that “there shall be placed under the direction of the League all international Bureaux already established by general treaties if the parties to such treaties consent”.

The second element was the state of health of the world towards the end of the war and in the immediate post-war period. The breakdown of sanitary conditions in war-ravaged countries led to the apparition of pestilence on a scale which had not been known for generations. In Poland nearly a quarter of a million cases of typhus were reported in 1919, and in the same year over 1 600 000 cases were reported in Russia. It was feared that not only typhus but also cholera might spread and establish themselves in other parts of Europe. Added to this was the impression caused by the great influenza pandemic of 1918-19, which was estimated to have killed fifteen million people.

The scale and urgency of post-war health problems made the resources of the OIHP, with its small staff and modest budget, seem very inadequate
to undertake the heroic tasks of reconstruction which lay before the nations of
the world.

It was in these circumstances that, at the request of the Council of the
League of Nations, an International Health Conference met in London
from 13 to 17 April 1920. Only five countries—France, Great Britain, Italy,
Japan, and the United States of America—were represented at the Conference.
Belgium and Brazil had been invited to participate, but because of a change
of dates were not able to attend. Representatives of the League of Red Cross
Societies and the OIHP participated with full voting rights.

The Conference recommended to the Council of the League of Nations
that there should be established, as part of the League, a permanent Interna-
tional Health Organisation consisting of an Executive Committee, an
International Health Bureau, and a General Committee, the latter to consist
of delegates of Member countries of the League and of countries not Members
of the League but represented on the Permanent Committee of the OIHP.
Subject to the consent of the signatories of the Rome Agreement of 1907, the
OIHP would “form part of” the new international health organization and
any necessary changes to its Constitution would be made. This plan was
approved by the Council of the League in the following August and also, in
its essentials, by the first Assembly of the League in December. By then the
proposed “Executive Committee” was to be a “Technical Committee”, most
of the members of which were to be appointed by the General Committee.
But the General Committee itself could not be established until the consent
of all the governments signatory to the Rome Agreement had been obtained.

Here it should be mentioned that while the original purpose for which
an International Health Conference was convened in London was to draft
plans for a new permanent international health organization, the Council of
the League of Nations had, in a resolution adopted on 13 March 1920, invited
the Conference to “anticipate at this meeting the work of the eventual Per-
manent Health Organisation of the League of Nations, by dealing with the
emergency of epidemic typhus in Poland, and to submit to the Council plans
for united official action”. The Council of the League at the same time
requested the Conference to invite the Polish Government to supply informa-
tion on the situation. In response to this invitation, Poland had sent a delegation
led by its Vice-Minister of Health, Dr W. Chodzko, and Dr L. Rajchman,
who was in the following year to be appointed as Medical Director of the
new international health organization.

* In accordance with a resolution of 13 February 1920 of the Council of the League of Nations
THE FIRST TEN YEARS

The Conference, in its “Report to the Council of the League of Nations on the measures to be taken against the further spread of typhus in Poland”, had stated that “the prevention of typhus in Poland and the spread of that disease across Poland is a matter which calls most urgently for united official international action”. Moreover, it considered that the League of Nations was “the sole organization sufficiently strong and authoritative to secure that the measures required are taken”. The Conference fully endorsed the measures already undertaken with great efficiency by the Polish authorities, but estimated that additional supplies to the value of over £3 million were required.

The situation was such that it became imperative to consider some interim arrangements by which the League’s health work might be started without waiting for each of the governments who were members of the OIHP to agree to its complete subordination to—and inevitably absorption by—the League of Nations. The Secretary-General of the League therefore wrote on 11 March 1921 to the President of the Permanent Committee of the OIHP proposing the immediate establishment of a temporary Technical Committee consisting of delegates from the four States permanently represented on the Council of the League, five members of the Permanent Committee of the OIHP, and one representative each from the League of Red Cross Societies and the International Labour Organisation. This proposal was flatly rejected by the Permanent Committee at its April session. In a letter dated 27 April, the President of the Permanent Committee communicated this decision to the Secretary-General of the League, adding that:

the opinion of the Delegates was greatly influenced by a telegram, communicated by the Representative of France, according to which the Government of the United States could not consent to any International Organization of which it is a member being combined with the League of Nations.

As a result of this decision, two autonomous international health organizations were to exist side by side—one in Paris and the other in Geneva—for thirty years.

However, in spite of the inability of the OIHP to co-operate, a Temporary Health Committee of the League of Nations met for the first—and last—time in Paris on 5 and 6 May 1921. The Committee consisted of delegates of the four permanent members of the Council of the League—France, Great Britain, Italy, and Japan—and representatives of the International Labour Organisation and the League of Red Cross Societies. But no sooner had the meeting opened than two of its members, both of them members of the Permanent Committee of the OIHP, challenged the legality of the constitution of the Temporary
Health Committee, since it was not as laid down in the resolution of the Council of the League which had called it into being.

After discussion, it was decided that the Committee was "not qualified to undertake the duties submitted to it". This decision was embodied in a resolution which was adopted unanimously and which called upon the Council of the League to create a new Temporary Health Committee "and to take further steps to secure the representation of the Office International d'Hygiène Publique if only in an advisory capacity". Such was the brief history of the first health committee to be established by the League of Nations!

On 22 June the Council of the League adopted the recommendation of the abortive Temporary Health Committee that a new committee be established, and this held its first session as the Provisional Health Committee of the League from 25 to 29 August. The new committee consisted, with one exception, of the former Temporary Health Committee with five additional members—all of whom were also members of the Permanent Committee of the OIHP. Out of a total membership of twelve, seven were also members of the Permanent Committee.

However, the legal complications which obstructed the beginnings of the League's health work had an important consequence. Originally the League's contribution to the membership of the Temporary Technical Committee was to have been based on purely political considerations in that it would consist of delegates of the four States permanently represented on its Council, the other members, apart from the representatives of the International Labour Organisation and the League of Red Cross Societies, being also government delegates selected from among the members of the Permanent Committee of the OIHP. When it decided upon the creation of the Provisional Health Committee, the Council of the League also "decided to ask Members to join it on the strength of their technical qualifications and not of their nationality. In other words, they wished to have the benefit of the personal views of these experts, which need not of necessity express the official views of their respective governments."

In the words of the Secretary-General of the League, the members of the new Provisional Health Committee "who had been unofficially invited to become its members, were chosen by a majority vote of the Council from amongst the members of the Committee of the Office International d'Hygiène Publique". He added that the Council of the League "wished to avoid, in
this manner, any overlapping of the duties of the Health Committee and the Committee of the Office”.

The Provisional Health Committee held its second and third sessions in October 1921 and May 1922, during which period the nucleus of the staff of the Health Section had been established. But at the fourth session in August 1921 the word “Provisional” was dropped, and the Committee was thereafter known simply as the “Health Committee” of the League.

Whatever may have been the intrinsic merits of the principle of appointing a standing committee of health experts in their personal capacities, it is apparent that it originated as an expedient to obtain a functional, if not formal, co-operation between the Permanent Committee of the OIHP and the League of Nations. It did not survive the establishment of the Health Organisation in its definitive form, although a similar principle was later to be reflected in the constitution of the Executive Board of the World Health Organization.

This anomalous state of affairs continued until well into 1923, but on 30 January of that year the Council of the League decided to constitute a Special Mixed Committee “composed of an equal number of members of the Health Committee of the League, and of the Office International d’Hygiène Publique” to prepare a scheme for the constitution of a permanent Health Organisation of the League. The Mixed Committee, consisting of sixteen members, met on 27 May 1923 and had completed its work by 2 June. Half of its members were nominees of the OIHP from its Permanent Committee, and the other half were delegates of the Health Committee of the League. But of the latter eight members, half were also members of the Permanent Committee of the OIHP, although nominated in their personal capacities. Participation of the members nominated by the OIHP was on the understanding that “they cannot accept any proposal which would entail any change in the constitution and functions of the Committee of the Office International d’Hygiène Publique”.

In its report, the Mixed Committee recommended that the permanent Health Organisation of the League should consist of (1) a General Advisory Health Council; (2) a Health Committee; and (3) a Health Section of the Secretariat of the League. As the Permanent Committee of the OIHP was not only to act as the General Advisory Health Council but also to “remain autonomous and retain its seat in Paris without any modification in its constitution or functions”, the new scheme put forward represented little more than a new formula for sanctioning an inherently inconvenient situation.

1 This was not an accurate statement of the composition of the Committee, which included members who did not belong to the Permanent Committee of the OIHP.
The Health Committee was to consist of the President of the Permanent Committee of the OIHP and fifteen other members, nine of whom would be "appointed individually for three years by the Committee of the Office International d'Hygiène Publique", the remaining six being appointed for the same period by the Council of the League after consultation with the Health Committee. The OIHP nominees were to be appointed "in such a way that each State which is a permanent Member of the Council of the League of Nations" was to be represented. In addition, the Health Committee could be supplemented by the appointment of "not more than four public health experts as assessors", the appointments to be made by the Council of the League on the nomination of the Health Committee. Full membership of the Health Committee was therefore to be twenty, of which ten were to be nominated by the OIHP, six by the Council of the League after consultation with the Committee, and four by the Committee itself.

This complicated plan was accepted by the Assembly of the League in September 1923. However, in 1934 a Committee of Enquiry was appointed to investigate the structure of League committees, special attention being given to the Health Committee. One of the findings of this investigation was that the Health Organisation is an especially complex one, because it required to be adjusted to and co-ordinate with the Office international d'Hygiène publique...

The Health Committee was described as "too large and unwieldy to serve as a consultative committee" for current work while at the same time "inadequate to serve the purpose of a general conference". Accordingly, the Council of the League in September 1936 authorized a change in the constitution of the Health Committee which was henceforth to consist of only twelve members, of whom one was the President of the Permanent Committee of the OIHP, who was ex officio Vice-Chairman, while the remainder were appointed for a three-year term by the League.

The OIHP retained its largely nominal function as the General Advisory Health Council of the League's Health Organisation.

INTERNATIONAL HEALTH WORK
BETWEEN TWO WORLD WARS

It will be seen from the foregoing account that the organizational structure upon which international health work was based during the twenty inter-war years was the result of a deadlock. The OIHP was in formal relationship with
the League of Nations in that its Permanent Committee acted as the General Advisory Health Council of the League’s Health Organisation. Nevertheless, the OIHP remained a distinct and entirely autonomous international health organization, with its own headquarters and secretariat. At the first session of the Provisional Health Committee in August 1921, the fear had been expressed that the Assembly of the League might not sanction the establishment of a new health organization if the OIHP continued its independent existence. It was therefore, in the view of Professor Léon Bernard, desirable “to show, broadly, the difference between the functions of the two organizations, rather than their similarity”.

It was rather in this spirit that the OIHP and the Health Organisation of the League continued their parallel existences. The older organization maintained, and to a certain extent developed, its traditional functions, while the newer one sought opportunities for useful work by evolving new methods and extending the field of international health work to new subjects.

One of the main tasks of the OIHP in the earlier post-war years was the revision of the 1912 Convention. This work resulted in the International Sanitary Convention of 1926, which not only increased the number of quarantinable diseases to five by the addition of smallpox and typhus, but gave the OIHP a more active part to play in international efforts to limit the spread of epidemics. Henceforth, countries were to notify the OIHP immediately of first cases of plague, cholera, and yellow fever, and of the appearance of typhus and smallpox in epidemic form. The OIHP in its turn was to relay this information telegraphically to all countries whose geographic situation or maritime relations placed them in danger. Previously such information had reached the OIHP very tardily from official published statistics.

From such notifications a weekly communiqué was prepared, and this was included in the Weekly Epidemiological Record of the League of Nations. In October 1931 the possibility of wireless transmission of notifications was the subject of a long discussion by the Permanent Committee, but it was decided that this was not desirable as a general method. Under the 1926 Convention the OIHP was also charged with the duty of regularly collecting from governments certain other information, and the replies received were organized and published as the Annuaire sanitaire maritime international. Later, it was decided to issue two further publications: a Relevé annuel relating to the deratting of ships and ports and a Répertoire sanitaire maritime international.

In 1928 a Pilgrimage Commission was established to examine the report on the Mecca Pilgrimage prepared each year by the Egyptian Sanitary,
Maritime and Quarantine Board. This was one of several regional organizations to which the OIHP delegated certain functions. In the same year the Permanent Committee decided to take up a question of rapidly growing importance—that of quarantine regulations for air traffic, and by 1932 an International Sanitary Convention for Aerial Navigation had been drawn up. This was signed by twelve countries in the following year, and came into force in 1935 when ten countries had ratified it.

While the main concern of the OIHP was, with the aid of its Quarantine Commission, to supervise international quarantine measures and to improve the technical methods by which they were operated, its work also extended to other fields, notably the Brussels Agreement of 1924 on venereal diseases in seamen, the international standardization of anti-diphtheritic serum, and the control of narcotic drugs. In addition, information on many other subjects was collected from member countries and published in the monthly Bulletin.

The early work of the Health Organisation of the League was at first directed towards the emergency situation created by the epidemics, especially of typhus in eastern Europe, which came as a tragic aftermath of the war, and an international Epidemic Commission was constituted to visit and advise the health authorities of the affected countries. Although the tide of such epidemics had receded by 1922, the Health Organisation's Epidemiological Intelligence Service continued to collect and publish data which provided a world-wide picture of the status of the epidemic diseases of major international importance. Because of the relative prevalence of such diseases in Asia, the Health Organisation established in 1925 its Eastern Bureau—thus realizing a proposal which had first been made almost half a century before at the International Sanitary Conference of 1881.

The establishment of the League's Malaria Commission in 1923 implied a new approach to international work in the control of communicable diseases. Hitherto, the emphasis had been on controlling the importation of a disease from one country to another, but the work of the Malaria Commission was essentially to study and advise on the best means for the control of malaria wherever it existed. One of the outstanding results of these studies was the introduction of totaquina, an effective but cheaper substitute for pure quinine.

In the same year, the Health Organisation broke new ground by the establishment of its Cancer Commission, a main outcome of whose work was the series of annual reports on The Results of Radiotherapy in Cancer of
the Uterus. Among the other technical commissions established were those on biological standardization, housing, physical fitness, typhus, leprosy, medical and public-health training, rural hygiene and unification of pharmacopoeias.

Some of these subjects—and especially housing and rural hygiene—are indicative of the broad outlook on health questions which inspired the work of the Health Organisation at a time when narrower conceptions were more prevalent than they are today. But the outstanding example of leadership by the Health Organisation is perhaps to be found in its work on nutrition. The decision to enter this field was made in 1934, and in 1936 was published the report on the physiological bases of nutrition by the Technical Commission which had been established in the previous year. It has been stated officially that this report attracted more widespread attention than any other report issued by the Health Organisation, and over twenty years later it can still claim to be regarded as a document of historic importance.

In the years immediately preceding the Second World War increasing emphasis was given to social diseases, such as malnutrition, in the plans of the Health Organisation. But with the outbreak of war, international health work once more came almost to a standstill. By June 1940, only two medical officers remained in the staff of the Health Section, and it became increasingly difficult for them to make contact with the members of the Health Committee. With the spread of the war, the activities of the Eastern Bureau were suspended towards the end of 1942.

Nevertheless, the Health Section continued to deal with requests for information to the extent that its limited resources permitted. Several numbers of the Bulletin of the Health Organisation were published, and these included studies of some of the special health problems created by the war. Publication of the Weekly Epidemiological Record was never suspended. In May 1944 the two officers who constituted the nuclear staff of the Epidemiological Intelligence Service of the Health Section were transferred to the United States of America to form a “research unit”—and later to organize an Epidemiological Intelligence Service—in the Health Division of the United Nations Relief and Rehabilitation Administration (UNRRA). In January 1945 UNRRA assumed responsibility for the OIHP’s duties in respect of the international sanitary conventions. The OIHP was totally unable to exercise its functions for most of the duration of the war.

With the cessation of hostilities came the urgent need to help the war-devastated countries to combat epidemics and restore their health services. It had been foreseen that no existing international health organization would be in a position to undertake this massive task, and at the first session of
UNRRA’s Council in 1943 it had been agreed that health work would be one of its “primary and fundamental responsibilities”.

While UNRRA was a temporary organization created to deal with an emergency situation, the work of its Health Division in combating epidemics, administering the international sanitary conventions, providing essential medical supplies, and aiding governments of fifteen countries to rebuild and even improve their health services provided the indispensable link between continuing intergovernmental health activities before and after the war.

REGIONAL HEALTH BODIES

In the foregoing account, an attempt has been made to sketch the mainstream of the developments which were to lead directly, if very gradually, to the establishment of a central and universal organization for the promotion of health.

This account would, however, be incomplete if all reference were omitted to the various regional health bodies of earlier origin. The distinction of having established the first international health bureau with its own secretariat belongs to the republics of the Americas, which in 1902 united to establish an International Sanitary Bureau. Thus came into being, several years before the foundation of the Office International d’Hygiène Publique, the regional health agency which, on attaining its majority in 1923, changed its name to Pan American Sanitary Bureau (PASB).

While fully maintaining its autonomy and regional status, the PASB co-operated in international health work on a wider basis by collecting epidemiological intelligence, on a regional basis, on behalf of OIHP, by exchanging information with the Egyptian Sanitary, Maritime and Quarantine Board and, later, by informal co-operation with the Health Organisation of the League of Nations.

It is noteworthy that the establishment of the Bureau followed almost immediately on the proof of the mode of transmission of yellow fever—a disease of outstanding importance in the Americas—and the consequential campaign to eradicate it from Havana, thus providing another example of the stimulating influence of scientific discovery on international health co-operation. Since then, work directed towards the eradication of yellow fever from the Americas, and undertaken in collaboration with other organizations—notably the Rockefeller Foundation¹—continued to be one of the corner-stones

¹ Because of the private character of the Rockefeller Foundation, the activities of its International Health Board, formed in 1913, have not been dealt with in this review.
of the activities of the PASB. It is no exaggeration to say that this work represents one of the really great stories of international public health. Moreover, the PASB, in developing advisory services to governments in this and other fields, was a pioneer in a method of health co-operation between governments which has since been applied by the World Health Organization on a world-wide basis.

The coming-into-force on 1 July 1949 of the Agreement between the World Health Organization and the Pan American Sanitary Organization marked a further stage in the identification of the Bureau with international public health in its broadest sense.

The four other regional health bodies which became constituted in the nineteenth century all reflected the need for some machinery for regulating quarantine procedures in the Mediterranean area. They were not organizations with their own secretariats and premises, but were Councils usually consisting of representatives of the Moslem host country on the one hand and of European powers on the other.

The first of these Councils to be established was the Conseil supérieur de Santé de Constantinople, and its origin is indicated in the words of an official note transmitted on 18 April 1838 by the Government of the Ottoman Empire to the French Ambassador in Constantinople:

The Sultan, moved by the paternal solicitude and humanity which distinguish him, bestows benefits of every kind upon the subjects resting beneath the shade of his sceptre of justice. His Highness, desiring to put an end to the terror inspired in his people by the presence of plague, has decreed a quarantine throughout his realms.

The adoption of this system is in the general interest, that is to say it will contribute to the well-being of the Ottoman Empire and will preserve its relations with friendly Courts. A special commission will be charged with the execution of this decree, with the places set apart for quarantine and with other relevant provisions; its decisions will be communicated later to the several legations by the Minister for Foreign Affairs.

The European powers pointed out that a unilateral application of quarantine measures to their ships arriving in Ottoman ports would be in conflict with certain rights that they enjoyed as a result of earlier treaties. It would therefore be necessary for the government under whose flag a ship sailed to consent to any such measures. Further discussions resulted in the establishment of the Conseil supérieur de Santé de Constantinople, which was composed of the Ottoman Health Council and delegates of the maritime powers, who together signed on 10 June 1839 the text of an agreement regulating the sanitary control of foreign shipping in Ottoman ports.
In 1851, the year of the first International Sanitary Conference, the Council consisted of eight officials of the Ottoman Government, some of whom were foreign physicians, and delegates of nine European powers—Austria, Belgium, France, Great Britain, Greece, Prussia, Russia, Sardinia, and Tuscany. Under the supervision of the Council were sixty-three local Health Offices distributed throughout the Ottoman Empire, each of which was staffed by a “directeur musulman” and a “médecin d’une faculté d’Europe”, together with a varying number of subordinates. Each director was independent of the local administration, and sent a weekly report direct to the Council. The medical officers of the Health Offices, who were responsible to the directors, reported on the state of health of their areas, supervised hygienic measures, and put into effect sanitary regulations on instructions received from the Council. In addition, each Health Office had in the principal districts of its area agents who exercised surveillance on all incoming traffic by land or sea and reported on the state of public health in their districts. In all, there were 191 posts from which such agents operated.

In Egypt there came into being in 1843 a similar Health Council of international composition which was later to be known as the Conseil sanitaire maritime et quarantenaire d’Egypte or, more shortly, the Egyptian Quarantine Board. This Board, which had its seat in Alexandria, had originated as a Board of Health established in 1831 to protect the country from imported epidemics, and it was linked to a system of health offices in the provinces. With the opening of the Suez Canal the work of the Board increased in importance, and it was in later years recognized as a regional epidemiological bureau of the OIHP. In 1938 its functions were taken over by the Egyptian Ministry of Health, but in 1946 the countries adhering to the recently established League of Arab States decided that it should again act as a regional bureau. However, in 1949 all its functions were transferred to WHO.

Thus, even before the first International Sanitary Conference was convened, there already existed in the Levant a highly advanced system of epidemiological intelligence, controlled by two international advisory councils. The draft International Sanitary Convention which resulted from the 1851 conference contained provisions for developing and strengthening this system, which survived in modified form until the outbreak of the First World War.

In 1840 the Emperor of Morocco delegated to the agents of the Christian powers represented at his court the honourable mission of watching over and guarding public health in the coastal regions of this Empire and of making all regulations and taking all measures that may be necessary to that end.
Thus was established the Conseil sanitaire de Tanger, the main concern of which was with quarantine measures intended to limit the spread of epidemic diseases—especially plague and cholera—by outward-bound and returning pilgrims. But its limited resources, and the lack of participation by the host country, did not ever permit it to be an effective instrument of international quarantine. With the coming of the First World War, it faded out of existence.

A similar fate overtook the Conseil sanitaire de Téhéran, which had been established “in principle” (in the words of a contemporary writer) in 1867, but did not meet regularly and had no funds. In 1904 the Shah of Persia promulgated a decree by which was established a Conseil sanitaire de l'Empire which, while a national body, included in its membership medical representatives of other States. During its brief existence, this new Council sent reports of its meetings to foreign legations and, later, to the CIHP.

The four Health Councils differed in their composition, functions, and efficacy, and in character they had little in common with the regional system of the World Health Organization. Nevertheless, all of them represented a recognition by the maritime powers that prophylaxis against pestilential diseases involved more than quarantine measures in home ports.
PART II

ESTABLISHMENT OF THE WORLD HEALTH ORGANIZATION
The events recounted in the preceding chapters show that the will to effective international collaboration in questions of public health preceded by many years the existence of the scientific knowledge needed to make such collaboration effective. The great era of fundamental discoveries in medical bacteriology at the end of the nineteenth century placed new weapons at the disposal of national and international public health, and provided the impetus for the realization of an idea that had long been ventilated—the foundation of a permanent international office of public health.

In its five years of existence before the First World War, the activities of the Office International d’Hygiène Publique (OIHP) were very largely, but not exclusively, focused upon the control of those communicable diseases whose nature had, after centuries of speculation, at last been revealed. The post-war period was one of equally exciting discoveries about non-communicable diseases notably those which resulted from lack of essential accessory factors in the diet. Once again, newly-discovered scientific knowledge was to make possible and also to provide the stimulus for more effective international health work.

The scientific and technical developments which came to fruition during the Second World War were to carry this evolutionary process still further. It was apparent that two of the most outstanding of the war-time discoveries—penicillin and DDT—had completely transformed the outlook for the control of certain communicable diseases. But it was not only in the traditional province of medical science that great strides forward were made. The intricate apparatus of modern warfare had made increasing demands on the skills and on the mental and physical endurance of the men who had to operate it. Scientists were called upon not only to produce even more effective engines of war but also to study the physiological and psychological factors which influenced the efficiency of their human operators.

The third critical period in the evolution of international public health therefore came at a time when the governments and peoples of the world were
not only animated by the will to rebuild world peace on firm foundations, but also confident that science would provide them with the means to do so.

That this idea was present in the minds of those who attended the United Nations Conference on International Organization at San Francisco in 1945 is clear from a memorandum submitted by the Brazilian delegation in which it quoted a statement by Cardinal (then Archbishop) Spellman that: "Medicine is one of the pillars of peace". It was this memorandum that led to the insertion in the United Nations Charter of health as one of the problems to be considered by the United Nations, and later to the joint declaration by the Brazilian and Chinese delegations calling for the early convocation of a general conference for the purpose of establishing an international health organization. This declaration read:

The delegations of Brazil and China recommend that a General Conference be convened within the next few months for the purpose of establishing an international health organization.

They intend to consult further with the representatives of other delegations with a view to the early convening of such a General Conference to which each of the Governments here represented will be invited to send representatives.

They recommend that, in the preparation of a plan for the international health organization, full consideration should be given to the relationship of such an organization and methods of associating it with other institutions, national as well as international, which already exist or which may hereafter be established in the field of health.

They recommend that the proposed international health organization be brought into relationship with the Economic and Social Council.

Henceforth, the conception of health was to be broadened, and the health of all peoples was, in the words later to be embodied in the Constitution of the World Health Organization, seen to be fundamental to the attainment of peace and security.

The San Francisco Conference approved unanimously the joint declaration submitted by the two delegations and, it being apparent that the essential organs of the United Nations would be established soon after New Year's Day 1946, decided to place the matter in the hands of the General Assembly. The General Assembly was constituted on 10 January 1946; a week later the Economic and Social Council was elected and in being. One of the Council's first tasks was to give effect to the joint declaration and, after debating a draft submitted by the Chinese representative, it adopted on 15 February a resolution in which it decided "to call an international conference to consider the scope of, and the appropriate machinery for, international action in the field of public health and proposals for the establishment of a single international
health organization of the United Nations”. The resolution went on to set up a Technical Preparatory Committee—consisting not of States, but of individuals chosen for their expert qualifications—to prepare a draft annotated agenda and proposals for the consideration of the “Conference”; the Committee was instructed to submit its report to the Members of the United Nations and the Council by 1 May 1946. Lastly, the Secretary-General of the United Nations was requested to call the Conference not later than 20 June that year.¹

Thus, no time was lost in putting the San Francisco recommendations into action, and the schedule set by the Economic and Social Council, short as it may appear, was observed. But this does not mean that the preparatory work was not thoroughly done. On the contrary, the wide range of questions connected with the establishment of the new specialized agency was amply covered within the four months that elapsed between the first meeting of the Technical Preparatory Committee on 18 March and the signature of the Constitution of the World Health Organization on 22 July, two of the signatures—those of China and the United Kingdom of Great Britain and Northern Ireland—being given without reservation. To what was this rapidity of action due? Partly, no doubt, to preparatory work that had been going on behind the scenes in ministries of health, in the surviving international health bodies and in unofficial medical circles, especially in the United Kingdom and the United States of America during the war, and partly to the excellence of the foundations laid by the precursors of the new organization. But a powerful driving force was the recognition of the need to develop international action in matters of health in the interests of security and peace. As the war receded, however, the pace slackened and nearly two years were required after the close of the New York Conference to bring the World Health Organization finally into being.

¹ For full text of the Economic and Social Council resolution, see Off. Rec. Wld Hlth Org. 1, 39.
The Technical Preparatory Committee, consisting of sixteen members, met in Paris in March and April 1946 under the chairmanship of Dr René Sand of Belgium. It had the advantage of finding on the table when it met memoranda by the French, United Kingdom, United States and Yugoslav members containing more or less elaborate proposals for the constitution of the new agency. These important memoranda are historical documents. As supplemented by statements from the representatives of the then existing health organizations, the Pan American Sanitary Bureau, the OIHP, the League of Nations Health Organisation and UNRRA, they provided a firm and comprehensive basis of discussion and much of their substance was ultimately incorporated in the Constitution. In the course of only twenty-two meetings the Committee succeeded in drawing up an annotated agenda for the Health Conference, proposals — amounting to a draft — for a virtually complete constitution for the new health organization, and a series of relevant resolutions.

In his report to the Economic and Social Council the rapporteur of the Technical Preparatory Committee described the Committee's proposals regarding the constitution of the World Health Organization as general principles which should govern the constitution. He disclaimed any attempt to couch them in legal language. It is none the less true that they were readily convertible into a multilateral convention, and this, speaking broadly, was what actually happened, through modifications, additions and deletions, at the subsequent conference.

The proposals of the Committee begin with a preamble of some length — seventeen paragraphs in all — in which is set forth a broad philosophy of international health. They go on to describe in some detail the aims and objectives of the new organization and its functions. They declare that membership in the Organization should be open to all States of the world. It was

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1 A list of the members of the Technical Preparatory Committee appears in Annex 3.
The International Health Conference, held in New York, June - July 1946. Sir Ramaswami Mudaliar, President of the Economic and Social Council, addresses the inaugural meeting. Also at the table are (left to right) Mr John G. Winant, US representative on the Economic and Social Council; Mr Trygve Lie, Secretary-General of the United Nations; Mr Henri Laugier, United Nations Assistant Secretary-General for Social Affairs; and Dr Y. M. Biraud, Secretary of the Conference.

Professor René Sand, Belgium: Chairman of the Technical Preparatory Committee, Paris, March - April, 1946

Dr Thomas Parran, United States of America: President of the International Health Conference
Professor Andrija Štampar, Yugoslavia: President of the First World Health Assembly, 1948; previously Chairman of the Interim Commission, 1946-1948

Dr Karl Evang, Norway: President of the Second World Health Assembly, 1949

Rajkumari Amrit Kaur, India: President of the Third World Health Assembly, 1950
Dr. J. N. Togba, Liberia: President of the Seventh World Health Assembly, 1954.

Dr. Morones Prieto, Mexico: President of the Eighth World Health Assembly, 1955.

Professor J. Parisot, France: President of the Ninth World Health Assembly, 1956; and Chairman of the eighth and ninth sessions of the Executive Board.

Dr. S. Al-Wahbi, Iraq: President of the Tenth World Health Assembly, 1957; and Chairman of the sixteenth and seventeenth sessions of the Executive Board.
HEALTH ASSEMBLIES

Dr Leonard Scheele, United States of America: President of the Fourth World Health Assembly, 1951

Dr J. Salcedo, Philippines: President of the Fifth World Health Assembly, 1952

Dr M. Khater, Syria: President of the Sixth World Health Assembly, 1953
for this reason that the Committee eventually agreed upon the broadest possible formula for the title, World Health Organization, instead of International Health Organization or United Nations International Health Organization. Some experts had originally desired the latter on the ground that express mention in the new organization’s title of the link between it and the parent body would strengthen the agency’s authority and lend greater prestige to the United Nations itself.

Following, with certain changes in points of detail, the precedent set by other similar bodies, the proposals next establish the three organs for the running of the agency—the World Health Conference, the Executive Board and the Secretariat, with a full description of the membership and functions of each. Two points may be noted here. Firstly, the functions proposed for the World Health Conference include a quasi-legislative power of a novel sort, which is more fully described later in this chapter. The second point relates to the membership of the Executive Board. The latter was to consist of not less than twelve and not more than eighteen persons designated by as many States and described as “technically qualified in the field of health”. The members were to “exercise the powers delegated to them by the Conference on behalf of the whole Conference, and not as representatives of their respective governments”.

Other proposals relate to various administrative and budgetary questions, legal status, annual reporting by Member States, relations with the United Nations, specialized intergovernmental organizations and non-governmental organizations.

The Committee agreed to leave to the Conference the decision with regard to the headquarters of the Organization. There was general agreement that the headquarters should be at or near a centre recognized for the excellence of its health and medical services and possessing ample and efficient communications. Some members, however, pressed for an immediate decision in favour of the seat—not at that date finally selected—of the United Nations, on the ground of greater strength and authority which the Organization would derive from proximity to the parent body, the better facilities which such an arrangement would offer for liaison and co-operation with other United Nations organs concerned with similar problems, and the economy that might be expected to result from the use of common administration and auxiliary services, e.g., the library. Those who preferred an independent site emphasized the importance of dissociating the Organization from political influences—evidently they had the fate of the League Health Organisation in mind—and the desirability of proximity to other specialized agencies which were not
likely to be established at the seat of the United Nations. They also pointed out that the advantage of economy was more than offset by the value of having international organizations established in different parts of the world.

Another subject on which the experts failed to reach agreement was the question of regional arrangements. Nine members favoured a system whereby any regional offices that might be set up either \textit{ab initio} or by absorption of existing regional bodies should form an integral part of the central organization. Six members felt that only experience could show how international health administration could be carried on most effectively in the different regions of the world. They pressed accordingly for a more flexible provision which in view of the complexity of the problems facing the future World Health Organization would allow either for the absorption of all regional agencies in a single administrative structure or for the encouragement of a high degree of autonomy in them, while maintaining a close connexion with headquarters. In the event, the Committee agreed to include both systems as alternatives in its proposals and to leave the choice between them to the international conference.

Finally, the Committee suggested that the Constitution should come into force when signed without reservation in regard to ratification or after ratification by fifteen signatory States.

The Committee's report included a number of general resolutions on various subjects. In one it drew the attention of the Economic and Social Council to the importance of asking Members of the United Nations to invest their delegates to the forthcoming World Health Conference to be convened on 19 June 1946 in New York with plenipotentiary powers to sign a convention for the earliest possible establishment of a single international health organization. It suggested that States not Members of the United Nations, the Allied Control Commissions in occupied territories, other specialized agencies, the Office International d'Hygiène Publique, the Pan American Sanitary Bureau and the League of Red Cross Societies, be invited to send observers to the Conference.

It also recommended the setting-up of an Interim Commission for the purposes described in the introductory paragraphs to Chapter 6. It drew the attention of the Secretary-General of the United Nations to the necessity of providing immediately temporary machinery to carry on the activities of the League Health Organisation and to deal with other urgent health problems. In order to avoid overlapping it recommended that such temporary machinery be immediately transferred to the World Health Organization or its Interim Commission. Lastly, it called for the absorption by WHO of the OIHP and the assumption of the health functions and duties of UNRRA.
On receipt of the Committee’s report the Economic and Social Council acted promptly. As the first substantive item on the agenda of the second session (May-June 1946) the report received careful consideration. On 11 June the Council adopted a resolution in which it noted the Committee’s report with satisfaction, endorsed its proposals regarding invitations to certain States and organizations to send observers to the Conference, approved the recommendation concerning the setting-up of an Interim Commission, recommended that until the Health Organization was in a position to start functioning the Department of Social Affairs of the United Nations secretariat should act as secretariat of the Interim Commission and, among other functions, carry on the present activities of the League Health Organisation, and approved the Committee’s suggestions with regard to OIHP and UNRRA.

1 It added to these the Rockefeller Foundation and the World Federation of Trade Unions.
The International Health Conference which convened at New York on 19 June 1946 would have been noteworthy on one count even had it attained a far smaller measure of success than it did: it was the first international conference held under the auspices of the United Nations and it opened just over seven months after the first meeting of that body's General Assembly. Delegations were present from all fifty-one Members of the United Nations, while thirteen non-Member States were represented, on the invitation of the Economic and Social Council, by observers, as were the Allied Control Authorities for Germany, Japan and Korea. Only three of the States not Members of the United Nations failed to respond to the Council's invitation—Afghanistan, Romania and Yemen. Observers too were sent by the specialized agencies having a more or less direct interest in various aspects of health—the Food and Agriculture Organization, International Labour Organisation, Provisional International Civil Aviation Organization, and the United Nations Educational, Scientific and Cultural Organization—and by the Office International d'Hygiène Publique, Pan American Sanitary Bureau, United Nations Relief and Rehabilitation Administration, League of Red Cross Societies, World Federation of Trade Unions and Rockefeller Foundation, all of which had received invitations to attend.¹ The secretariat was provided by the Health Division of the United Nations and comprised, along with United Nations officials and civil servants of various governments, members of the former secretariat of the League of Nations Health Organisation and of the OIIP.

At the inaugural meeting, opened by Sir Ramaswami Mudaliar, President of the Economic and Social Council, the Conference heard a message of welcome from the President of the United States of America, Mr Harry S. Truman, and was addressed by Sir Ramaswami Mudaliar, by the Secretary-General of the United Nations, Mr Trygve Lie, and by the Assistant Secretary-

¹ A list of the participating States and organizations, and of officers of the Conference, appears in Annex 4.
General in charge of Social Affairs, Mr Henri Laugier. It received the report of the Technical Preparatory Committee presented by the latter’s rapporteur, Dr Brock Chisholm, who was also a delegate for Canada, in the absence owing to indisposition of the Committee’s Chairman, Dr René Sand. The Conference then went promptly to work and elected the leader of the United States delegation, Surgeon-General Thomas Parran, as President. It elected five vice-presidents—Dr Geraldo H. de Paula Souza (Brazil), Dr James Kofoi Shen (China), Dr André Cavaillon (France), Dr Fedor Gregorievitch Krotkov (Union of Soviet Socialist Republics), and Sir Wilson Jameson (United Kingdom of Great Britain and Northern Ireland). These, with three other delegates designated by the Conference and with the chairmen of the five committees set up by the Conference, formed the General Committee under the Chairmanship of the President. The General Committee’s function was to direct the debates and co-ordinate the work generally.

In four and a half weeks the Conference succeeded in producing: the Constitution of the World Health Organization; a protocol for the termination of the Rome Agreement of 9 December 1907 and the performance by the Organization, or the Interim Commission, of the duties and functions of the CIHP; and an arrangement for the setting-up of an Interim Commission to make preparations for the First World Health Assembly, to carry on without interruption the surviving activities of the League of Nations Health Organisation and those of the CIHP and UNRRA, and to perform other urgent duties pending the final establishment of the Organization.

In accordance with the procedure usual on such occasions the Conference also signed a Final Act; this included, inter alia, a resolution noting with gratification the steps taken by the Secretary-General of the United Nations to provide temporary machinery for carrying on the remaining activities of the League Health Organisation and requesting him to have such of the latter’s functions as had been assumed by the United Nations transferred to the Interim Commission.

The Constitution of the World Health Organization

The present special report on the activities of the World Health Organization during the past years, including the period of the Interim Commission, is not perhaps the place for a detailed analysis of all the contents of the Constitution, which emerged from the activities of other bodies, the Economic and
Social Council, the Technical Preparatory Committee and the International Health Conference of 1946. Some of the provisions may however be thought to call for comment because of their impact on subsequent events or because of the controversy that arose concerning them and the necessity in which the Conference found itself for reaching a compromise or, in default of a compromise, making a choice by the normal process of voting.

The first point to be noted however is the remarkable concordance between the proposals of the Technical Preparatory Committee, which in turn owed much to the original four memoranda, and the final text of the Constitution as it emerged from the Conference's proceedings. Changes, additions and subtractions were, needless to say, inevitable in a document which had originally been drafted by sixteen persons nominated to act in a personal capacity—although many of them were in fact the permanent heads of the appropriate government departments—and which was given its final shape by a conference of fifty-one representatives of sovereign States. But on the whole such modifications were rare and many took the form of the transposition of one clause or another or a slight shift of emphasis.

The document, in its forthright statement of principles and its bold conception of the aims and purposes of the new organization, unquestionably went far to meet the hopes of those who advocated a single world health body. (The text as finally established at the International Health Conference is printed in Annex 1.)

The question of including a mention of the United Nations in the new agency's title recurred at the Conference, some delegations insisting on the importance of emphasizing the tie with the United Nations, which, they added, it was hoped would itself eventually become a world-wide body. The Conference, however, decided, by thirty votes to seventeen with one abstention, against this proposal, and then voted unanimously in favour of the less restrictive title proposed by the Technical Preparatory Committee. Similarly, the Conference decided to round off the title of the new agency's principal organ by amending that proposed by the Committee—World Health Conference—to World Health Assembly, which it was held would emphasize more appropriately the representative functions of the new agency's deliberative organ.

One of the themes that occurs like a leit-motiv in all international discussions, non-interference in the domestic affairs of States, played an important part at the Health Conference. And so it came about that while the first of the new agency's functions listed in the Constitution is to act as the directing and co-ordinating authority on international health work, the second and
third, which relate to assistance to governments in various ways, make such assistance dependent upon the request or acceptance of the government concerned.

The Constitution reproduces, with only minor changes, the proposal of the Technical Preparatory Committee that the World Health Assembly should be empowered to adopt by resolution regulations relating to a broad range of specified technical subjects (Article 21) and that these regulations should come into force within a stated period after notification of their approval by the Assembly, unless a Member State intimated its rejection of them or its acceptance subject to a reservation. The Health Assembly was thus invested with a certain quasi-legislative power which, if not unique in the history of international relations, has great practical significance as it facilitates the simultaneous acceptance by governments of international health arrangements with a minimum of delay. Nor was the Health Assembly slow to exercise the authority thus conferred on it, for at the sixteenth plenary meeting of its first session held on 24 July 1948, it adopted World Health Organization Regulations No. 1 regarding Nomenclature (including the compilation and publication of statistics) with respect to Diseases and Causes of Death.

On the other hand, a proposal that delegates to the World Health Assembly should be invested with full powers to sign international conventions on behalf of their governments had to be dropped, as it was felt that such procedure was impracticable. It was replaced by a clause authorizing the Assembly to adopt conventions by a two-thirds majority, the convention to come into force for each Member when accepted in accordance with its constitutional procedure.

In the case of social security, again, the divergency of opinion which had appeared during the discussions in the Economic and Social Council on the proposals of the Technical Preparatory Committee re-emerged in the Conference. The argument that health insurance came more properly within the purview of the International Labour Organisation was countered by some delegations which pointed out that nearly every aspect of social security had some bearing on health. In the end it was agreed to limit the role of WHO in this matter to fact-finding, analysis and reporting in collaboration with other specialized agencies concerned.

On the question of membership, while the Conference endorsed the view of the Technical Preparatory Committee that WHO should be open to all States without exception, the position of States not Members of the United Nations gave rise to a number of proposals and counter-proposals regarding the conditions of their admission. The controversy created by certain situations was at that time still too acute to permit the adoption of the simplest solution
of all—that a State should become a Member upon signing the Constitution and depositing its instrument of ratification. The subordination of such States’ admission to approval by a two-thirds majority of the Assembly was eventually only narrowly defeated, preference being given (twenty-five votes to twenty-two with two abstentions) to the requirement for a simple majority, incorporated in Article 6. One of the main arguments used in favour of throwing open the door as wide as possible was based on the statement in the Preamble that health is a fundamental right of man and that international co-operation to the fullest possible extent is essential to the achievement of that purpose. To restrict unduly the admission of new Members would, it was contended, signify a restriction upon the right enunciated in the Preamble. Those favouring more restrictive terms held that only States which consistently followed democratic policies were likely to make a useful contribution to the Organization’s work.

One point deserving attention in view of later developments is the absence from the Constitution of any clause concerning the withdrawal of a Member from the Organization.

Nevertheless, the Health Conference agreed to insert in the record of its official proceedings a declaratory statement to safeguard the position of any Member State which might find itself unable to accept an amendment to the Constitution duly approved in accordance with Article 73 of the Constitution. Such a Member is not bound to remain in the Organization if its rights and obligations as such are changed by an amendment of the Constitution in which it has not concurred and which it finds itself unable to accept.

Unlike the United Nations Charter the Constitution of WHO does not make any provision for expulsion. It merely authorizes the Health Assembly to suspend the voting privileges and services to which a Member is entitled, if it fails to meet its financial obligations to the Organization, or in other exceptional circumstances.

The question of associate membership, i.e., the participation in the Organization of territories not responsible for their external relations, caused some controversy, which centred mainly on the procedure for granting this form of membership while at the same time acknowledging the responsibility of the Member State or other authority in charge of the external relations of the territory concerned. The text finally adopted (Article 8 of the Constitution) takes into account the divergent views expressed on the subject. It provides for the admission of Associate Members by the Health Assembly upon application by the authority responsible for the conduct of their international relations. The definition of the rights of Associate Members was another much debated question, which the Conference finally decided to leave to the Health Assembly.
It contented itself with writing into the Constitution a clause granting them representation on the appropriate regional committee (Article 47).

The Conference decided that the Executive Board should consist of eighteen members. Reference has already been made to the provision that the Board was to exercise on behalf of the whole Health Assembly the powers delegated to it by that body. A proposal submitted during the Conference which would have reduced the Board’s status to that of a standing committee of the Health Assembly was firmly resisted by the majority of delegations in favour of the wider powers conferred upon it in Articles 28 and 29 of the Constitution. Similarly, a proposal to make the Director-General a non-voting member of the Board was rejected and he was made directly subject to its authority (Article 31) in his capacity as the Organization’s chief technical and administrative officer.

The Constitution does not recognize “great” and “small” powers. No country has a permanent right to designate a member of the Board. Members are appointed for their technical qualifications and, if they have any representative capacity, it is that of conjointly representing the World Health Assembly. A proposal to follow the system established for the League of Nations Council and the United Nations Security Council obtained only two votes.

A proposal for a fourth organ, in the form of an advisory council, which had met with some support in the Technical Preparatory Committee, was eventually not pursued. This proposal was that side by side with any special technical committees which WHO might set up there should be a “sort of research bureau” composed of members of unquestioned authority in different fields of health. These members would not be asked to produce immediate results, but would work at their leisure on problems which were not yet precise enough to be dealt with by technical committees but which eventually might have great practical value. Such a council could work in liaison with the national research councils, could draw up lists of outstanding personalities in the field of health, and prepare monographs.

Chapter VII of the Constitution, dealing with the Secretariat, defines the procedure to be followed for the appointment of the Director-General, and his powers and functions. This chapter is in line with similar international instruments in laying emphasis on the importance of as wide a geographical distribution among the posts in the Secretariat as is compatible with sound and efficient work, and on the special status of the staff as international civil servants. Both these points are covered in more detail under the section headed “Secretariat” in Part III of this report.
The Conference, while concurring in the principles first laid down by the Technical Preparatory Committee, came no nearer to agreeing on the site for the headquarters of the future organization. It was therefore left to the First World Health Assembly to make the selection after consultation with the United Nations, it being understood that this proviso did not commit the Health Assembly to acceptance of the United Nations' recommendation.

In the matter of voting, while the Conference acquiesced without difficulty in the traditional procedure of international deliberative bodies—one Member, one vote—the question of how a majority should be constituted gave rise to a conflict of opinion. The Technical Preparatory Committee's recommendation that in all the Organization's bodies decisions should be taken by a simple majority of Members present and voting, except when the Constitution prescribed another method, was criticized on the ground that it might lead to decisions being taken by an actual minority of the total membership whose will could then be imposed on the majority. An amendment was accordingly proposed requiring a majority of the total membership of the body concerned. But this suggestion in turn gave rise to the objection that it might result in interminable delays in the voting of decisions and in other complications. The Conference then fall back on the pertinent provisions of the United Nations Charter and adopted unanimously a procedure according to which decisions on important questions—including certain specified points in the case of the Health Assembly—are made by a two-thirds majority of the Members present and voting, while a simple majority vote suffices for other questions.

The summary report on the proceedings of the Conference published after its conclusion contains a statement of the Conference's own opinion of its achievement in the much-debated matter of regionalization.

By unanimously approving Chapter XI [of the Constitution] as a whole, the Conference recorded its view that the elaborate provisions inserted into the Constitution as to regional arrangements would at one and the same time assure unity of action by the central Organization on health matters of world-wide import and allow for adequate flexibility in handling the special needs of regional areas.

The first article on the subject in the Constitution (Article 44) calls on the Health Assembly to define the most suitable areas for regional organizations from time to time and then goes on to leave it to the discretion of the same body to establish such an organization in any area on obtaining the assent thereto of the majority of the Members in it. Each regional organization is to be an

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1 Off. Rec. Wld Hlth Org. 2, 16
establishment of WHO

The regional committee is composed of Member States and Associate Members in the region (see also chapter 8). Its functions are set forth in detail in Article 50, the first and most important being that of formulating regional policies. The regional office is the regional committee's administrative organ, but it is subject to the general authority of the Director-General. The last article on the subject (Article 54) provides for the integration with the World Health Organization of existing intergovernmental regional health organizations. The settlement of the various issues to which this clause gave rise was nearly as arduous as it had been in the Technical Preparatory Committee.

The most difficult issue to be settled by the Conference in this respect was perhaps that of the relationship between the new organization and the Pan American Sanitary Organization. In this matter the Technical Preparatory Committee showed great discretion. It will be remembered that the Committee placed two alternative proposals before the Conference. The first of these recommended that "special transitional arrangements should be made by the Conference with regional health agencies in areas where such agencies exist, in such a way that, taking into account the existing conventions, their facilities and services may be fully utilized without interruption, and with a view to developing them as quickly as practicable into regional offices of the Organization, or parts of such offices", while the second suggested merely that "special arrangements should be made with regional intergovernmental health agencies with a view to their facilities and services being utilized to the fullest possible extent as regional offices of the Organization".

The principal amendment to these suggestions at the Conference proposed that existing regional health agencies should be integrated with or brought into relationship with WHO by means of special arrangements providing for their transformation into regional offices or for the utilization of their facilities and services pending their progressive merger as circumstances permitted. This amendment was later coupled with a proviso that the Pan American Sanitary Organization should not only promote health programmes and undertakings among the American republics but should also serve as the World Health Organization's regional committee in the Western Hemisphere. This proposal was supported by one section of the Conference, which pointed to the desirability of maintaining a separate identity for the Pan American Sanitary Organization. Another group, however, emphasized the need for progressive integration of the Pan American Sanitary Organization with the world organization, while a third pressed for the speedy transformation of all existing regional health.
agencies into regional committees subordinated to the world organization. One delegation asked that the then recently-created Health Bureau of the Arab League be accorded the same consideration as the Pan American Sanitary Organization. The clause finally adopted was the outcome of prolonged discussion in an _ad hoc_ "harmonizing" committee which decided in favour of integration "in due course", such integration to be effected as soon as possible through common action based on mutual consent of the competent authorities expressed through the organizations concerned.

Differences of opinion also arose over the question of the appointing authorities for regional directors and the expert staff of regional offices. Concern, in particular, was expressed that if regional directors were to be appointed by the Executive Board in agreement with the regional committee, instead of by the committee subject to the Board's approval as had originally been proposed, the result might be to detract from the efficiency of the existing regional agencies such as the Pan American Sanitary Organization. The relevant articles in the Constitution (Articles 52 and 53) were ultimately approved by the Conference by forty-one votes to seven.

The Conference rallied firmly to the view of the Technical Preparatory Committee that financially the new agency should be autonomous, while making due allowance for safeguarding the position of the United Nations under Article 17, paragraph 3, of the Charter. A proposal that the Organization's expenses should be met by the United Nations was rejected.

In accordance with Article 55 of the Constitution the annual budget estimates are prepared by the Director-General and submitted by him to the Executive Board which in turn submits them to the Health Assembly with any recommendations it deems advisable. The scale of Member's contributions to meet the annual expenditure is fixed by the Health Assembly subject to the terms of any agreement it may have concluded with the United Nations.

The importance of co-operative arrangements is reflected in many passages of the Constitution. For instance Chapter II includes among the Organization's functions co-operation with the United Nations and specialized agencies on certain specific points and the promotion of co-operation among scientific and professional groups which contribute to the advancement of health. Chapter XVI calls for effective relations and close co-operation with the United Nations and specialized agencies and looks forward to the conclusion of special agreements for that purpose. It goes further and authorizes the Organization to make arrangements for consultation and co-operation with non-governmental international organizations and even, subject to the governments' consent, with national organizations. This latter clause is commonly
regarded as being potentially among the most fruitful innovations introduced by post-second world war international legislation. This insistence on the value and importance of co-operative effort is the echo of conceptions and ideas which had found expression in the basic memoranda presented to the Technical Preparatory Committee, in the latter's discussions and in the debates at the New York Conference. Although these and other points evoked much discussion, the government representatives at the International Health Conference had no serious difficulty in accepting the Constitution. Sixty-one States gave their agreement and two of them, namely China and the United Kingdom of Great Britain and Northern Ireland, achieved the distinction of becoming the first full Members of the World Health Organization by signing the document without reservation.
As the Constitution of the World Health Organization was not to enter into force until the instruments of ratification of twenty-six Members of the United Nations had been deposited with the Secretary-General of the United Nations, it was clear that there would be an interval between the date of its signature in New York, 22 July 1946, and the final establishment of the new world health agency. The governments represented at New York had accordingly approved the proposal of the Technical Preparatory Committee that an Interim Commission be set up to make all preparations for and convoke the first session of the World Health Assembly and to carry on certain essential tasks which would not brook interruption or delay.

Under the Arrangement adopted at New York on the same day as the Constitution the fourteen States which had been represented on the General Committee of the Conference and four others specially selected by the latter were each empowered to designate one person "technically qualified in the field of health" to serve on the Interim Commission. The designating governments were those of Australia, Brazil, Canada, China, Egypt, France, India, Liberia, Mexico, Netherlands, Norway, Peru, Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America, Venezuela, and Yugoslavia.

The functions of the Commission were specified under thirteen heads in the Arrangement. As the Commission's work and achievements will be considered in subsequent pages it may be unnecessary to recapitulate them here. The Arrangement also empowered the Commission to appoint an Executive Secretary, who was described as its chief technical and administrative officer, with authority to appoint the Commission's staff; made provision for the Commission's expenses; and lastly, stipulated that the Commission should cease to exist upon resolution of the Health Assembly at its first session.

At the Commission's first session, held in New York towards the close of the International Health Conference, it elected Dr F. G. Krotkov, Deputy
Minister of Public Health of the Union of Soviet Socialist Republics, to the Chair. Pressure of other duties prevented Dr Krotkov from continuing as Chairman. He was succeeded by Dr Andrija Štampar, Professor of Public Health and Social Medicine at Zagreb University, Yugoslavia, who held the office during the remainder of the Commission’s existence. As Executive Secretary, the Commission elected Dr Brock Chisholm, Deputy Minister of National Health and Welfare of Canada, who had been rapporteur of the Technical Preparatory Committee and a delegate to the International Health Conference. The rest of the short first session dealt with the initial steps of organization, adoption of rules of procedure, making contact with the United Nations on administrative and financial matters and other urgent business.

The four other sessions held by the Commission, at roughly four-monthly intervals, took place in Geneva, where most of the staff was ultimately housed in the offices of the United Nations European Office in the Palais des Nations—although the Commission’s headquarters remained in New York.

Expected originally to survive its birth by only a few months, the Interim Commission remained in being for nearly two years owing to delay in the ratification of the Constitution. The Commission accordingly had to undertake much technical work which could not await the inauguration of the permanent organization. It was obliged to establish an order of priority to ensure effective action within the available resources. Moreover, its work had to be adjusted to the complex machinery of the United Nations and its specialized agencies and of other official and voluntary bodies.

The Interim Commission had therefore to undertake a number of activities which had not been foreseen at the New York Conference. It was led inevitably to adopt policies and methods of work which partly influenced the structure and growth of the Organization in its early years. Its main activities are therefore described in the following pages.  

Organization of the Interim Commission’s Work

The Interim Commission’s work was carried out largely through five internal committees: Administration and Finance, Relations, Technical Questions, Priorities, and Headquarters.

For the purely technical matters on its programme, it availed itself of the authority given it in paragraph 3 of the New York Arrangement and set up

1 For reports on its work presented by the Interim Commission to the First World Health Assembly, see Off. Rec. WHd Hlth Org. 9; 12.
nine expert committees whose activity will be described under the appropriate headings in subsequent sections of this chapter.

Assumption of Functions of Earlier Health Organizations

One of the Interim Commission's most urgent duties was to make arrangements to carry on without interruption the functions of the three earlier organizations which were to be absorbed in the new body.

Within less than four months of its appointment, it had assumed the surviving functions of the League Health Organisation and was continuing the latter's epidemiological services and its work on biological standardization. It took over the League's Eastern Bureau at Singapore as well as certain of the Bureau's assets. It framed plans for the transfer to the Organization of the two prize funds administered by the League, the Darling Foundation and the Léon Bernard Foundation. Arrangements were made for the use by the Interim Commission of the health and medical sections of the League Library, which had passed under the control of the United Nations. Later, other health functions of the League, suspended during the war, were revived by the Interim Commission.

The transfer of the functions of the Office International d'Hygiène Publique took place by stages. By the end of 1946 the Commission had provisionally assumed responsibility for epidemiological intelligence, continuity being ensured by the inclusion in the Commission's Weekly Epidemiological Record of the notifications previously issued by the OIHP. The library, technical archives and other material of the OIHP were made available to the Commission which later took over the study of a number of items on the OIHP's agenda. In 1947 the Commission undertook responsibility for the administration of the OIHP's staff pension fund. By February 1948 it had absorbed all the OIHP's obligations towards the States parties to the 1946 Protocol, and, as the transfer of the OIHP's assets and liabilities could not be completed before the termination of the Rome Agreement of 1907, the OIHP made available to the Commission contributions to cover the cost of some of the activities assumed by the latter body.

The epidemiological functions which had been temporarily assumed by the United Nations Relief and Rehabilitation Administration as regards the administration of the 1944 International Sanitary Conventions and epidemiological notification were transferred to the Interim Commission on 1 December 1946. A few days later the Interim Commission accepted responsibility for
most of the field-service work of UNRRA's Health Division, which was later to figure so prominently in the Commission's programme. The arrangements entered into with UNRRA on this occasion are described in greater detail in a subsequent section of this chapter, while various other chapters indicate how the great work of these three previous international bodies in a number of technical subjects was continued and extended.

**Integration of Existing Regional Health Organizations**

Paragraph 2 (g) of the Interim Commission's terms of reference instructed it to enter into the necessary arrangements with the Pan American Sanitary Organization and other existing intergovernmental regional health agencies for their integration with the World Health Organization (in accordance with Article 54 of the Constitution), but such arrangements were not to take effect until approved by the Health Assembly. To carry out the negotiations with the two bodies concerned, the Pan American Sanitary Organization and the Pan Arab Regional Health Bureau at Alexandria, the Interim Commission set up two sub-committees to study the situation and report.

As a basis for negotiations with the Pan American Sanitary Organization the sub-committee drew up a tentative draft agreement which was submitted to the XII Pan American Sanitary Conference at Caracas in January 1947. The desire of members of this conference to preserve as much of the autonomy of the Pan American Sanitary Bureau as would be consistent with its integration with WHO, and their confidence in its efficiency as an agency for the protection and improvement of the health of the western hemisphere, resulted in a resolution on the agreement to be concluded with the World Health Organization and an annex containing a statement of principles for the guidance of the Directing Council of the Pan American Sanitary Organization, which was invested with full powers to conclude the agreement. Negotiations continued on this basis for some months, one of the Interim Commission's main points being the removal of an article proposed by the Directing Council which would have permitted the revision or annulment of the agreement by either party with one year's notice. The Interim Commission recommended at the same time the continuance of inter-secretariat collaboration between the two bodies. And there the matter was necessarily left until it could be taken up by the World Health Assembly. The agreement for the integration of the Pan American Sanitary Organization with the World Health Organization was finally approved by the Second World Health Assembly at its tenth plenary meeting on 30 June 1949 and took effect on 1 July that year.
Under the terms of Article 7 of the 1926 International Sanitary Convention the Egyptian Sanitary, Maritime and Quarantine Board, and its Regional Bureau of Epidemiological Information, had acted as a regional bureau of the Office International d’Hygiène Publique in the Eastern Mediterranean area. Relations with the Bureau were accordingly maintained by the Interim Commission after the latter had placed its epidemiological notification service on foot. As the legal situation gave rise to some doubt, the Interim Commission set up a sub-committee to study the question of the relations of the World Health Organization with the Bureau in the light of Chapter XI of the Constitution and of the provisions of the 1938 International Sanitary Convention. The Chairman of the Interim Commission visited Egypt and prepared a report on the Bureau, which was included in the Commission’s report to the First World Health Assembly. The functions of the Alexandria Regional Bureau were ultimately integrated within those of the regional organization of WHO by resolution of the Executive Board passed at its third session (February-March 1949).

**Relations with the United Nations, Specialized Agencies and Non-governmental Organizations**

As the Interim Commission pointed out in its report to the First World Health Assembly, the question of the new organization’s relationships with the United Nations, its specialized agencies and the appropriate non-governmental organizations which are the subjects of paragraphs 2 (c), (h) and (i) of the Arrangement of 22 July 1946, was not of purely administrative significance. A Committee on Relations was accordingly set up, one of whose special tasks was to study the kinds and degrees of co-operation that should be established with all such bodies having a direct or indirect interest in health or medical science, so as to ensure that the World Health Organization should be an effective instrument for pursuing the aims embodied in its Constitution. The work done by this committee and various sub-committees set up by it enabled the Interim Commission to submit to the First World Health Assembly draft agreements with the bodies concerned.

A draft agreement with the United Nations on the basis of Article 57 of the Charter and Article 69 of the Constitution of the World Health Organization, though subject to final approval by the sovereign assemblies of both

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1 See *Off. Rec. Wld Hlth Org.* 12, 65.
bodies, was brought de facto into application while the Commission was still in existence. The Commission initiated close co-operation with the Economic and Social Council in the latter’s activities having a direct bearing on certain public-health or medical questions of technical significance, e.g., vital statistics, habit-forming drugs, etc. It also maintained close and continuous co-operation with the United Nations International Children’s Emergency Fund (UNICEF).

With the object of promoting collaboration in matters of common interest and delineating respective spheres of jurisdiction, the Commission negotiated draft agreements with the Food and Agriculture Organization, the International Civil Aviation Organization, the International Labour Organisation and the United Nations Educational, Scientific and Cultural Organization, all of which were submitted to the First World Health Assembly.

Temporary arrangements were concluded with FAO, ICAO, ILO and UNESCO, covering active co-operation and consultation between those bodies and the Interim Commission during the latter’s lifetime. Collaboration with UNESCO in particular developed on practical lines, including co-operation in the improvement of scientific documentation and abstracting. Assistance was also afforded on various points to the Preparatory Commission for the International Refugee Organization (PCIRO), more especially on the resettlement of displaced health workers.

The Commission also studied the question of relations with non-governmental organizations. Recognizing the potential value to the World Health Organization of co-operation with professional and technical voluntary associations in many fields, it set up a special sub-committee to formulate the criteria for admitting a non-governmental organization into association; to devise the machinery for listing approved organizations; and to define the privileges conferred by relationship with the World Health Organization. The Commission recommended the adoption of the sub-committee’s recommendations by the First World Health Assembly.

**Technical Activities**

*The International Sanitary Conventions: Quarantine and Epidemiological Services*

The administration of the International Sanitary Conventions of 1926, 1933 and 1944 was vested in the Interim Commission by paragraphs 2 (e) and (f) of the Arrangement of 22 July 1946. Some of the work devolving on the Interim Commission under this provision has been mentioned earlier in
this chapter in the brief account of the transfer of duties and functions of the Office International d’Hygiène Publique and the United Nations Relief and Rehabilitation Administration. The Commission appointed an Expert Committee on Quarantine to advise on questions arising out of the interpretation and application of the Conventions.

Another clause in the Interim Commission’s terms of reference, paragraph 2 (j), enjoined upon it the task of undertaking initial preparations for revising, unifying and strengthening existing international sanitary conventions, and an Expert Committee on International Epidemic Control was set up to meet this requirement.

However, even before a start could be made on this work, the Interim Commission was confronted by the 1947 cholera epidemic in Egypt with the urgent necessity for providing practical help. The story brings out both the good and the weak points of the machinery then existing for international epidemic control. Apart from the broadcasts made by the Singapore Station, the arrangements for the dispatch and distribution of epidemiological information were found to need modernization in order to cope with an emergency of this magnitude. Again, whereas the measures prescribed by the existing sanitary conventions were considered adequate in the light of the actual situation and of recent knowledge of the bacteriology and epidemiology of cholera, it soon became apparent that many countries were taking action which was much in excess of the provisions of the conventions and was seriously interfering with trade and the food supply in several countries. In several instances the Commission’s secretariat succeeded in having the offending measures modified.

By way of practical help to the Egyptian Government the Commission undertook the bulk ordering of cholera vaccine and arranged for the loan or gift of medical equipment and supplies.

Owing largely to the efforts of the Egyptian health authorities, the mortality from this cholera outbreak was one-seventh of that during the previous one. Not a single case of cholera occurred abroad as a result of the epidemic.¹

Important work undertaken by the Committee on Quarantine was that relating to the prevention of the spread of yellow fever. A special Yellow Fever Panel was set up to advise on the control of that disease under the 1944 International Sanitary Convention for Aerial Navigation. Matters on which the panel was consulted included the practicability of regular tests of all yellow-fever vaccines approved for international use with a view to maintaining the standard degree of activity in such vaccines; studies

to determine objectively the time required to obtain effective immunity after protective inoculation against yellow fever; the revision of the endemic yellow-fever areas in Africa and South America, delineated by UNRRA in 1946; and the application for recognition by the Interim Commission of the Institute for Medical Research at Kuala Lumpur, Malaya, as an approved institute for carrying out potency tests on yellow fever immunizing vaccines under the 1944 Convention. The advice of the Director of the Pan American Sanitary Bureau was sought with regard to yellow-fever endemic areas in the western hemisphere.

As the result of an inquiry circulated to governments by the Interim Commission, it was ascertained that in 1948 there were twenty countries enforcing quarantine restrictions with a view to the control and prevention of psittacosis, but that in recent years human incidence had been reported in only three territories, although the disease continued to be enzootic among birds in several countries.

The Expert Committee on International Epidemic Control was instructed to examine the circumstances underlying the spread of the major epidemic diseases and re-study the principles which should serve as a basis for their international control. As a result of inquiries made of governments and studies undertaken by a panel of legal experts and three study groups set up jointly by the Office International d’Hygiène Publique and the Interim Commission, the Expert Committee came to the conclusion that the protective measures enforced by countries at the frontier under existing conventions were merely palliative. Effective control required, first, the delimitation of endemic areas in which epidemics of pestilential diseases had their origin and, secondly, an attack on these endemic foci, with the technical help of WHO, if needed. The Committee also considered the simplification and improvement of the system of disseminating urgent information, especially by the use of broadcasting, and recommended principles to be followed for the control of each of the pestilential diseases. It decided to classify louse-borne relapsing fever as a pestilential disease and to include among diseases for which immediate notification must be made in case of an epidemic, cerebrospinal meningitis, dengue fever, influenza and poliomyelitis. The Interim Commission forwarded detailed recommendations to the First World Health Assembly for the continuance and organization of this work.

The revision of the Mecca Pilgrimage clauses of the 1926 Sanitary Convention was one of the duties inherited by the Interim Commission from the OIHP, whose study of the question had been interrupted by the war. Various proposals having been received from a number of the interested governments,
the Interim Commission decided to treat the question as urgent and set up at its second session in November 1946 a special sub-committee consisting of six experts from the countries directly concerned. The Sub-Committee met at Alexandria on 16 April 1947 and, after visiting the sanitary installations and equipment of the port of Jeddah, issued a report which resulted in the framing of draft regulations, revising Part III of the 1926 Convention and intended eventually to form an annex to the future general convention. The draft regulations, which were accepted by the Interim Commission for submission to the First World Health Assembly, covered air and land transport as well as conveyance by sea. The principal aims were: first, to secure the sanitary defence, not only of the western countries, but also of the Hedjaz, against the danger of the spread of epidemic disease; secondly, to spare the pilgrims unnecessary or obsolete formalities; and thirdly, to improve the condition of pilgrims' transportation, e.g., by the installation of berths on board ship.

**International Lists of Diseases and Causes of Death**

By paragraph 2 (k) of the New York Arrangement the Interim Commission was instructed to review existing machinery and undertake preparatory work in connexion with the next decennial revision of the International Lists of Causes of Death and the establishment of International Lists of Causes of Morbidity. To meet these obligations it set up an expert committee whose work was greatly assisted by studies and investigations undertaken by officially appointed bodies in Canada, the United Kingdom and the United States of America. The Expert Committee also had the advantage of the co-operation of the United Nations Statistical Office and the International Labour Office. It came to the conclusion that a single classification applicable to both causes of sickness and of death would not only satisfy the urgent need for a uniform classification but would also permit parallel presentation of morbidity and mortality statistics. The *International Statistical Classification of Diseases, Injuries and Causes of Death*, which resulted from the Committee's second session, consists of 610 categories of diseases and morbid conditions plus 153 categories for the external causes of injury and 189 categories for injuries according to the nature of the lesion. It was approved with minor reservations by the twenty-nine States which attended the International Conference for the Sixth Decennial Revision of the International Lists, convened by the French Government in Paris from 26 to 30 April 1948. The Lists resulting from the changes suggested by the Conference were finally established by the Expert Committee and approved by the Interim Commission for submission to the
First World Health Assembly with a recommendation that the Health Assembly adopt regulations to ensure the compilation and publication of statistics in accordance with the revised lists.\(^1\)

Being aware that only uniformity in application can assure the full benefit of the proposed system of classification, the Expert Committee drafted a form of medical certificate of cause of death intended for international adoption, accepted the form of multiple-cause tabulation suggested by the United States Committee on Joint Causes of Death and laid down rules for the selection of the underlying cause of death. It also drew up for tabulation purposes an intermediate list of 150 selected categories of diseases and causes of death, an abbreviated list of 50 selected categories of causes of death and a special list of morbidity statistics for social security purposes. Finally, it stressed the need for a permanent committee on health statistics.

**Biological Standardization**

Work on this subject had been inaugurated by the League of Nations Health Organisation, under whose auspices international standards and units had been established for thirty-four substances assayed by biological methods. By agreement with the Danish Government and the United Kingdom Medical Research Council, the Statens Seruminstitut, Copenhagen, and the National Institute for Medical Research, London, continued to serve as centres for the preparation, maintenance and distribution of international standards. Of the fifty-seven centres set up in thirty-eight countries by 1939 to relieve the two above-mentioned bodies by assuming responsibility for the national storage and distribution of the international standards, twenty-six were still functioning at the end of the Second World War.

An expert committee set up by the Interim Commission to advise on the standards and units most urgently required recommended that the health authorities of countries which had no national centre for the storage and distribution of international standards should be approached with a view to the creation of such centres. It then considered the procedure to be recommended with regard to toxoids, cholera vaccine (in consequence of the Egyptian cholera epidemic of 1947), tuberculin, BCG, other antigens, streptococcus antitoxin, digitalis, penicillin, streptomycin, vitamins A and D, and blood groups. Lastly, it advised that the World Health Organization should take over the Salmonella Centre in the Copenhagen Statens Seruminstitut.

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\(^1\) See also Chapter 19.
Among its proposals to the First World Health Assembly for the 1949 programme of the Organization, the Interim Commission advocated the establishment of an advisory committee of not more than ten members, with such appropriate sub-committees as circumstances might dictate, to continue the work on biological standardization.

*International Pharmacopoeia*

The development of an international pharmacopoeia, which had led to the adoption in 1906 of the first International Agreement for the Unification of the Formulae of Potent Drugs, was another bequest from the League of Nations Health Organisation, which had set up a Technical Commission of Pharmacopoeial Experts and had provisionally assigned to the Belgian Pharmacopoeia Commission the functions of an international secretariat on pharmacopoeias. The Interim Commission in turn appointed an expert committee to produce a draft international agreement for the unification of pharmacopoeias, modifying and extending the Agreement of 1906, the draft to be presented as an international pharmacopoeia similar in form to the present national pharmacopoeias. It was understood that the international pharmacopoeia would have no authority in a country which did not officially adopt it.

The Expert Committee made recommendations to the First World Health Assembly for the continuation of this work.

*Specific Diseases*

Early in its career the Interim Commission decided that there were certain diseases of sufficient importance to warrant immediate action. These diseases were malaria, tuberculosis and the venereal diseases.

A similar procedure was adopted for each. An expert committee was set up to study the whole situation and advise the Commission. Information was obtained from and visits were paid to various countries to study the incidence of each disease and methods of control. Field services were arranged in the form of missions to countries which applied for and were prepared to receive expert help, and fellowships were awarded to enable medical personnel to study in countries with more advanced technical institutions or greater experience in matters of cure and control.

In the Interim Commission’s proposals to the First World Health Assembly for the initial programme of WHO these diseases were given top priority.

Other technical subjects on which the Interim Commission undertook preliminary studies with a view to their inclusion in the Organization’s first
programme of work were: alcoholism, crime prevention and the treatment of offenders (at the request of the Social Commission of the Economic and Social Council), housing and town planning (in conjunction with the Economic Commission for Europe), influenza (for the study of which an international centre was created in London at the Medical Research Council’s National Institute for Medical Research), insulin supplies, the medical examination of immigrants, public-health services and the training of staff, radiotherapy in cancer of the uterine cervix. Suggestions for the continuance and future organization of the work on all these subjects were put forward in the annotated agenda prepared by the Interim Commission for the First World Health Assembly.

The Interim Commission’s terms of reference and budgetary considerations set definite limits to its activity and prevented it from taking action in a number of matters which, it felt, would certainly be of direct interest to WHO when finally constituted as a permanent body. The Interim Commission believed, however, that the First World Health Assembly would naturally expect some guidance on these points, even if perforce limited to suggestions as to their order of priority and the initial organization of the work. Thus, maternal and child health was recognized as being of sufficient importance to be admitted to the top priority category although the Interim Commission itself had been unable to take any direct action on the subject apart from the support given to UNICEF. Six other topics were selected for submission to the First World Health Assembly with a special recommendation for the early appointment of expert committees: nursing, hygiene of seafarers, schistosomiasis, industrial hygiene, nutrition and rural hygiene—the last three of which should, the Interim Commission recommended, be joint responsibilities of WHO and other specialized agencies having a direct interest. A number of other subjects were also included in the First World Health Assembly’s provisional agenda with the suggestion that they should be studied by the Secretariat as a preliminary to any further action. Lastly, at its fifth and concluding session the Interim Commission considered the possibility of initiating action with regard to the availability of radioactive isotopes and their distribution by the United States Atomic Energy Commission.

Field Services

The Interim Commission’s field services programme was initiated on the basis of an agreement with UNRRA to avoid the sudden cessation of UNRRA’s activities which would have been detrimental to the UNRRA-aided countries.
Acting under paragraph 2 (m) of the New York Arrangement, which empowered the Interim Commission to give technical advice on any urgent problem brought to its notice by a government and to take any desirable steps to co-ordinate such assistance as governments and interested organizations might undertake to provide, the Interim Commission agreed to take over UNRRA's health activities—with the exception of the medical care of displaced persons, which was a direct responsibility of the International Refugee Organization—in return for a grant by UNRRA of $1 500 000. The field services programme provided for general advice and assistance in public health and medicine, including missions of experts, to be undertaken in consultation with the governments concerned. Stress was laid on the need to continue UNRRA's programme of fellowships and other educational activities. The original grant having been made on the assumption that WHO would be finally constituted in 1947, a second grant of $1 500 000 was awarded in the latter half of that year when it became clear that the Interim Commission's responsibility for UNRRA services would extend into 1948.

The Interim Commission's main consideration was to bridge the gap between the cessation of UNRRA's short-term work and the time when the World Health Organization could review and estimate the needs of the world as a whole. The Interim Commission approved certain general rules on finance and administration, and the programme of aid, as requested by governments, was agreed under four heads: continuation of missions of technical experts or a medical liaison officer (seven countries); grants for fellowships or study-terms (eleven countries); provision of visiting lecturers or experts (nine countries); supply of medical literature (twelve countries). Fourteen countries in all received aid in one or more of these forms, only one of the UNRRA-assisted countries having failed to respond to the Interim Commission's offer.

Apart from the fellowships, which will be considered later, these services included lectures and demonstrations on public-health topics, emergency measures in connexion with epidemic control and port quarantine, demonstrations of tuberculosis and malaria control, training of personnel, nutrition, maternal and child health.

From the eleven countries which asked for the award of fellowships, an increasing flow of specialists in public health, clinical medicine and the medical sciences as well as sanitary engineers, hospital architects and nurses, visited various countries in North America and western Europe. The placement of fellows was arranged in co-operation with the national health administrations, teaching institutes and foundations. All fellows were proposed by their
national administrations, usually by small selection boards which included among their members representatives of the universities or other appropriate educational bodies.

A fellowships manual was prepared on the basis of the experience acquired in the organization and rehabilitation of public health and medical education in the war-stricken countries. For the countries which had lost many of their physicians and qualified teachers during the war, the fellowships service provided welcome assistance in the rebuilding of a nucleus of specialists and health teachers; in others it led to improved standards as well as to the resumption of pre-war relations.

In all, between January 1947 and April 1948, the Interim Commission awarded 250 fellowships, the average duration of a fellowship being six months. Of the fellows nominated, 132 studied public health, 136 clinical subjects and 30 other medical subjects; some of them however studied in more than one field.

In its recommendations to the First World Health Assembly the Commission expressed its belief that an expanded service of fellowships would prove to be a valuable item in WHO's programme.

Publications

In planning its publications programme the Interim Commission was guided by the obligation it had assumed for the discharge of certain inherited duties and by the need for placing at the disposal of public-health administrations and the medical and related professions technical information on current problems and on the development of its own activities, while limiting itself to such essential publications as might later be continued by the Organization after establishment. These were: the *Weekly Epidemiological Record*, the successor to the similar publications of the League of Nations and the OIHP and the bi-monthly publications of UNRRA; the *Epidemiological and Vital Statistics Report*; the *Weekly Fasciculus* issued by the Singapore Epidemiological Intelligence Station; the *Official Records* of WHO, containing minutes and documents of meetings of various kinds; the *Bulletin*, the title of which intentionally recalls that of its two predecessors, the *Bulletin* of the OIHP and that of the League Health Organisation, and which was designed by the Interim Commission to be the chief scientific publication of the Organization (only the first number appeared during the Interim Commission's lifetime); and the *Chronicle*, which contained monthly information on the current activities of the Interim Commission and its expert committees.

The AA Epidemiological Code, originally adapted for the use of the Singapore Station, was brought up to date and reprinted to meet an urgent need.
The Interim Commission's publications were marketed throughout the world by the United Nations sales agents, though a very large number of the recipients were on the free distribution list—national health administrations, the libraries of medical faculties and research institutes, etc.

In its report to the First World Health Assembly the Interim Commission made a number of recommendations with regard to the publications programme of the Organization and included a detailed estimate of costs.

For the information of the general public on its work, the Interim Commission established, through its own public information unit, close relations with the United Nations Department of Public Information, whose various services were made available both for the distribution of news to the public in general and for the supply of material to the technical press. The Interim Commission also published a monthly News Letter containing condensed items of public information for circulation mainly to health administrations, associations having their own journals and a number of general publications.

Library and Reference Service

The organization of this service was actively pursued. The library of the OIHP was taken over, and the medical section in the League of Nations Library in Geneva, which had passed into the possession of the United Nations, was made available to the Interim Commission and its staff. Some 10,000 volumes were acquired and subscriptions to 400 periodicals in eleven countries were opened under the field services programme. Progress was made in obtaining a regular supply of medical and other technical periodicals, mostly in exchange for the Interim Commission's publications.

Administration and Finance

The operations of the Interim Commission were financed in accordance with paragraph 8 of the Arrangement of 22 July 1946, under which the Interim Commission's expenses were to be met by funds provided by the United Nations, and, if those were insufficient, by advances from governments.

Loans totalling $175,000 for 1946 and $1,125,000 for 1947 were obtained from the United Nations. As a result of arrangements made in connexion with the Interim Commission's aid to certain governments during the cholera epidemic in Egypt whereby funds were received as reimbursement from these governments, the entire 1946 advance was repaid before the end of 1947. The
total of the advances repayable to the United Nations at the time of the Interim Commission’s liquidation was estimated at $2,150,000 and following legal advice a special resolution was submitted to the First World Health Assembly concerning the manner in which this debt should be discharged. The liabilities of the Interim Commission were duly assumed by the First World Health Assembly at its fifteenth plenary meeting held on 21 July 1948.

As regards two funds, of $1,500,000 each, transferred from UNRRA to enable the Interim Commission to finance former UNRRA activities in 1946-47 and 1947-48, it was agreed that all direct office expenses incurred in connexion with the administration of field services should be charged to the field services fund, but that no effort should be made to apportion any indirect office costs attributable to field services, since any such apportionment would either have to be made on an arbitrary basis or involve considerable expense if a more accurate costing method were employed. Notification of the special grant to the World Health Organization by UNRRA of $1,000,000 to enable the Organization to meet its hard currency obligations up to the middle of 1949, on the understanding that uncommitted balances would revert to UNRRA, was received too late to permit the Interim Commission to deal further with the matter during its lifetime. It accordingly contented itself with proposing to the First World Health Assembly a resolution authorizing the Director-General to accept the grant on certain conditions.¹

¹ For subsequent history of this matter, see Chapter 9.

The League of Nations Board of Liquidation having transferred to the Interim Commission the sum of £5319 13s. 9d., being the available balance of the funds of the League’s Singapore Bureau, the Interim Commission decided to apply this money to the constitution of a working capital fund for the Singapore Epidemiological Intelligence Station.

Staff

As was natural, the Interim Commission was at the outset largely dependent on the United Nations for its personnel and administrative services and it was guided by United Nations precedents in regard to staff and financial regulations and procedures. Considerable increases in staff soon became necessary and in making new appointments care was taken to observe, as far as was compatible with efficient administration, the rule of equitable distribution by nationality. Between the second and fifth sessions, the staff grew to a total of about 200 persons distributed between the New York Office—headquarters of the Commission—the Geneva Office, to which most of the staff was posted, the Singapore Station and the field missions.
Preparations for and Convocation of
the First World Health Assembly

Paragraphs 2 (a) and (b) of the Arrangement of 22 July 1946 contain the instructions to the Commission concerning the preparations to be made for its own demise and supersession by the World Health Organization. The Interim Commission was to convene the First World Health Assembly and to prepare and submit to the signatories of the Arrangement the provisional agenda and other documents and recommendations for the Health Assembly's session, including a draft programme and budget for the Organization's first year, studies on the site of its headquarters, studies on the definition of geographical areas for the establishment of regional organizations and draft financial and staff regulations. Under paragraph 10 of the Arrangement it was to submit to the Health Assembly a report on its stewardship and under paragraph 11 it would cease to exist upon resolution by the same Assembly.

When it became clear that the Constitution would shortly come into force upon the deposit of the instrument of ratification of the twenty-sixth signatory State which was also a Member of the United Nations, the Interim Commission decided to appoint 24 June 1948 as the date for the convening of the Health Assembly and selected Geneva as its place of meeting.

As has already been indicated, the Interim Commission realized that the permanent organization would hardly be able during the first year of its existence to develop hard and fast programmes for all the health matters requiring international attention. In drawing up the agenda and drafting the first year's programme, it accordingly suggested an order of priority and recommended the initiation of action on certain other subjects regarded as second-class priorities. Provision was made for the continuance without interruption of essential activities inherited from previous international health bodies and for maintaining the special and general services which would be indispensable to the new agency. Arrangements too were suggested for the machinery by which the programme recommended could be carried into effect.

The Interim Commission submitted proposals for the necessary staff, and draft staff and financial regulations were prepared. A draft budget was framed totalling close on $6,500,000.

On the subject of the future headquarters, the Interim Commission appointed a special committee which undertook studies on New York, Geneva, Paris and a city in the United Kingdom as possible sites, and left the final choice to the Health Assembly between New York, Geneva and Paris, the United Kingdom offer having been withdrawn meanwhile. Of the States which
replied to the Interim Commission's circular inquiry on the subject before the Health Assembly met, eighteen expressed a preference for Geneva, which was also the second choice of one State, four for New York, one for Paris, one for Washington, D. C., and one for a site in Europe.

The Interim Commission, similarly, consulted governments by circular as to their preferences for the establishment of regional offices. Six States opted for an office in Washington, D. C., while two favoured Paris or Geneva, four Alexandria, two Singapore and one each Vienna, Copenhagen, India, Teheran, Leopoldville, Shanghai and Budapest. This information was forwarded to the First World Health Assembly.

As will be seen from the foregoing brief account, the Interim Commission had more than fulfilled the duties and obligations placed upon it by the Arrangement of 22 July 1946. It finally ceased to exist by resolution of the First World Health Assembly (taken during its fifteenth meeting) at midnight on 31 August 1948, whereupon its property, records, assets, liabilities, responsibilities and obligations, and all rights and interests pertaining thereto, were transferred to the World Health Organization.
Before the work of the World Health Organization during the first ten years is described, it seems fitting that some account should be given of the planning and policy-making and the administrative action which preceded and accompanied that work and which governed in very large measure its accomplishment. The present part of the volume, therefore, reviews the main developments in the course of the Organization's adaptation to successive tasks and problems.

The First World Health Assembly convened in the Palais des Nations, Geneva, on 24 June 1948, and was attended by delegations from all except two of its fifty-five Member States, observers from nine non-Member States, from the Allied Control Authorities in the three Western Zones of Germany, in Japan and Southern Korea, and from the United Nations and five specialized agencies, the Office International d'Hygiène Publique and the Pan American Sanitary Organization.

The task before the First World Health Assembly was heavy and in many ways unprecedented. The new agency embodied several novel conceptions and had wider functions than any previous international health organization. The Health Assembly, which determines the policies of the Organization and is therefore the ultimate authority for the Organization's work, had to bring this plan to life: to construct and put in motion machinery to handle efficiently the great range of work that the new mandate would bring and to continue without interruption the health work of such bodies as UNRRA and the Office International d'Hygiène Publique, which had already been taken over by the Interim Commission: all this before framing its policy for future work.

If delegates brought to this First Assembly a sober appreciation of the immensity of their task, they could find some reassurance in the thought that much of the territory had been charted in advance. The new organization was heir to the valuable experience of its predecessors; many of the delegates
had taken part in the Technical Preparatory Committee and in the International Health Conference; above all, sound preparatory work had been done by the Interim Commission.

The Assembly elected as President Dr Andrija Štampar, chief delegate of Yugoslavia and the Chairman of the Interim Commission. To deal with its heavy agenda it set up five main committees, together with a General Committee to co-ordinate the work.

A detailed review of the decisions of the First World Health Assembly would be out of place here; the policy which they provided for the work of the young organization was to be modified and reshaped to meet changing conditions and requirements, and those developments will be described under separate headings elsewhere in this volume. A reference will be made here only to those decisions which are appropriate to this part of the record.

An important early task was the election of eighteen Member States entitled to designate the members of the Executive Board. The debate on this question centred on a problem that was to recur: how to ensure an equitable geographical membership of the Board. The Assembly finally accepted a list of Member States drawn up by the General Committee. The members of the Board were designated forthwith by the newly elected Member States and before the close of the Assembly the Board held its first session and addressed itself to a number of matters, including the nomination of the Director-General. The Assembly endorsed its choice and elected as the first Director-General of the Organization Dr Brock Chisholm, Executive Secretary of the Interim Commission, who served until 1953, when he was succeeded by Dr Marcolino G. Candau.

The Assembly established a programme, based in the main on the recommendations of the Interim Commission, and, as a first step towards future policy, it grouped the various subjects in categories of importance. Malaria, maternal and child health, tuberculosis, venereal diseases, nutrition and environmental sanitation were assigned to a "top priority" class; second priority was given to public-health administration; third to parasitic diseases; fourth to virus diseases; and fifth to mental health. Sixth priority was accorded to a somewhat varied group of other activities. As the Organization developed, this system of determining priorities was soon found to be unsuited to the widely diverse health needs of the countries of the world. It was in due course superseded by a more flexible mechanism responsive to the actual requirements of individual Member States and their requests for help, one moreover which made allowance for the stage of development and particular problems of each country.
Arrangements were approved for taking over the obligations which the Interim Commission had assumed in such matters as epidemiological intelligence, biological standardization and nomenclature of diseases. The Assembly also authorized the establishment of expert panels and committees in the "top priority" subjects and in some others, thus expanding the system of which the nucleus had been created by the Interim Commission and which, extended to many other technical subjects, was to prove an invaluable source of opinion, information and guidance to the Organization.

For the first four months of the Organization's existence—the period 1 September–31 December 1948—the Assembly voted a budget of $4,800,000, of which $2,150,000 was earmarked for repayment of the Interim Commission's debt to the United Nations. For the year 1949 it approved a budget of $5,000,000. For determining the contributions of Member States it drew up a scale of assessment based on the criteria employed by the United Nations in assessing its Members.

The selection of the place for the Headquarters of the Organization presented little difficulty as the replies from States to the Interim Commission's inquiry had already shown a preponderance of opinion in favour of Geneva. The Health Assembly's unanimous choice of that city was subsequently confirmed after consultation with the United Nations, as required by Article 43 of the Constitution. Approval was given to a "host agreement" with the Swiss Federal Council, which defines the legal status of the Organization in Switzerland and governs the relationship between the Organization and the Federal authorities.

In 1950, under an arrangement made with the United Nations, the accommodation for the headquarters secretariat was put on a permanent basis, and the Palais des Nations was subsequently enlarged for the purpose, part of the cost of the extensions being defrayed by the Organization's budget and part by a gift of 3,000,000 Swiss francs from the Swiss Confederation.

The First World Health Assembly formalized its relationship with the United Nations and with the Food and Agriculture Organization, the International Labour Organisation and the United Nations Educational, Scientific and Cultural Organization, by adopting draft agreements with these agencies. It decided that the World Health Organization should continue and develop the wide collaboration already established between the Interim Commission and the Economic and Social Council, its Commissions and subsidiary bodies, in such fields of common interest as habit-forming drugs, vital statistics, prevention of crime and the treatment of offenders, health problems of migration, "standards of living" projects, hygiene of housing, population questions
and the Declaration of the Rights of the Child. It looked forward to co-operation with other organizations, among them the International Civil Aviation Organization, the Preparatory Commission for the International Refugee Organization and the United Nations International Children’s Emergency Fund.

After a long discussion in committee on the working principles that should govern WHO's relations with non-governmental organizations, the Assembly laid down the criteria to be met by a non-governmental organization before it could become eligible for official relationship, prescribed the procedure for admission, and defined the privileges to be conferred by such relationship.

It decided also a wide range of matters fundamental to the sound administration of the new agency, among them staff and financial regulations, pension fund and insurance, and the appointment of an external auditor, and dealt with various aspects of the administrative and financial relations between the United Nations and the specialized agencies.

After adopting unanimously at its eleventh meeting a motion conveying the expression of its congratulations and gratitude to the Interim Commission, discussion of whose report had occupied the greater part of the first eight meetings of the session, the Health Assembly decided that the Commission should cease to exist at midnight on 31 August 1948.

The Regional Organizations

The decentralization of the new agency’s activities foreseen in Articles 44-54 of the Constitution presented the First World Health Assembly with one of its most difficult and complex tasks, and as the regional system initiated by that Assembly has become one of the distinctive features of the Organization’s structure it seems to call for consideration in greater detail here. The Assembly promptly studied this question and assigned to the Committee on Headquarters and Regional Organization the delineation of the areas in which regional committees and offices should be set up. At the outset of the discussions the Indian delegation pressed for the immediate establishment of regional organizations as “the first step in the successful working of the World Health Organization.”

The main practical questions to be decided were: How many areas were to be established? Which groups of countries should they include? How soon should the regional organizations come into being? And what would be the effect on the resources of the Organization?
A tentative regional pattern in which the areas corresponded essentially to continental groupings of countries had already emerged from the replies of governments to an inquiry circulated by the Interim Commission. In the Assembly however there was a general feeling that it would be a mistake to consider such groupings as a necessary basis for the WHO regions. The suggestion was made that consideration of the question should include such points as: the standard of health in the countries to be included in the areas; the existence of any permanent foci of epidemics in such countries; how far the countries concerned had succeeded in overcoming the effects on health of the war; and the efficiency of existing health administrations and their ability to deal with their problems.

Doubts were expressed as to the financial feasibility of too sudden a decentralization. It was urged by some that at the outset the regional organizations should be limited to two or three, or that they should come into being successively in accordance with a pre-established order of priority. A statement by the Director of the Pan American Sanitary Bureau that the Bureau had started work in 1902 with a budget of only $5000 made a deep impression.

Finally, the Committee accepted a proposal from the delegate of the Philippines that in pursuance of Article 44 of the Constitution the Committee should recommend the immediate establishment of a regional organization in any area as soon as a majority of the Members in that area assented thereto. The Committee’s report, adopted without change by the Health Assembly, became the blueprint for the regional development of the World Health Organization.

It delimited the geographical areas as follows:

1. **Eastern Mediterranean Area**: Egypt, Saudi Arabia, Iraq, Syria, Lebanon, Palestine, Transjordan, Yemen, Iran, Turkey, Pakistan, Greece, Ethiopia, Eritrea, Tripolitania, British Somaliland, French Somaliland, Aden, Cyprus.

2. **Western Pacific Area**: Australia, China, Indo-China, Indonesia, Japan, Korea, the Philippines, New Zealand, and provisionally the Malay Peninsula.

3. **South-East Asia Area**: Burma, Siam, Ceylon, Afghanistan, India; the inclusion of the Malay Peninsula to await the definite decision of this area as to which regional organization it desired to join.

4. **European Area**: The whole of Europe.

5. **African Area**: A primary region was suggested for all Africa south of the 20 degree N parallel of latitude to the western border of the Anglo-Egyptian Sudan, to its junction

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¹ As a result of political changes since 1948, certain of the designations of States and territories shown in this list have been altered or superseded.

² With a reservation by the Greek delegation as to the final assignment of that country (see also p. 82).
with the northern border of Belgian Congo, thence eastwards along the northern borders of Uganda and Kenya; and thence southwards along the eastern border of Kenya to the Indian Ocean.

6. American Area: Comprising the Americas.

Mention is made in the following chapter of additions and reassignments of States and territories over the ensuing years. A map showing the areas served by each regional office at the end of 1957 will be found on page 85.

The Assembly’s decision as regards Europe was limited to the setting-up at an early date of a temporary special administrative office for the primary purpose of dealing with the health rehabilitation of war-devastated countries. With respect to the Eastern Mediterranean area, it was agreed to integrate the existing regional organization—the Alexandria Regional Bureau—with WHO as soon as possible through common action.

The regional organizations came into being successively within a period of some three-and-a-half years from the time of the First World Health Assembly. For some regions (Africa, Europe and the Western Pacific) resort was had to temporary or special offices as a means of carrying on operations pending the definitive establishment of the full organization.

The first organization to come into being was that for South-East Asia. The decision of the First World Health Assembly mentioned above evoked an immediate response from countries of that region: the chief delegates of Burma, Ceylon, India and Siam (Thailand) informed the President of the Assembly that their countries had agreed to the establishment of the regional organization, which their countries would join forthwith. The Regional Committee met in October 1948. New Delhi became the site of the Regional Office, which started work on 1 January 1949.

The regional organization for the Eastern Mediterranean was established a few months later. The Regional Committee held its first session in February 1949. The Regional Office began to function on 1 July of that year in Alexandria, Egypt.

The negotiations with the Pan American Sanitary Organization were brought to a satisfactory conclusion and on 1 July 1949 the agreement between the two organizations came into force: the Pan American Sanitary Bureau in Washington, D.C., assumed, in addition to its former functions, its new role of Regional Office of the World Health Organization for the Americas and the Directing Council of the Pan American Sanitary Organization was henceforward to act as the WHO Regional Committee.
The year 1951 saw the setting-up of two further regional organizations, those for the Western Pacific and Africa.

Although in May 1950 the Third World Health Assembly had approved the establishment of the organization for the Western Pacific, it was not until the Fourth World Health Assembly met in May 1951 that authority could be given, on the request of the majority of the Members in the Region, for the convening of the first session of the Regional Committee. This was held in Geneva in May 1951. In the following September the Regional Office was transferred from a temporary office established one year previously at Hong Kong and began work in Manila.

Pending the establishment of a regional organization for Africa, an administrative office was set up at Headquarters in Geneva. By May 1951 the consent of the majority of the Members in the Region had been obtained; establishment of the full regional office was authorized and the first session of the Regional Committee was held in the autumn of that year. Brazzaville, in French Equatorial Africa, became the site of the Regional Office.

Although the regional organization for Europe was the last to be created, the Special Office already mentioned had started work in Geneva on 1 January 1949. In the same year the Czechoslovak Government made a proposal for the establishment of a full regional organization for Europe, but it was not possible to give effect thereto as a number of European governments, while favouring the principle of regionalization, expressed reservations on the early establishment of a regional office. The consent of a majority of European governments having been eventually obtained, the Regional Committee held its first session in the autumn of 1951, replacing a consultative committee of governments which had acted in an interim capacity for a few months. The Regional Office for Europe, which was to remain for some years in the Palais des Nations at Geneva, took over on 1 February 1952 from the Special Office. In June 1957 the Office moved to Copenhagen.
Membership of the Organization, which had reached on 7 April 1948 the number required by the Constitution—twenty-six acceptances by States Members of the United Nations—to bring the Constitution into force, rose to forty-eight by the date of opening of the First World Health Assembly on 24 June that year and fifty-five when it closed a month later. After the First World Health Assembly, States Members of the United Nations could still become Members of the World Health Organization by formal acceptance of the Constitution notified to the Secretary-General, but States not Members of the United Nations had to pass through the procedure of a special decision by the Health Assembly, taken however by a simple majority vote. Sixteen of the present Members were admitted in this way. On the other hand, the most recent Member, Ghana, joined by the simple act of acceptance as it had already been admitted to the United Nations.

On 31 December 1957 the Organization had eighty-five Members and three Associate Members.1

Not all the Member States of the World Health Organization have continuously taken an active part in its work. Early in 1949, the Ministries of Health of the Union of Soviet Socialist Republics, the Ukrainian Soviet Socialist Republic and the Byelorussian Soviet Socialist Republic informed the Director-General that they were dissatisfied with certain aspects of the Organization's work and that their States no longer considered themselves Members of the Organization. The Director-General replied that the Constitution made no provision for withdrawal and suggested that it was premature, when the agency was only just emerging from its organizational period, to condemn the direction taken by its activities, and that the programme for 1950 would meet

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1 See list in Annex 2.
the objections raised. The Executive Board approved the steps taken by the Director-General and laid the question before the Second World Health Assembly, which adopted a resolution regretting the absence of the States, inviting them to reconsider their intention, endorsing the action of the Director-General and the Board, and requesting them to continue their efforts to prevail on the three States to change their decision.

During the next twelve months notifications of withdrawal were received from Bulgaria, Romania, Albania, Czechoslovakia, Hungary and Poland. On being apprised of these facts the Third and Fourth World Health Assemblies adopted resolutions stating that the Organization would always welcome the resumption by these Members of full co-operation in the Organization's work, but that it was not considered that any further action at that stage was desirable. An appeal for renewed participation was made in 1954 by the Seventh World Health Assembly to all Members who had discontinued active participation.

The fact that the Constitution does not permit withdrawal from the Organization resulted in the accumulation of arrears of contributions which had to be considered in connexion with the resumption of active membership.

In July 1955, during the twentieth session of the United Nations Economic and Social Council, the representative of the USSR said that the World Health Organization was doing useful work and that the Soviet Union was joining it. After this statement had been made, contacts were established between the Director-General and the Ministry of Public Health of the USSR, and the problem of contributions for the years of inactive membership was discussed during the seventeenth session of the Executive Board, which was attended by a representative of the USSR. The Ninth World Health Assembly decided that States resuming active membership should pay in full their arrears of contributions for years in which they had participated actively, that a token payment of five per cent. should be accepted in full settlement of their financial obligations for the years in which they had been inactive, and that such payments could be made in equal annual instalments over a period up to ten years.

In January 1957 the Governments of Bulgaria, Albania and Poland informed the Director-General that they were resuming active membership and accepted the arrangement proposed, and in April 1957 the USSR announced the renewal of its active membership. Delegates of all four countries attended the Tenth World Health Assembly. Romania's return to active participation was notified on 23 May 1957. Discussions continued with the remaining inactive Members.1

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1 In January 1958 Czechoslovakia resumed active participation in WHO.
In May 1950 the Government of the Republic of China notified the Director-General of its withdrawal from the Organization and added that despite the withdrawal it would continue to adhere to the purposes and principles of the Organization and to co-operate to the fullest possible extent with the Organization and Member States in the field of health. Two years later the Government wrote saying that the Republic of China had had the possibility of resuming its membership constantly under consideration in conjunction with the extent to which it could fulfil its financial obligations, and it put forward proposals as regards both its contributions in arrears and those for the current and future years. The Sixth World Health Assembly, taking into account the financial difficulties of the Republic of China, agreed to accept token payments, subject to future arrangements when China's financial situation had improved. China thereupon resumed active membership.

Associate Membership

Under the Constitution territories which are not responsible for their international relations may be admitted as Associate Members by the Health Assembly on application by the Member or other authority responsible for their international relations. It was however left to the Health Assembly to define the nature and extent of the rights and obligations of Associate Members. The resolution adopted by the First World Health Assembly on this subject states inter alia that Associate Members may propose items for inclusion in the Assembly's agenda, take part in all the Assembly's proceedings, but not vote or hold office either at plenary meetings or in the main and certain other important committees of the Assembly; further they are not eligible to designate members of the Executive Board, but they may submit proposals to the Board and participate in committees established by it.

As regards the regional committees, the Second World Health Assembly decided that Associate Members should have all rights and obligations in the regional organization except the right of voting in the regional committee's plenary meetings or in sub-divisions dealing with finance or constitutional matters.

The Third World Health Assembly decided that in view of their restricted rights, the financial contributions of Associate Members should be fixed at a flat rate of three units in the scale of assessment.

In the Organization's earlier years the question of the extent of Associate Members' rights gave rise to close discussion on more than one occasion, but
the statute established by the First and Second Assemblies has remained unchanged. Of the territories admitted at various times to associate membership, four—Morocco, Tunisia, Sudan and Gold Coast—have become full Members. There are at present only three Associate Members—the Federation of Rhodesia and Nyasaland, admitted in 1954 (Southern Rhodesia had already been admitted in 1950 before the establishment of the Federation), the Federation of Nigeria, and Sierra Leone, both admitted in 1956.

Membership in Regional Organizations

As regards membership in the regional organizations, the Second World Health Assembly agreed that for the purposes of Article 47 of the Constitution States Members in a region should be those having their seat of government in the region, and that other States which considered territories in the region as part of their national territory or which were responsible for the international relations of any territory in the region should be admitted to full membership of the regional committee, but with only one vote for all the territories in question.

The delineation of geographical areas approved by the First World Health Assembly as a basis for the establishment of regional organizations was not intended to be either complete or final. Additions and adjustments have been and are still being made.

Already, in approving the original plan of delineation, the First World Health Assembly accepted a reservation made by the delegate of Greece as to the inclusion of that country in the Eastern Mediterranean Region. A later request by Greece for assignment to the European Region was approved by the Second World Health Assembly, at which Israel was assigned to the Eastern Mediterranean Region.

Indonesia, which the First World Health Assembly had included in the future Western Pacific Region, was transferred by the Third at its own request to the South-East Asia Region. The Third World Health Assembly also provisionally assigned Viet Nam, Cambodia and Laos to the South-East Asia Region, pending the establishment of a regional organization for the Western Pacific, to which, in their former status, they had originally been assigned under the collective name of Indo-China. At the Fourth World Health Assembly these three Member States were transferred to the Western Pacific regional organization, which was by then fully constituted.

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1 Became a full Member as Ghana
2 See p. 76.
The Fourth World Health Assembly's agenda also included a request from the Government of France that Tunisia (at that time an Associate Member), Morocco (French zone) and the French departments of Algeria, should be included in the European Region. After inconclusive debates the Assembly agreed to refer the matter for study to the Executive Board. The Board recommended that the French proposal should be accepted. The Government of Denmark had proposed that Greenland should be included in the European Region, and the Italian Government that the territory of Somalia, under its trusteeship, should be assigned to the Eastern Mediterranean Region. The Board recommended that these proposals also should be accepted.

At the Fifth World Health Assembly it was agreed that the Board, in collaboration with the Director-General, should collect opinions from interested Member States with a view to “determining rules and criteria” for the assignment of States and territories to geographical areas. Meanwhile, States and territories for which a request had already been presented were to be provisionally assigned to the regional organization of their choice. This arrangement was adopted.

The new Member State Libya had asked to be assigned to the Eastern Mediterranean Region, and Turkey had asked to be admitted to the European Region while provisionally suspending its activities in the Eastern Mediterranean Region. Both these requests were approved.

The Executive Board presented for the consideration of the Sixth World Health Assembly two alternative recommendations. Under the first, the paramount consideration was to be “the wishes of the appropriate sovereign authority of the State or territory concerned”. A number of factors (geographical position, similarity of health problems, etc.), were then listed which the sovereign authority was to take into account—in other words, the responsibility for deciding whether the criteria had been correctly applied was to be left to the sovereign authority. Under the second alternative, the factors listed were the same, but the wishes of the sovereign authority were merely the first in order of priority among them.

The Sixth World Health Assembly decided to defer the establishment of rules for assignment to regions “until the results of the studies undertaken by the United Nations and other specialized agencies have become known”. In the meantime, “without prejudice to any questions regarding sovereignty”, it made a number of provisional assignments covering territories responsibility for whose external relations was vested in certain Member States. At the same session Nepal, which had just joined the Organization, was assigned to the South-East Asia Region.
At the Ninth World Health Assembly, Tunisia and Morocco became full Members. Tunisia chose to be assigned to the Eastern Mediterranean Region, and Morocco to be included provisionally in the European Region.

The question of participation in the Regional Committee of the Eastern Mediterranean arose in acute form in 1951, when circumstances in that area extraneous to the World Health Organization led to the suspension of the meetings of the Regional Committee, certain Member States in the Region having announced their unwillingness to attend meetings at the regional level with one other of the Member States. This situation has occupied the attention of each Health Assembly held since that year and also of the Executive Board. Various proposals were put forward with the object of enabling the Regional Committee to carry out its duties. The resolution adopted with that aim in view by the Sixth World Health Assembly for the Committee to carry out its duties through being divided into two provisional sub-committees has not been fully implemented, as during the past five years it has been found possible to bring about each year a meeting of only one of the sub-committees.

Map 1 shows the WHO regional offices and the areas they serve.

THE WORLD HEALTH ASSEMBLY

Functions

The World Health Assembly is the first of the organs instituted by the Constitution for the performance of the Organization’s work. It is the only organ in which all Members enjoy direct representation. Its functions are enumerated in detail in Article 18 of the Constitution, the first among them being that of determining the Organization’s policies. It makes recommendations to Member States. It approves a general programme of work and gives instructions or directives to the Executive Board and the Director-General. It is the supreme financial authority of the Organization and as such reviews and approves the budget and supervises the financial policies of the Organization.

Members and Other Participants

Under Article 11 of the Constitution each Member of the Organization has the right to be represented at the Health Assembly by three delegates, one of whom must be designated as chief delegate. The Constitution specifies
MAP 1. WHO REGIONAL OFFICES AND THE AREAS THEY SERVE

AREAS SERVED, AS AT 31 DECEMBER 1957, BY:

- **WHO Headquarters**: New York, Washington
- **Regional Office for Africa**: Brazzaville
- **Regional Office for the Americas/PAHO**: Washington, DC
- **Regional Office for the Western Pacific**: Manila
- **Regional Office for South-East Asia**: Bangkok
- **Regional Office for the Eastern Mediterranean**: Geneva
- **Liason Office with United Nations**: United Nations Headquarters, New York
further that the delegates should be chosen from among persons most qualified by their technical competence in the field of health, preferably representing national health administrations. They may bring with them alternates and advisers. Representatives of Associate Members participate in the Health Assembly subject to the limitations indicated above. Representatives of the Executive Board participate without vote in the deliberations of the plenary sessions or main committees of the Health Assembly. Representatives of the United Nations, other specialized agencies, and intergovernmental organizations with which the Organization has established effective relations may participate without vote in the Health Assembly. Observers of non-Member States and representatives of international non-governmental organizations in relationship with the Organization may attend plenary meetings and meetings of the main committees; they may be authorized by the Chair to address any of these meetings but have no voting rights.

Languages

The official languages of the Health Assembly are Chinese, English, French, Russian and Spanish, and its working languages English and French. The Fourth World Health Assembly in 1951 accorded Spanish the same position as that held by the two working languages where the interpretation of speeches is concerned, and in 1955 it was also agreed that resolutions, recommendations and other formal decisions of the Health Assembly should be translated into Spanish as well as the working languages. Similar action was taken by the Tenth Assembly in 1957 on behalf of Russian.

Frequency of Health Assemblies

Under Article 13 of the Constitution the Health Assembly meets in regular annual session; special sessions may be convened on certain conditions. The question whether it might not be preferable to hold Health Assemblies only in alternate years arose in 1950 on a motion by the delegations of Denmark, Norway and Sweden. This proposal, which followed a request by the General Assembly of the United Nations that the specialized agencies should consider whether full-scale annual conferences were necessary, was prompted mainly

1 See p. 81.
2 In addition, from 1955 all Official Records of the Organization, the final minutes of the Executive Board and the reports of expert committees have been translated into Spanish.
by the belief that it would bring a very considerable saving not only of money but also—and in the eyes of some delegations this was the chief point—of the time of officials both in the national administrations and in the Secretariat. If, it was contended, regional meetings and world meetings could be held in alternate years, much would have been done to relieve the immense pressure of work upon members of national health administrations who were obliged to attend both. Another argument adduced in favour of the proposal was that a year’s interval was too short to allow the Director-General to have sufficient experience of the programme to enable him to report on it at the following Assembly.

The Third World Health Assembly approved the Scandinavian plan in principle and instructed the Director-General to prepare the draft amendments to the Constitution and the transitional arrangements which would be needed to bring the new system into force and to submit them for review to the Executive Board. Consideration of this study undertaken by the Executive Board and the Director-General was deferred to the Sixth World Health Assembly. The majority of the delegations at the latter session appear to have been swayed by the arguments put forward in favour of postponing adoption of the proposal. Calculations based on experience showed that the financial saving was likely to be much less than was anticipated, since it was reasonable to assume that the biennial sessions would last longer than the annual ones and that the Executive Board would have to meet more often in order to cope with the additional burden that would be thrown upon it. One view expressed was that, far from easing the pressure, biennial sessions would place a heavier strain on delegations and greatly increase the Secretariat’s work in consequence of the additional correspondence and documentation that would be involved. One argument was to the effect that biennial assemblies would mean halving the actual participation in the Organization’s work of countries which could only participate through the Assembly, with a consequent limitation of the latter’s responsibility and control over the Executive Board and Secretariat. Other arguments were that external circumstances might impose a material change in programmes established for so long a period as two years, and that less frequent sessions might impair the Members’ sense of their financial obligations to the Organization.

A compromise suggestion that the Assembly should continue to meet every year but that the session in alternate years should be earmarked for administrative and financial matters and should be limited to ten days was rejected as it was felt that the programme and budget were too closely interlocked for such a system to be workable.
On these and other grounds the Sixth World Health Assembly, endorsing the majority view that it was not yet desirable to provide for the system of biennial Health Assemblies, decided not to accept the proposed amendments to the Constitution for the time being and to consider the matter again at a future Health Assembly. No further action has been taken since then.

**Place of Meeting**

Under Article 14 of the Constitution the Health Assembly selects the country or region in which the next annual session is to be held; the place of meeting is determined later by the Board. It was the consensus at the New York Conference that the interest of the people in public-health work would be stimulated around the world if the annual Health Assemblies were convened on a basis of regional rotation instead of being restricted to Headquarters. The main, though not the only, objection to such a system is, needless to say, the heavy additional expense involved. The question whether and on what conditions sessions of the Health Assembly should be held away from Headquarters received attentive study from the Board, which took into account the view expressed by the United Nations Advisory Committee on Administrative and Budgetary Questions, on grounds of economy and administrative convenience, that major conferences should as far as possible be held at the headquarters of the specialized agencies. The Board, however, recognized the advantages not only to the Organization itself but also to Member States in convening Health Assemblies at places other than Headquarters, and the Fifth World Health Assembly in 1952 recommended certain criteria which should receive attention in considering invitations, the most important being the requirement that 50 to 75 per cent. of the excess costs involved should be guaranteed by the host country, possibly jointly with other Member States in the region concerned, and that the host countries should co-operate fully with the Organization and delegates attending the session.

All but two sessions of the Health Assembly have been held in Geneva, the Organization’s Headquarters. In 1949 the Second World Health Assembly was held in Rome on the invitation of the Italian Government. The Eighth World Health Assembly in 1955 convened in Mexico City on the invitation of the Mexican Government. The Italian and Mexican Governments respectively bore virtually the whole of the additional expenditure involved in these two sessions. A third instance will be when, at the invitation of the United States Government accepted by the Tenth World Health Assembly, the Organization
CHAIRMEN OF THE EXECUTIVE BOARD

Dr A. T. Shousha: first, second and third sessions, 1948-1949

Sir Arcot Mudaliar: fourth and fifth sessions, 1949-1950

Dr H. S. Gear: sixth and seventh sessions, 1950-1951

Dr M. Jafar: tenth and eleventh sessions, 1952-1953

Professor J. Parisot, Chairman of the Board at its eighth and ninth sessions, was later President of the World Health Assembly and his photograph appears earlier in this volume.
Dr Melville Mackenzie: twelfth and thirteenth sessions, 1953-1954

Dr H. van Zile Hyde: fourteenth and fifteenth sessions, 1954-1955

Dr S. Al-Wahbi, Chairman of the Board at its sixteenth and seventeenth sessions, was later President of the World Health Assembly and his photograph appears earlier in this volume.

Professor G. A. Canaperia: eighteenth and nineteenth sessions, 1956-1957
Sir John Charles: twentieth and twenty-first sessions, 1957-1958

THE DIRECTORS-GENERAL OF WHO

Dr Brock Chisholm, Executive Secretary of the Interim Commission, 1946-1948, and Director-General of the World Health Organization, 1948-1953

Dr M. G. Candau, Director-General since 1953
THE LÉON BERNARD MEDAL AND PRIZE

The medal and prize of the Léon Bernard Foundation, established in memory of Professor Léon Bernard, one of the founders of the Health Organisation of the League of Nations, are awarded periodically for outstanding service in social medicine. The first award was made in 1939 to Dr Wilbur Sawyer. Since 1950 the award has been made by the World Health Assembly.

RECIPIENTS OF THE MEDAL AND PRIZE SINCE 1950

Professor Charles-Edward Amory Winslow (1952)
Dr Johannes Frandsen (1953)
Professor Marcin Kacprzak (1957)

Other recipients, whose photographs appear earlier in this volume, have been Professor René Sand (1951); Professor Jacques Parisot (1954); and Professor Andrija Štampar (1955).
holds the Tenth Anniversary Commemorative Session and the Eleventh World Health Assembly in the United States of America, at Minneapolis, Minnesota.

Method of Work of the Health Assembly

The Health Assembly is opened by the President, or in his absence by one of the three Vice-Presidents, of the preceding session. It proceeds at once to the appointment of a committee on credentials of twelve members and to the election of a committee on nominations with a membership of eighteen. The latter committee’s task is to make proposals to the Assembly for the offices of President and Vice-President (three), for those of the chairmen of the main committees and for the additional members of the General Committee. It also makes proposals to the main committees for the appointment of their vice-chairmen and rapporteurs. In carrying out this task the Committee on Nominations is required by the Rules of Procedure to take into account “an equitable geographic distribution” and “experience and personal competence”. The General Committee, which acts as the steering committee of the session, consists of the President and three Vice-Presidents, the chairman of the main committees and as many other delegates as are required to bring its total membership up to fifteen.

The Rules of Procedure as originally adopted by the First World Health Assembly were silent upon the method of election of the members of the Committee on Nominations, though this is necessarily one of the first acts to be performed at each session. An arrangement suggested at the outset of the proceedings by the Acting President of that Assembly—that it would facilitate the requirement as to equitable geographical distribution if the Assembly would approve a list of names proposed by himself—was accepted and became the regular practice until the Seventh World Health Assembly, when the contention was upheld that it was not in accordance with the strict interpretation of the relevant rules as they then stood, and an election was accordingly held. The Eighth World Health Assembly adopted in 1955 an amendment to Rule 23 confirming the earlier practice, amplified however by a clause permitting the addition to the President’s list of names of other countries proposed by delegations.

It was perhaps natural that, having regard to the great diversity of questions awaiting rapid settlement at that time, the First World Health Assembly should have divided itself into five main committees—Programme, Administration and Finance, Relations, Headquarters and Regional Organization, and
Legal. Although each delegation is entitled to be represented on each main committee by one of its members, it soon became clear that the size of most delegations at the Health Assembly precluded their representation at many of the main committee meetings if held simultaneously. The Second World Health Assembly accordingly distributed the items on its agenda among only three main committees—Programme, Administration and Finance, and Constitutional Matters, and the Third reduced their number to two—Programme, and Administration, Finance and Legal Matters. The latter committee has since established a sub-division on legal questions (sub-committee or working party). The main change since that time occurred at the Fifth World Health Assembly, which replaced the Committee on Programme by a Committee on Programme and Budget, with wider terms of reference which enabled it to deal more comprehensively with the proposed programme and budget estimates. This arrangement has been continued by subsequent Assemblies. In addition, at the Fourth World Health Assembly a Committee on International Sanitary Regulations was established as a main committee of that session. At subsequent Assemblies matters relating to international quarantine have been dealt with at a working party or a sub-committee of the Committee on Programme and Budget.

The need for close co-operation between the two traditional main committees in order to produce a balanced programme and budget led to the trial of a number of different devices which are described in Chapter 9.

**Officers of the Health Assembly**

The President and other officers of the World Health Assembly are elected, on the proposal of the Committee on Nominations, at the beginning of each session and they continue to hold office until the election of their successors.

A list of the Presidents and Vice-Presidents of the Health Assembly and the Chairmen of main committees appears in Annex 6.

**Technical Discussions**

At the Executive Board’s sixth session, which followed the Third World Health Assembly, there was a general feeling among members that it would be profitable if the Assembly could devote particular attention to a few programme subjects each year. It was obvious, on the other hand, that the Health Assembly was a business meeting of governmental delegations which had to instruct the
Executive Board and the Secretariat on the work to be undertaken, and that it must therefore deal with the whole programme. The discussion led to a distinction between two aspects of the Health Assembly: its duty to carry out its functions under the Constitution and its character as a gathering of public-health workers from all parts of the world who naturally wished to take the opportunity of talking over some of their common problems more thoroughly than the debates in the main committees allowed. The Board came to the conclusion that at future Health Assemblies there should be more thorough examination of a small number of topics and suggested that at the Fourth World Health Assembly there should be special discussions on training of medical and public-health personnel and the economic value of preventive medicine. It asked the Director-General to obtain the views of Member States on this proposal and to make arrangements for the Fourth World Health Assembly in the light of the replies received. At its next session the Board considered the results of this inquiry and recommended that there should be one subject only and that it should be discussed during the period of the Fourth World Health Assembly in informal meetings which should not be part of the formal session; in this way the discussions could be more free and the opinions expressed or conclusions reached would be less liable to confusion with the Assembly's formal decisions, while the pressure of work in the Committee on Programme would be relieved. Member States were asked to send contributions for the discussion and, if practicable, to include experts on the subject in their delegations.

On the experience of the first technical discussion the Fourth World Health Assembly decided that there should be similar technical discussions at subsequent Assemblies. Since then technical discussions have been a regular accompaniment of the Health Assembly. The subjects discussed have been as follows:

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<th>World Health Assembly</th>
<th>Subject</th>
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<tr>
<td>Fourth</td>
<td>Education and Training of Medical and Public-Health Personnel</td>
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<td>Fifth</td>
<td>Economic Value of Preventive Medicine; and the Methodology of Health Protection for Local Areas</td>
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<tr>
<td>Sixth</td>
<td>Modern Health Techniques applied to the Control of Tuberculosis, Syphilis and the Typhoid Group of Fevers</td>
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<td>Seventh and Eighth</td>
<td>Public-Health Problems in Rural Areas</td>
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<td>Ninth</td>
<td>Nurses: Their Education and their Role in Health Programmes</td>
</tr>
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<td>Tenth</td>
<td>Role of the Hospital in the Public-Health Programme</td>
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As topic for technical discussion at the Eleventh World Health Assembly the Executive Board had proposed "Health Education of the Public". The Tenth Assembly decided that, as it had already agreed to convene a tenth anniversary commemorative session which would occupy two days immediately preceding the eleventh regular session and because of the need to limit the duration of the Assembly, the discussion on this subject should be postponed until the Twelfth World Health Assembly.

THE EXECUTIVE BOARD

Functions

The second organ set up by the Constitution to carry out the Organization's work is the Executive Board. The Constitution describes this body as the executive organ of the Health Assembly and empowers it to submit proposals and advice to the Assembly on its own initiative, prepare general programmes of work for approval by the Assembly, and take, or authorize the Director-General to take, any action required in an emergency, e.g., an epidemic or a calamity. It also exercises on behalf of the Assembly any powers which the latter may delegate to it. The Director-General is subject to its authority in his capacity of chief technical and administrative officer of the Organization. The Board examines the annual financial report and the annual budget estimates, and transmits its observations thereon to the Health Assembly with any recommendations it deems advisable (see page 95).

Composition of the Board

Reference has been made in earlier passages ¹ to the number, status and qualifications of members of the Executive Board and to the method of their appointment. It only remains to add here that in order to ensure a proper rotation among Member States entitled to designate the persons to serve on the Board, while securing continuity in its work, the Constitution lays down that the eighteen Members so elected should retain that capacity for three

¹ See Chapters 4 and 5.
years, subject to the proviso that at the First World Health Assembly six should be elected for one year only and six for two years only. Thus, the membership of the Board is liable to renewal by one-third every year. Member States are however eligible for re-election as States entitled to designate the occupant of a seat on the Board.\footnote{See Annex 7, which contains a synoptic table of Members entitled to designate a person to serve on the Executive Board. In the same annex will be found a list of chairmen of the Board and of its Standing Committees.}

In the absence of any provision in the Constitution or the then Rules of Procedure concerning the action to be taken in order to meet the requirement as to equitable geographical distribution in the annual election of Member States entitled to designate persons to serve on the Board, the First World Health Assembly agreed, after a long debate during which a number of delegations demurred, to vote for a list drawn up and submitted by the General Committee. At the same time it asked the Executive Board to study the question and submit rules of procedure to the next Health Assembly. The latter, after further discussion, approved the Board’s recommendation of a modified form of the procedure followed at the First Assembly and adopted a new rule whereby the General Committee, after calling for suggestions from delegates, submits a list of nine but indicates the six of those nine whose election would in its view provide a balanced distribution.

There have been several proposals to modify the constitution of the Executive Board. At the First World Health Assembly, the Italian delegation moved that the number of Members entitled to designate a person to serve on the Board should be one-third of the total membership of the Organization. This proposal was not acceptable either to the Executive Board, to which it was referred, or to the Second World Health Assembly. At the Seventh World Health Assembly, Belgium, France, Italy and the United Kingdom of Great Britain and Northern Ireland made a joint proposal that the number of members of the Board should be increased from eighteen to twenty-four.\footnote{At the Seventh World Health Assembly, a proposal by the Dominican Republic that the Board should consist of twenty-four members representing their respective governments was declared inadmissible because received too late to comply with the provisions of the Constitution regarding proposed amendments.} This also was rejected, as was a proposal identical in purpose submitted by the Government of Belgium to the Ninth World Health Assembly. A more substantial change, proposed by the Australian delegation in 1950, was to the effect that the Executive Board should consist of eighteen Member States elected by the Health Assembly, each of whom should be represented on the Board by a technically qualified person. However, the Third World Health Assembly,
after a close discussion in committee, came to the conclusion that, since the Executive Board as currently constituted represented the World Health Assembly as a whole, it was in the best interests of the Organization to maintain the present status of the Executive Board.

**Frequency and Place of Sessions**

The Executive Board was brought into being by the First World Health Assembly, its first session being held in the course of that Assembly.

The Constitution requires the Executive Board to meet at least twice a year and leaves the choice of the place of meeting to the discretion of the Board. Special sessions may be convened upon certain conditions.

In the year between the First and the Second World Health Assemblies, the Executive Board held three sessions, but that year was exceptional because of the many decisions and recommendations that had to be made to get the work of the Organization going. In later years there have been only two meetings of the Board, one in January and the other a few days after the close of the Health Assembly. It is at the session after the Health Assembly that the Board appoints its officers.

All the Board's sessions except one have been held at Headquarters in Geneva. The sixteenth session, that following the close of the Eighth World Health Assembly which had convened in Mexico, D.F., met in that city on 30 May 1955. The Government of the United States of America has invited the Executive Board to hold its twenty-second session in the United States of America, after the Eleventh World Health Assembly.

**Method of Work of the Board**

The concepts on which the Executive Board, its constitution and its functions are based were in many ways as novel as those which lay at the foundation of the Health Assembly and of the Organization itself. It was therefore only natural that the Board should have found it advisable to proceed somewhat tentatively in charting the course ahead.

Its earliest sessions had to deal in the first place with administrative questions; provisional rules of procedure for its own meetings, pay and conditions of service for the staff, including those taken over from the Interim Commission by resolution of the Assembly; the currencies in which contributions
of Member States would be accepted, financial rules governing the accounts and the financing of field teams and outlying offices; arrangements for audit, and the examination by the Board of the reports of the External Auditor. As early as its second session the Board decided that the staff and financial regulations and rules should be applicable to the whole Organization—the regional organizations being integral parts of WHO—and that any adjustments required because of local conditions should be made by amending or supplementing the rules. Furthermore, budgetary provision for activities in the regions must be included as part of the budget which the Director-General is required to prepare, and which must be presented to the World Health Assembly.

The Board had also to elaborate many details in the arrangements for joint working with other organizations of the United Nations family. In the more important cases formal agreements embodying those arrangements had been approved by the Health Assembly and the resultant practical action had to be considered.

One of the more important duties of the Executive Board is to consider the programme and budget estimates prepared by the Director-General and to submit them to the Health Assembly with its comments and recommendations. The First World Health Assembly recommended that the Board should set up a Standing Committee on Administration and Finance to assist it in this task. This the Board has done since 1949, except on two occasions (1953 and 1954) on which the Board constituted itself as a standing committee for this purpose. Since 1955 there has been again a Standing Committee on Administration and Finance, consisting of seven members of the Board and attended by the Chairman of the Board without vote. Under this arrangement, the Standing Committee meets about a week before the January session of the Board, examines the programme and budget in detail, and prepares a report which is available to the Board itself when the session opens or shortly after. Usually, the Standing Committee also meets during the session of the Board to consider questions referred to it by the Board.

In the first few sessions there was some difference of opinion concerning the scope of the Board’s authority in dealing with the Director-General’s proposals. It was early accepted that the Board could not amend those proposals. One of the main questions at issue was whether a Board consisting of members serving as individuals and not as representatives of their governments had a responsibility for considering the amount of the budget proposed, or whether it should restrict itself to seeing that the programme was appropriate to the health problems to be met. The question was resolved by a decision of
the Second World Health Assembly, which laid down criteria for the Board’s review of the annual budget estimates. These criteria, as re-formulated by the Fifth World Health Assembly, are still in force. They require the Board to consider whether the estimates are adequate to enable the Organization to carry out its constitutional functions in the light of the current stage of its development, whether the annual programme follows the general programme of work approved by the Health Assembly, whether the programme envisaged can be carried out during the budget year, and the broad financial implications of the estimates with a general statement of the information on which any such considerations are based.

In addition to its specific task of reviewing the annual budget estimates, the Standing Committee on Administration and Finance has been entrusted with the examination of other questions of an administrative character. The Second World Health Assembly instructed the Board to examine the organizational structure so that the Assembly would be assisted in ensuring the administrative efficiency of the Organization and in establishing general lines of policy in this respect. The examination was made by the Standing Committee; in its report are to be found the fundamental principles of administration of the Organization. Pursuing its study in greater detail the next year, the Committee extended it to cover procedures in the Health Assembly, more especially that for the consideration of the programme and budget, and the financial and staff regulations. The Fourth World Health Assembly, in approving the work done, asked the Board to study on the same lines the proposal to substitute biennial for annual sessions of the Assembly and the Organization’s publications. Beginning with these early studies, the Executive Board has annually prepared organizational studies for consideration by the Health Assembly (see page 98).

The Board has established one other standing committee, the Standing Committee on Non-governmental Organizations, composed of five members. It was set up as part of the procedure established by the First World Health Assembly with regard to the official relationships between WHO and non-governmental organizations.

As the need arises, the Executive Board may establish other committees or working parties to consider specific questions. One of the ad hoc committees regularly established by the Board at its first session of the year examines on behalf of the Board the External Auditor’s report on the accounts of the Organization for the preceding year and reports directly to the World

1 See also p. 100 of this volume.
Health Assembly. This procedure is followed because the report of the External Auditor cannot be completed in time for consideration by the Board itself.

The Board has also established a Committee on Gifts and Bequests, which is composed of three members, to advise the Board whether a particular gift or bequest should be accepted by the Organization, and a Committee on Malaria Eradication composed of five members, which accepts contributions to the Malaria Eradication Special Account. The Board has also established a Committee on Arrears of Contributions in respect of the Office International d’Hygiène Publique, composed of three members.

In accordance with the decision of the First World Health Assembly, the Executive Board at its first session appointed WHO members of the UNICEF/WHO Joint Committee on Health Policy. That Joint Committee has continued to function, meeting annually and reporting to the Executive Board of WHO, and the Executive Board of UNICEF, on various aspects of activities jointly undertaken by the organizations.

The Executive Board at its fourth session established an ad hoc Building Committee, to deal with arrangements for constructing headquarters accommodation, which continued to function until the time of the Seventh World Health Assembly, when its task had been completed.

Mention should also be made of the responsibilities of the Board in connexion with two prize funds, the Léon Bernard Foundation and the Darling Foundation, taken over by WHO from the Health Organisation of the League of Nations. The Léon Bernard Foundation was established in memory of Professor Léon Bernard, one of the founders of the Health Organisation of the League of Nations, with the purpose of granting periodically a medal and a prize for outstanding work in social medicine. Since 1950 the award has been made by the Health Assembly to persons nominated by a committee comprising the Chairman and Vice-Chairmen of the Executive Board and two of its members. The recipients have been as follows: Professor René Sand (1951); Professor C.-E. A. Winslow (1952); Dr Johannes Frandsen (1953); Professor J. Parisot (1954); Professor A. Štampar (1955); and Professor M. Kacprzak (1957).

The Darling Foundation was created to honour the memory of Dr S. T. Darling, who was killed by accident while working for the Malaria Commission of the League of Nations. It grants periodically a medal and a prize to a malariologist who has produced distinguished work. The Darling Foundation Committee consists of the Chairman and Vice-Chairmen of the Executive Board and the Chairman of the Expert Committee on Malaria.
The recipients of the medal and prize have been as follows: Professor H. E. Shortt and Dr P. C. C. Garnham (1951); Dr G. Robert Coatney and Professor George Macdonald (1954); and Dr P. F. Russell (1957).

In its relation to the Health Assembly, the Board has developed a procedure for more effective contact between the two bodies than the simple presentation of a report can provide. This point is not covered by the Constitution and at the earlier Health Assemblies no authorized representative of the Board was available for answering questions on any action taken by the Board. In order to remedy this situation, the Board decided, at its fifth session, to appoint representatives to attend the Health Assembly and to report back on their activity. This device proved successful and its principle received the official sanction of the Fourth World Health Assembly by inclusion in the Assembly’s Rules of Procedure.

Other Organizational Activities

The Board has borne a large share of the task of working out the procedure for setting up expert committees and for dealing with their reports. The reports come to the Executive Board in the first place (unless they contain information or advice that is urgently wanted by the Health Assembly); the Board has authority to start action on the reports and decides whether the reports should be published. From the Board’s experience of this work came the main principles that still govern the relations between the expert committees and the Organization: the Board may not amend the report of an expert committee (though it may direct the attention of an expert committee to any passages that it might consider prejudicial to the Organization or to a Member State); the views of the expert committee do not commit the Organization to a decision or a policy (and a note to this effect is now printed at the head of each published report); an expert committee does not, unless it is asked to advise, make recommendations on administration.

Beginning with the request of the Second World Health Assembly, organizational studies have become a regular part of the Executive Board’s work. The following studies have been undertaken: in 1950 and 1951, “Organizational Structure and Administrative Efficiency”; in 1952, “Biennial Assemblies” and “Publications”; in 1953, “Education and Training, including Fellowships” and “Regionalization”; in 1954, “Programme Analysis and Evaluation”; in 1955 and 1956, “Programme Planning, with special reference to the integration of preventive and curative medicine in the public-health programme”. The
subject for study by the Board at its nineteenth session in January 1957 was “Regionalization”, but the Board, after having considered a progress report on the study, including the comments of the regional committees, recommended that the study be deferred until the whole matter could be reconsidered by the Executive Board after the Eleventh World Health Assembly in the light of the ten years’ report that would be presented as part of the tenth anniversary celebration. The Tenth World Health Assembly approved this proposal but decided that, should it be found necessary, each regional committee might meanwhile study for itself the delineation of areas having uniform geographical, sanitary or social characteristics within a single region, with a view to better utilization of the available resources. The matter was accordingly considered by the regional committees at their 1957 sessions. The Regional Committee for the Americas expressed the opinion that the existing system of zone and field offices responded to the needs of the Region. The others, except the Regional Committee for Europe, which requested the Regional Director to make a further study and report to the Committee’s next session, made no comments or considered that no study was required in their regions.

The Executive Board at its nineteenth session also asked the Health Assembly to consider whether organizational studies of the nature carried out in the past needed to be pursued at the present stage of the development of the Organization. The Assembly, considering that the studies served a useful purpose, decided that they should be continued.

THE SECRETARIAT

Organizational Structure

The Secretariat is the third organ set up by the Constitution to carry out the Organization’s work. The staff which the Director-General, upon assuming office, took over from the Interim Commission reflected the diverse origins of the tasks devolving upon the Commission. It had been organized to cope with a much smaller range of duties than those foreseen in the programme voted by the First World Health Assembly. Nevertheless, it was decided to continue, for the time being at any rate, the services already instituted by the Interim Commission, which were based on the requirements of the work up to that time, e.g., in epidemiological intelligence, field services, the “priority” diseases, publications.
Upon the establishment of the Organization and the adoption of its programme of work by the First World Health Assembly, the Director-General was able to work out a provisional scheme. The Secretariat was divided into three major departments: the Department of Technical Services, which consisted of a Division of Epidemiology, a Division of Editorial and Reference Services, and sections on Health Statistics and Therapeutic Substances; the Department of Operations, which comprised two divisions, that of Planning and that of Field Operations, together with the Special Office for Europe; and the Department of Administration and Finance. This pattern, completed by a liaison office, a legal section and an office of public information, all attached to the Office of the Director-General, was brought into being two months after the close of the First World Health Assembly.

The special problems of an international organization were new to most delegates to the Assembly and members of the Executive Board and they wished to have a better understanding of the machinery by which effect was given to their decisions. Reference is made on page 96 to the review of the organizational structure requested by the Second World Health Assembly and carried out by the Standing Committee on Administration and Finance of the Executive Board. In a special report on the subject the Director-General set out, and the Standing Committee endorsed, thirteen "well-recognized and widely accepted principles of organization and administration" which he had applied in discharging his responsibility as chief administrative officer of the Organization. The most important of these were that the organizational structure, which should be as simple and flexible as possible, should be developed around main functions; that main functions should be grouped in such a way as to produce a proper balance, avoid duplication and conflict of effort while ensuring that no area of work was neglected; and that, mainly with speed of decision in view, responsibility should be delegated to the utmost extent compatible with efficiency and the co-ordination of policy, and officials should be expected to exercise the maximum initiative within the authority delegated to them. Quality of decision was to be achieved by a number of interrelated actions: establishment of a policy board consisting of the major executives to assist the Director-General in determining the way in which the Organization should operate; selection of the best possible staff and maintenance of their efficiency at the highest possible level; personal contacts and good personal relations. Adaptability to change and effective liaison were also essential.

As regards the headquarters Secretariat, the Committee found that having regard to the necessarily experimental nature of the arrangements made by the Director-General in the initial phase of the Organization there was no need to recommend any major structural change. The Committee recognized that any arrangement was bound to be somewhat arbitrary inasmuch as it would have to ignore certain natural affinities between various technical functions and procedures. Having noted that the programme approved by the Health Assembly could be appropriately divided into two main groups—advisory services direct to governments and technical service activities of world-wide range—it advised that the two major departments responsible for the execution of the programme be renamed accordingly. They have since been known as the Department of Advisory Services and the Department of Central Technical Services.

In the second year of the Organization’s development, the direction of most of its work was still concentrated at Headquarters. Except for the Americas, the regional system was only just beginning to emerge. The Director-General’s policy however, as described in his report to the Executive Board,¹ was to decentralize as soon as possible and as fully as possible all functions relating to national governments and national health services while preserving the essential unity of the World Health Organization. According to his ideas, the main function of Headquarters would eventually be to co-ordinate the work of the regional offices when established, collect information from all parts of the world and disseminate it through the regional offices, and co-operate and maintain liaison with the United Nations, its specialized agencies and voluntary organizations. Technical advice at a high level would remain a function of the central office, which would also continue to provide certain services for the regions. The work of technical staff working in the regions as well as locally engaged staff would be under the direct regional control. For obvious reasons financial control must remain a central function.

The Standing Committee, while agreeing to the foregoing basic principles, felt that in the transitional conditions then prevailing no rigid allocation of functions between the central and regional offices should be made for the time being, especially since even at Headquarters the methods of providing technical and advisory services were still largely experimental. It was also opposed to the decentralization of certain functions which in its opinion could only be efficiently discharged centrally. This policy continues to be followed in the main, although it was later found expedient to delegate to the regions some of the work originally reserved to Headquarters.

Looking at the structure of the regional offices on more general lines, the Standing Committee came to the conclusion that, as they were primarily concerned with planning, administrative co-ordination, supervision and the provision of advisory services to governments, they should be organized on a simple and flexible pattern designed to meet the needs of the area served by each.

The Executive Board having adopted the Standing Committee's report and transmitted it to the Third World Health Assembly, the latter found that the organizational structure was generally sound and efficient and in conformity with the Constitution. It also endorsed the Executive Board's suggestion that the Standing Committee be asked to continue its study with particular reference to decentralization and the probable effect of the Expanded Programme of Technical Assistance recently announced by the United Nations.

Few real structural modifications have been found necessary in the seven years that have elapsed since the Executive Board's review. Such changes as have been made were due mainly to shifts in emphasis, new developments in the programme, the need for closer co-ordination, etc. For instance, the Divisions of Epidemiological Services and of Health Statistics have been merged into a Division of Epidemiological and Health Statistical Services and responsibility for the Singapore Epidemiological Intelligence Station has been transferred to the Regional Office for the Western Pacific. The Tuberculosis Research Office, Copenhagen, has been attached to the Tuberculosis Section in the Department of Advisory Services in order to ensure the fullest co-ordination of its research activities with the Organization's tuberculosis programme. A bare enumeration of the minor changes in the structure of the Secretariat would be meaningless outside the context in which they occurred. The headquarters structure at the end of 1957 is shown in Chart 1 opposite.

For the reasons already indicated, the construction of the regional organization naturally took some time and although the Executive Board had kept the subject under review and reported on its findings at previous sessions it was not until 1953 that it was in a position to carry out a full-scale organizational study of the subject. Its report on that inquiry contains, besides staff diagrams for each regional office, a complete functional description for a composite or model regional office. The Board emphasized the importance of the interchange of staff and the co-ordination of programmes between regions, not only to further the concept of world health as an entity, but also to ensure the efficiency of decentralization.

CHART I. STRUCTURE OF HEADQUARTERS
(at 31 December 1957)

* This division, which is not subdivided into sections, deals with municipal and regional sanitation, rural and community sanitation, housing and town planning, vector control and insecticides, milk and food sanitation, environmental aspects of occupational health, and transportation sanitation.

** As from 1 January 1958.
A main purpose of the regional offices is to provide effective contact between the Organization and the national governments, and their structural and staffing arrangements are influenced by this requirement. The six regions are very different in many ways and the methods employed in the discharge of their functions are therefore different in detail in the six regional offices. Without going into all the items mentioned in the Executive Board’s report, it will be clear that there must be in each regional office staff to carry out the usual “housekeeping” work, the financial operations, the personnel administration, the essential clerical work and, of course, the general planning and organization of work in the region. Gradually, the day-to-day financial and personnel work has been delegated to regional offices under the policies and procedures established by Headquarters and which are notified to all members of the Secretariat through publication in a manual. Chart 2 (opposite) shows the typical organizational structure of a regional office.

In the Region of the Americas and the European Region, where more or less regular contact between health administrations and between health workers in different countries had been established before the Organization came into being, the problem of regional organization was simpler than it was in the other four regions. In the latter the general pattern of development was only gradually evolved after consultation of the health administrations concerned on general problems, surveys and advice on particular problems by specialists attached to the regional office and assistance to governments in their health projects by missions or project staff. In Africa, in particular, the immediate need was to form some idea of the size and relative urgency of the health problems of the Region; and the regional office concentrated at first on surveys.

To meet the many requests for advice received from governments, regional advisers were attached to the regional offices, their number and their specialties being determined, within the resources available, by the chief health problems of each region. For 1957, a total of some sixty regional advisers was provided, nineteen of them being advisers in public-health administration, more than twice the number for any other specialty.

As the work proceeded, and particularly with the growth of co-operation with other agencies, international or bilateral, working in the region, the regional directors for South-East Asia, the Western Pacific and Africa found it necessary to appoint area representatives, either to individual countries of the region or stationed at points where they could maintain contact with groups of those countries. For the Region of the Americas, zone offices covering groups of countries have been established by the PASB, and to them have been
* In some regions this office is headed by the Deputy Regional Director.
delegated not only programme planning and execution, but also many administrative and financial responsibilities. In the Eastern Mediterranean and Europe, on the other hand, it has so far been considered preferable to establish direct contact between governments and the regional office, and no area representative has as yet been appointed.

Staff

The working of an international organization is not well understood if it is regarded simply as a modified version of a government department. The staff are drawn from many countries with different backgrounds and outlook and different methods and traditions of education and administration. Many of them have to work in a foreign language; and most of them have to live outside their own countries. These considerations alone demonstrate the need for considerable powers of adaptation.

Every staff member has the status of an international civil servant, which in one particular at least is virtually the antithesis of that of a national civil servant: he (or she) owes allegiance so far as his official and even in a certain measure his private life is concerned not to the government of the country of which he is a citizen but to the collectivity of governments composing the Organization. His special situation is recognized by the Constitution. He himself subscribes to an oath embodying the same principle. At the same time, he remains a private citizen of his own country with normal civil responsibilities and obligations towards both it and the country in which he is stationed, save in so far as either government has consented to grant exemptions. He is free to order his private life as he will, though here too he must abstain from actions calculated to detract from the credit or prestige of the organization.

The Constitution confers on the Director-General sole authority for the appointment of staff, subject however to the observance of the Staff Regulations approved by the Health Assembly and of two conditions mentioned in the Constitution itself. The first of these, described as the paramount consideration in the employment of the staff, is the maintenance at the highest possible level of the efficiency, integrity and internationally representative character of the Secretariat, and the second that due regard shall also be paid to the importance of recruiting the staff on as wide a geographical basis as possible. As will be seen later, these conditions are not always easily reconciled in present circumstances. Lastly, the agreement with the United Nations provides for as full a measure as possible of conformity in conditions of service with those of other United Nations organizations.
The provisional Staff Regulations established by the First World Health Assembly were based on a draft prepared by the Interim Commission which followed as closely as possible the regulations then applying in the United Nations secretariat. They were superseded in 1951 by those now in force, which conform to a uniform pattern developed by the Administrative Committee on Co-ordination, but with certain modifications necessitated by the special requirements of service in WHO. They embody the fundamental conditions of service and the broad principles of personnel policy for the guidance of the Director-General in the staffing and administration of the Secretariat. They are amplified in detail by the Staff Rules which the Director-General is authorized to draw up and enforce. The Assembly can amend or supplement the Staff Regulations—without prejudice to acquired rights. Changes in the Staff Rules are subject to confirmation by the Executive Board.

It seems necessary to devote a little space to the special problems of recruiting staff for the World Health Organization and the policy and methods developed over the first ten years of its existence.

One of the main staffing difficulties arises out of the nature of the Organization's work, which demands that its technical and administrative staff should be men and women of experience; that is to say, the most suitable recruits for many posts will be persons who are probably already settled in careers in their own countries. The special nature of service with WHO, the conditions in which much of the work has to be done, the relative uncertainty of the possibility of making a life career and of settling with security in a suitable station, and, finally, the comparative lack of opportunity for increasing technical skills by continuing study or research are all obstacles to be overcome in securing candidates of the highest competence. The financial attraction naturally varies according to conditions in the candidate's home country, the same salary and allowances appearing in a quite different light to nationals of countries with differing economic circumstances.

Another special problem is that of maintaining a technical staff with up-to-date knowledge and experience of new and developing methods and techniques, especially in an organization which can offer existing staff very few opportunities to enlarge or refresh their scientific knowledge. The inevitable result is a relatively high turnover, which, indeed, must even be encouraged, of certain classes of highly specialized medical and scientific officer. This adds to the difficulty of recruiting in fields where there are already few suitable workers available.

The problem of harmonizing the requirements as to efficiency and competence with the demand for adequate geographical distribution has been a
constant preoccupation from the outset. At the beginning, when it was essential to build up as soon as possible at least a nucleus of qualified workers to assist in the organization of basic services, it was natural to seek staff from countries which could be expected to be, both quantitatively and qualitatively, the most fruitful sources of recruitment. Great efforts have been made in the space of the first decade to improve geographical distribution. In 1948, twenty-four of the fifty-six Member States had one or more nationals on the staff roll; by 1957 the comparable figures were fifty-three of eighty-eight Members and Associate Members.

Both the Health Assembly and the Executive Board have shared the Director-General's concern to improve the geographical distribution of the staff of the Organization and the question has been discussed several times by both organs. The Executive Board at its nineteenth session, which considered a special report by the Director-General on the subject, expressed satisfaction with the efforts being made to recruit staff on as wide a geographical basis as possible and considered that it would be inadvisable for WHO to establish criteria for the proportion of staff any nationality should comprise.

The fact that there are on the staff no nationals from certain Member States often reflects one of the reasons for the Organization's existence: the relative shortage in some countries of trained and experienced personnel. These countries need all the qualified health workers they possess, and until their number has increased as a result of long-term educational programmes this situation is likely to last. One method by which it is hoped to alleviate the shortage of competent recruits in some technical fields is the setting-up of specially designed courses, composed of both academic and practical elements, in which potentially suitable workers receive training to fit them for employment by the Organization.

A different but growing difficulty in staff administration is the far-flung nature of the Organization's operations. With the development of assistance projects, WHO now has some five hundred and fifty officers working in over a hundred places, in addition to the thousand or so working in established offices. This wide dispersion increases the problem of maintaining a sense of unity among a staff of diverse professional and national backgrounds. Every aspect of administration—communications, training, planning and reporting—is being applied to the satisfactory solution of this question.

The foregoing remarks apply mostly to specialized professional staff holding medium-term appointments. They are not valid to the same degree

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1 Off. Rec. Wld Hlth Org. 76, Annex 25
for a large proportion of staff members, e.g., locally recruited staff employed chiefly in clerical and secretarial work or junior administrative posts, or staff engaged as short-term consultants. The last named may be able to accept an assignment with WHO without prejudice to or interruption of their normal professional appointment in their home country; such an assignment may even have considerable attraction for them on this account. Locally recruited general service staff are not normally at the same disadvantage as expatriated staff, and junior administrative staff, even when expatriated, can usually begin at a relatively lower age than the technical specialist and look forward to a more permanent career.

The Director-General has found it necessary over the years to make a considerable delegation of his powers in the selection and appointment of staff. For all but the highest categories recruitment is in the hands of a number of suitably composed selection boards, both at Headquarters and in the regions. Again, each regional director has control of the selection and appointment of staff in his own region, except where the most senior posts are concerned. Discrimination as to race, creed or sex is forbidden in the Staff Regulations, which also prescribe the use of competitive examinations so far as practicable, with a qualified preference in favour of serving staff members firstly of the Organization itself and secondly of the other United Nations organizations.

With the exception of short-term consultants and conference staff, the conditions of service are the same for all staff members wherever they may serve. They approximate, as closely as the Organization’s special circumstances allow, to those applying in the other United Nations organizations, the aim being to create an integrated international civil service. The pursuit of this objective is in the hands of certain consultative bodies in which the secretariats of all these agencies participate.

The salaries of professional staff members having approximately equal duties and responsibilities are basically the same regardless of the precise nature of their work, but are subject to a post adjustment to reflect differences in the cost of living at different duty stations. The salaries of locally recruited general service staff are based on the “best prevailing local rates”. Staff on assignments which do not warrant their full establishment at an official station receive an assignment allowance. Staff members are entitled in certain conditions to removal expenses upon appointment and termination, to dependants’ allowances and education grants, to annual leave and sick leave, and periodically to return travel to the home country. There is a sickness and accident insurance scheme, and staff appointed for one year or more participate in the United Nations Joint Staff Pension Fund. Appeals by staff members against adminis-
trative decisions are heard by a Board of Inquiry and Appeal consisting of five members—a chairman appointed by the Director-General after consultation with representatives of the staff; two members appointed by the Director-General; and two members representing the staff. Disputes which cannot be resolved within the Organization may in certain cases be referred to the Administrative Tribunal of the International Labour Organisation.

The policy of periodically transferring members of the Secretariat from one WHO office to another, commonly referred to as "rotation", though not yet fully developed, has been successfully applied in limited fields, and it is the established policy periodically to "rotate" staff in administrative and financial posts. Medical and scientific officers have also been "rotated", although less systematically. This policy will, it is expected, be developed in coming years, more particularly in relationship with other personnel questions such as promotion.

Much attention has been given recently to the question of briefing and to the allied one of training, for the study and co-ordination of which the Director-General has set up a special secretariat committee. All new staff members, both at Headquarters and in the regional offices, receive individual briefing which takes account of many factors, e.g., the nature of the assignment, its location and historical background, and the new staff member's previous experience. For certain types of administrative post, and for secretarial staff, regular training courses with integrated curricula are provided. For technical staff, apart from the arrangements already mentioned, a regular course in BCG techniques is held at the Tuberculosis Research Office in Copenhagen. Individual staff members may in certain circumstances be granted leave for advanced study in order to increase their usefulness to the Organization. Language courses are organized.

In order to benefit from the experience of staff members in the course of their service with the Organization, "terminal interviews" are held when they leave the service. This practice should lead to a greater understanding of personal problems and relationships within the Secretariat.

To sum up, the Organization is served by a number of categories of staff, recruited from many countries. These categories consist, broadly speaking, of the technical officers at Headquarters and at regional offices; the technical specialists appointed to give advisory and demonstration services to governments on the spot; the administrative officers; the locally recruited secretarial and general service staff; the short-term specialist consultants, either at Headquarters or in the regions and in the field; and finally temporary and _ad hoc_ staff engaged for special purposes such as conferences. The staff has grown in
numbers from some two hundred persons in 1948, mostly centrally located, to about one thousand five hundred in 1958, distributed in fairly equal proportions among Headquarters, the regional offices and the field. It comprises on the technical side medical and scientific officers, public-health engineers, nurses, health educators, veterinarians, statisticians and technicians: on the administrative side, language and library staff, information and liaison officers, legal, financial, personnel and other administrative officers of various kinds, and secretarial, clerical and operative staff.
Principles on which the Programme is developed

In the following chapters of this volume the work of the Organization is shown as a complex of services provided to Member States as a whole or adapted to their individual health needs. This varied programme was perforce of slow growth. It had been clear to the authors of the Constitution that there could be no question of an immediate advance on a front wide enough to cover the whole range of the Organization’s functions as they are listed in Article 2. Accordingly, they included among the Executive Board’s functions (Article 28 (g)) that of submitting to the Health Assembly a general programme of work covering a specific period. The elaboration of such a programme necessarily took some time.

The First World Health Assembly had naturally drawn up, on the basis of the annotated agenda prepared by the Interim Commission, a programme of work covering the period for which it was able to vote appropriations, 1 September 1948 to 31 December 1949. The attention of both the Executive Board and the Director-General was inevitably concentrated for many months upon the immediate task of building up a working organization. Action had to be initiated for carrying out the programme for 1948-49 voted by the Assembly. Staff had to be recruited and sometimes trained. The organizational structure had to be devised and built up, and the regional system had to be constructed virtually from its foundation.

The first step towards the preparation of a general programme for a specific period was taken at the Board’s second session, in October-November 1948. With his proposals for the 1950 programme and budget estimates, the Director-General submitted to the Board a suggestion that a plan should be drawn up of work which the Organization could carry out over a period of several years in the light of current medical knowledge and that within this context there should also be developed annually a plan for that part of the
work which could be accomplished in each calendar year of the period. At its fifth session the Board drew up such a programme; it was further elaborated in the following year and approved by the Fourth World Health Assembly in 1951.\(^1\)

This plan was based on five general principles: (1) all countries and territories should take part in the Organization's work; (2) assistance to a government in the development of its health services should be supplied only on the request of the government concerned; (3) the services afforded should be calculated to foster national and local self-reliance and initiative and should be adapted to the environment; (4) the Organization should limit its efforts on behalf of research to stimulating and co-ordinating current efforts; (5) services should be available to all Member States.

The programme submitted by the Board was to cover the four years 1952-55, and it was the Board's intention that it should contain broad lines of policy which would serve the Director-General for the orderly development of the annual programmes and budgets within that period. In view of the rapid evolution of medical science the general programme must be open to periodic review, and this review the Executive Board proposed to make every year in consultation with the regional organizations. The help of non-governmental organizations, expert committees and the like was also to be enlisted.

With regard to the participation of the regional organizations, the Executive Board pointed out that their responsibilities included the assessment of national needs and the receipt of government requests and that the progressive transfer to them of responsibility for framing the Organization's programmes must entail the transfer of some measure of responsibility for deciding priorities among projects suitable for their regions. In deciding these priorities the regional committees would take into account the importance of the various projects for public health in the countries concerned, the question whether those projects formed part of a larger scheme of co-ordinated action by several agencies, and the ability of the national government to continue and complete the work begun with WHO's aid.

In order to ensure the most effective use of resources, criteria were laid down for the selection or rejection of proposed activities. The Organization would embark only upon internationally feasible programmes. A country must be able to participate in the work and continue it after WHO's part had been completed. The activities should, as far as possible, be capable of yielding demonstrable results. The work should benefit, directly or indirectly, the

largest possible number of countries and people. The necessary qualified staff should be available. No commitment to action should be accepted until full preliminary study had been made and full account taken of such factors as work already done on the same subject by WHO or another organization, the possibility of financial or other assistance from sources other than the United Nations and specialized agencies, and whether WHO was the organization best suited to do the work. Other considerations to be borne in mind were WHO's responsibilities for undertaking and maintaining world-wide activities of a type that could be developed only through an international health organization, and for contributing to the total effort of the United Nations and the other specialized agencies to promote the objectives of the United Nations Charter. Finally, the Board pointed out that in the prevailing financial stringency only the careful application of these criteria would make it possible to select those activities which would ensure the optimum utilization of the funds available.

The plan went on to outline the work which it was proposed to undertake under five major heads: the strengthening of national health administrations, the professional and technical education of medical and auxiliary personnel, permanent world-wide services (health statistics, epidemiological intelligence, international epidemiology and quarantine, addiction-producing drugs, international standards, the co-ordination and stimulation of research in public health, WHO's publications services), work in co-operation with other organizations (e.g., the United Nations, ILO, FAO, etc.) on specific projects, and "other activities", which included the discharge of the Organization's obligations to co-ordinate and give technical supervision to international health work included in programmes sponsored by the United Nations, UNICEF and other agencies, and in the Expanded Programme of Technical Assistance.

The Fourth World Health Assembly, in approving this programme, instructed the Board and the Director-General to continue to develop such long-range plans and to present them to each Health Assembly for review. The Fifth World Health Assembly extended the period of the programme for one year, i.e., through 1956, and added a request to the regional committees to plan their annual programmes in such a way as to ensure their adequate integration in the approved general programme. The Seventh World Health Assembly decided that this general programme should still be used for planning the annual programmes for 1956 and 1957, and asked the Board to keep the matter under review and to study the effect of continuing projects on the planning of detailed annual programmes.
A second general programme, for the four years 1957-60, was drawn up by the Executive Board in January 1955 and approved with some changes by the Eighth World Health Assembly, which coupled with its resolution a recommendation to regional committees to formulate within the framework of the Organization’s long-range programme a general plan of work for each region.

This second general programme endorses for future work the general principles and policies of the first. The two main heads of work—"Strengthening of National Health Services" and "Services of General International Interest"—are retained. The basic principles, too, continue to determine the objectives and methods of the Organization. In another section, "Possibilities of New Knowledge and its Application to Health", attention is drawn to the influence on the work of the Organization of new scientific developments—for example, discoveries in antibiotics and insecticides, which led during the first specific period to certain unforeseeable achievements. Nuclear fission is cited as an outstanding example during the second specific period of a subject whose potentialities in health work cannot yet be forecast. The main methods are described under five heads; national long-term health planning, co-ordination and stimulation of any appropriate activities having a direct bearing on health, evaluation of health work, research, and professional and technical education of national health personnel.

Preparation of the Annual Programme and Budget Estimates

The programme of work for the first sixteen months of the existence of the Organization (the last four months of 1948 and the year 1949) was drawn up by the Interim Commission and submitted with cost estimates to the First World Health Assembly for consideration and approval. In preparing subsequent programmes and budgets the Director-General had for his guidance the policies established by the Health Assembly and the Executive Board, and also (as the regional organizations became established) the proposals for regional programmes drawn up by regional directors and recommended by regional committees.

The preparation of the annual programme and budget estimates starts nearly two years before the calendar year during which the programme is to be executed. In the "planning year" the Director-General sends to the departments and offices at Headquarters and to each of the regional offices a directive

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1 Off. Rec. Wld Hlth Org. 63, Annex 4
on the various policy considerations to be taken into account in planning the programme, an indication of the tentative allocation of funds and instructions on the form in which the estimates are to be prepared. In the same year the regional directors consult with governments and receive their requests for assistance. On the basis of those requests the regional director plans the regional programme, examining the various projects proposed with regard to their conformity with the general programme of work for a specific period and their suitability for inclusion in a co-ordinated plan of development for the region and country in question. Account is also taken of the plans and programmes of other agencies operating in the area. If found appropriate, and if the cost of their execution is within the tentative allocation made by the Director-General to the region, the projects are incorporated in the regional programme, costed, and submitted to the regional committee. Constitutionally, it is the responsibility of the Director-General to prepare the annual budget estimates of the Organization. However, he has delegated to the regional directors and regional committees the responsibility for originating and recommending the activities of the regions to be included each year. The Director-General reviews all proposals from regional offices and headquarters departments and decides which activities are to be included in his proposed annual programme and budget estimates.

The proposed programme and budget estimates are submitted to the Executive Board, which meets in the January following the planning year and subjects them to a detailed examination by its Standing Committee on Administration and Finance. They are then submitted, together with the comments and recommendations of the Board, to the World Health Assembly. The programme, as approved by the Health Assembly, is carried out in the following year.

In order to present in one document all the activities assisted by WHO, the Director-General’s programme and budget estimates include, in addition to the “regular” programme, the requests expected to be made by governments for assistance under the United Nations Expanded Programme of Technical Assistance for Economic Development of Under-developed Countries. The document also shows the activities expected to be assisted jointly with UNICEF, with an indication of the amounts which have already been allocated by the UNICEF Executive Board for UNICEF’s part of the activities. In addition, proposals for activities to be financed by the Pan American Sanitary Organization are included. In the programme and budget document for 1959, activities to be financed from the Malaria Eradication Special Account are presented in a separate annex.
Financing the Work

The work of the Interim Commission was financed partly by loans from the United Nations and partly by funds transferred to it by the United Nations Relief and Rehabilitation Administration (UNRRA). When UNRRA was wound up in 1947, its health programmes were transferred to the Interim Commission, which received $3,000,000 from UNRRA funds to meet the cost. The loans from the United Nations totalled $2,150,000. In the WHO budget of $4,800,000 for the last four months of 1948 provision was made for the repayment of the loan, and the amount was charged to the governments which were parties to the Arrangement of 22 July 1946 by which the Interim Commission was set up. All the States concerned, except Colombia, became Members of the Organization and have paid their share of the debt. When the Organization began its work in September 1948 the only funds immediately available to it, pending the receipt of contributions from Member States, were the unexpended balances from the Field Service Budget of the Interim Commission, which amounted to $1,546,758, and a further grant of $1,000,000 from UNRRA, to be used for programmes and projects approved by the UNICEF/WHO Joint Committee on Health Policy.

The main resources for financing the Organization’s activities are contributions from Member States and funds placed at its disposal under the United Nations Expanded Programme of Technical Assistance and, by the end of 1957, contributions to a special fund for malaria eradication. To these may be added receipts from the sale of publications and some casual income. In the first years of its existence the Organization had at its disposal the grant from UNRRA mentioned above and funds from the assets of the Office International d’Hygiène Publique. UNICEF, too, contributed for many years to the expenses of personnel for projects jointly assisted by UNICEF and WHO which could not be financed from resources of WHO.

The budget for 1949, the first full calendar year of WHO’s existence (the calendar year is the financial year for WHO), was $5,000,000. The “regular budget” figures for the years 1948 to 1958 are shown in Table I, but these figures do not in themselves reflect the progressive increase in the work and responsibilities of WHO. The Organization assisted certain countries in planning the co-ordination of their total health programme, including work financed from Technical Assistance funds or under bilateral agreements, such as the Colombo Plan, the United States International Co-operation Administration, and others. Further, in addition to the activities carried out by the Pan American Sanitary Bureau in acting as the Regional Office of WHO for the Americas, the Pan
American Sanitary Organization has a health programme of its own, which is financed by contributions from governments Members of PASO, and which is closely co-ordinated with the WHO programme for the Region.

The assistance contributed by WHO to health projects in a country, whether in the form of advice, staff, fellowships or, occasionally, some equipment and supplies, is given on the request of the government, which remains responsible for the project. The government provides resources in money, manpower and material to an extent that usually increases as the project moves towards its objective. The total amount so spent by assisted governments is several times the amount spent from the WHO budget.

### Table 1. Regular Budgets, 1948-1958

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<th>Authorized expenditure level ¹</th>
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<td>6,016,296</td>
</tr>
<tr>
<td>1952</td>
<td>7,782,332</td>
<td>7,782,332</td>
<td>7,602,019</td>
</tr>
<tr>
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<td>8,485,095</td>
<td>8,485,095</td>
<td>8,018,456</td>
</tr>
<tr>
<td>1954</td>
<td>8,497,700</td>
<td>8,497,700</td>
<td>8,134,514</td>
</tr>
<tr>
<td>1955</td>
<td>9,500,000</td>
<td>9,500,000</td>
<td>9,275,300</td>
</tr>
<tr>
<td>1956</td>
<td>10,203,084</td>
<td>10,203,084</td>
<td>9,982,794</td>
</tr>
<tr>
<td>1957</td>
<td>12,550,000</td>
<td>12,550,000</td>
<td>12,091,421</td>
</tr>
<tr>
<td>1958</td>
<td>13,566,130</td>
<td>13,566,130</td>
<td></td>
</tr>
</tbody>
</table>

¹ The terms "budget level" and "authorized expenditure level" are explained on p. 124

² Including repayment of the United Nations loan of $2,150,000 to the Interim Commission

³ Subject to audit

Contributions assessed on Members may be considered as the only regular resources; Technical Assistance funds, which are based on voluntary contributions by governments, although they have so far been forthcoming every year, constitute an element of uncertainty in WHO's planning of activities. Amounts obligated under the Expanded Programme of Technical Assistance are shown on page 126. Apart from contributions to the Malaria Eradication Special Account (see following page), other receipts count but for little in the total of resources.

A table showing income from all sources is reproduced in Annex 13.
UNRRA and OIHP

The $1,000,000 grant from UNRRA, mentioned above, was used over a five-year period from 1948, mainly for financing, in part, the BCG programme of the Tuberculosis Research Office, Copenhagen. WHO, in taking over the functions of the Office International d'Hygiène Publique, also fell heir to its assets, and the funds were used for epidemiological work. This is now a negligible source of income.

Malaria Eradication Special Account

The World Health Assembly established the Malaria Eradication Special Account in 1955. This Account is credited with voluntary contributions in currency and the value of contributions in kind, and the unexpended balances of the Account are carried forward from one financial year to the next. The Executive Board was authorized to accept contributions to the Account. The Board has established a Committee on Malaria Eradication, to accept contributions to the Account on behalf of the Board, to advise the Director-General on action to be taken to obtain increased voluntary contributions from various sources to the Account and to report to the Board on actions taken by the Committee. The Director-General is authorized to use the credits in the Account to meet the costs of research, such supplies and equipment as are necessary for the malaria eradication programme and are not provided from other sources, and such services as are required in individual countries and cannot be made available by the governments of such countries.

During 1956, contributions in currency and in kind amounting to the equivalent of $68,096 were received, and in 1957 further contributions equivalent to $5,043,677 were received, bringing the total amount contributed to the Malaria Eradication Special Account to $5,111,773.

Contributions towards Accommodation

Though they are contributions rather to capital assets than to the working programme, mention should be made of the contributions in cash that the Government of Switzerland made towards the accommodation for Headquarters and a similar contribution by the Government of the Philippines and other governments in the Western Pacific Region towards the construction of accommodation for the regional office in Manila.

The building at Brazzaville, French Equatorial Africa, in which the Regional Office for Africa is accommodated, was specially constructed by the French Government and leased for a token rent; at Alexandria the Regional
Office for the Eastern Mediterranean is accommodated in a building provided at a token rent by the Government of Egypt; and the office in Copenhagen where the Regional Office for Europe has its permanent headquarters was built by the Danish Government for that purpose and placed at WHO's disposal free of charge.

**Procedure for Considering the Annual Programme and Budget**

In the discussion on the amount of the budget for 1949 (and at later Health Assemblies also) two main problems arose. The first was how to reconcile the proposed programme with the amount of money governments were willing to provide to finance it. At the First World Health Assembly the Committee on Programme had recommended for 1949 a programme of which the cost was estimated at nearly $7,000,000 and the Committee on Administration and Finance had recommended a total budget of $5,000,000 only. The discrepancy was met, in the last few days of the Health Assembly, by cuts in the proposed programme, suggested by a working party on which both Committees were represented, approved by the Committee on Administration and Finance and adopted by the Assembly.

At the Second World Health Assembly an attempt was made to reconcile programme and budget at an earlier stage by arranging for joint meetings of the two main committees; but this procedure proved insufficient to solve the problem, and cuts had again to be made by a working party late in the Assembly session. The Assembly asked the Executive Board to look into the question and suggest a better procedure. Part of the difficulty appeared to be that the total amount of the budget had not been decided on until late in the sessions of the first two Assemblies; the Board therefore recommended that, after the Committee on Programme had made a general review of the Director-General's proposals, the two main committees should meet jointly to decide on the amount of the budget as early as practicable in the Assembly session; the programme could then be considered in detail and adjusted to the amount known to be available. This procedure was more successful and was followed for a number of years. It was then replaced by a modified procedure under which the amount of the budget and certain related points were debated by the Committee on Programme and Budget, but during that time the Committee on Administration, Finance and Legal Matters did not meet, and therefore all interested members of delegations could attend the debate. Recent Health Assemblies, when they have approved a budget less than that recommended by the Director-General, have given only general indications of the way in
The Palais des Nations, Geneva, where the World Health Organization has its Headquarters and where most sessions of the World Health Assembly and the Executive Board have been held.

The President of the Third World Health Assembly, Rajkumari Amrit Kaur, lays the foundation stone of the new wing of the Palais des Nations, May 1950.
The World Health Assembly in plenary session in the Assembly Hall, Palais des Nations

The Palazzo Venezia, Rome, where the Second World Health Assembly was held in June-July 1949.
A meeting of the Executive Board, in the Council Chamber, Palais des Nations, where the Eighth World Health Assembly and the sixteenth session of the Executive Board were held in May 1955.
THE REGIONAL OFFICES

African Region: Brazzaville


South-East Asia Region: New Delhi

European Region: Copenhagen

Eastern Mediterranean Region: Alexandria

Western Pacific Region: Manila
which reductions are to be made, leaving it to the Director-General to decide the details.

The role of the Executive Board in the consideration of the programme and budget is described in Chapter 8.

The second main problem to arise was the question of the rate at which the work of the Organization should expand, whether expansion should continue indefinitely, or whether and at what level annual expenditure should be stabilized. There was inevitable conflict between the need for urgent attack on the vast health problems throughout the world on the one hand, and the possible dangers of too rapid expansion and the effect on national finances of appropriating too much money on the other.

Two considerations may have helped to decrease the gap between the two views. The Organization in its early meetings discussed at some length the question of medical supplies necessary for health programmes, which many governments found it difficult to obtain. The Second World Health Assembly declared that the distribution of supplies was basically an economic problem; WHO could properly help governments to use international economic machinery to get supplies for health work, but should not itself normally provide them. The Fifth World Health Assembly decided that provision might, however, be made for supplies and equipment needed for demonstration and training purposes. The difficulty in obtaining supplies was mitigated by the work of other international agencies, particularly by UNICEF in projects for the benefit of children. The second consideration was that WHO did not itself undertake health work in countries but helped governments, which remained responsible, to start and carry on such work. The implications of that doctrine became gradually more generally understood. Requests for help from WHO were therefore influenced by the realization that most health projects, if they were to have any lasting results, meant active co-operation and expenditure by the government itself, which must therefore take its own resources into account.

Assessments and Contributions

The Organization’s primary source of income is the assessments made upon Member States. The Constitution provides that the Health Assembly shall apportion the expenses of the budget estimates among the Members on a scale fixed by the Health Assembly. This scale is called the scale of assessment and in it each Member’s share of the total expenses is expressed as a number of units. Contributions are assessed in US dollars and must be paid
in US dollars or Swiss francs, unless the Director-General, in agreement with the Executive Board, determines that other currencies may be used.

At the First World Health Assembly a scale was adopted which was based on the scale of assessment in force in the United Nations: the shares of those WHO Members which were not Members of the United Nations were calculated on the principles on which the United Nations scale had been based. This scale was adopted for 1948 and 1949 and the Executive Board was asked to consider the scales for 1950 and future years in the light of any revisions made in the United Nations scale.

The Executive Board at its third session accepted the view that it was in the best interests of the Organization that no one Member State should contribute more than one-third to the regular expenses of WHO for any year. This principle was, after some discussion, adopted at the Second World Health Assembly, which decided that for 1950 the contribution of the United States of America should be reduced to 36 per cent. of the total, that the per capita contribution of no other Member State should exceed that of the largest contributor, and that consequent adjustments should be made in the scale of assessment. The following two Health Assemblies took decisions on the same lines, with the result that in the scale of assessment for 1952 the contribution of the United States of America was fixed at $33\frac{1}{3}$ per cent. of the total.

Minor changes were made in the scale of assessment on the admission of new Members and, in a few cases, to take account of special economic difficulties. The Executive Board at its fourth session made provisional arrangements for assessing Associate Members, and at the Third World Health Assembly their assessment was fixed at three units.

At its eleventh session, in 1953, the Executive Board further studied the general question, and in particular the difficulty of adopting in full the United Nations scale because of the different membership of the two organizations and of some differences in principle. The Board postponed its conclusions until it could obtain the views of the United Nations Committee on Contributions (which was authorized to give information and advice to specialized agencies on contribution scales) and could receive the recommendations and comments of Member States. The next year, at its thirteenth session, the Board submitted to the Health Assembly alternative methods of making the revisions needed to remove anomalies. The Seventh World Health Assembly made some minor revisions in the scale for 1955, asked the Director-General to circulate the two alternatives to Member States showing what their contributions would be under each, and recommended to the Eighth World Health Assembly that the alternative adopted should be applied in two stages, half for 1956 and the
whole for 1957. It recommended also that the Eighth World Health Assembly should consider how the amount of the effective budget could be assessed on "active" Members only.

The Eighth World Health Assembly decided that the adjustments necessary to bring the WHO scale into conformity with the principles of the United Nations scale should be spread over four years, instead of two years, that the share of the largest contributor should be one-third of the assessments on "active" Members, and that the adjustments resulting from this second decision should also be spread over four years, provided that, should the "inactive" Members return to active membership, the decision should be reconsidered.

The assessments on Members who join the Organization after the Health Assembly has adopted the budget for the year in which they join are considered as providing income for use by the Organization in a later year and are included in the "casual" income for that year.

The adoption of a budget does not make money immediately available and in the early years of the Organization difficulties arose from delays in the payment of contributions. Many of those delays resulted from the requirements of parliamentary procedure in the countries concerned or from their difficulties in finding the necessary amounts of hard currency—or both. The report of the External Auditor which was considered by the Second World Health Assembly called attention to the dangerous financial position that had resulted from the delays in payment. By the date of that Assembly, the trouble had been aggravated by the decision of several States that they no longer considered themselves Members of the Organization. From those Members no payment of contributions could be expected. The position would have been still more serious if it had been found possible to expand the work of WHO at the rate assumed by the First World Health Assembly, but in fact the Organization, by a judicious use of the Working Capital Fund and by postponing payment of part of the debt to the United Nations, had in effect spent roughly the amount of the contributions received. The Second World Health Assembly, in the circumstances, contented itself with resolutions calling on Members to pay contributions without further delay and indicating the policy to be followed if the delays continued.

By the Third World Health Assembly (in 1950), the gap between the approved budget and the amount of contributions coming in called for more drastic action. The Executive Board at its fifth session had taken note of the financial position and had asked the Director-General to keep expenditure at a rate below that of the approved 1950 budget until the Third World Health Assembly could consider and deal with the situation. The Assembly
commended this action, stabilized expenditure at that rate for the remainder of the year 1950 and authorized the Board to adjust the expenditure level for 1951 as changes in the financial position might require.

At the Fourth World Health Assembly, this arrangement crystallized into the fixing of two budgets for the year 1952, a "budget level" on which the assessments on Members were based, and an "effective working budget" which determined the authorized level of expenditure for the year. The "budget level" was made up of the amounts assessed on all Members, active or inactive; the "effective working budget" was the amounts assessed on active Members only—plus any casual income, in both cases. This complication was necessary because the Health Assembly interpreted the Constitution as giving it no authority to omit Members from the assessment of contributions. This type of budget continued until the Ninth World Health Assembly, by which time there was ground for expecting the return of inactive Members. That Assembly approved therefore a supplemental budget for 1957 and authorized expenditure from it proportionate to the income provided by the return of those Members. By the Tenth World Health Assembly a number of inactive Members had returned to active membership and the Director-General therefore informed the Assembly that he was making a single budget proposal.

These measures were successful; the financial position of the Organization had markedly improved by the Fourth World Health Assembly and the improvement continued. The arrears of contributions from active Members were much reduced and were no longer embarrassing. The Fifth World Health Assembly approved arrangements for the payment of part of the contributions in sterling, and the Executive Board at its tenth session authorized a similar use of other currencies.

Table 2 shows, for the years 1948 to 1957, the total amount assessed in each year on the "active" Members, the amount collected, its percentage of the total, and the amount outstanding at the end of the year. China is not included because a special arrangement has been made in that case.

To meet the economic difficulties of China, the Sixth World Health Assembly decided that China should pay, in 1953, $125,000 towards its arrears, and that, from 1954 until its financial position improved, the assessment for China should be maintained, but that an annual payment of not less than $10,000 should be considered adequate to avoid the application of Article 7 of the Constitution. The arrears of contributions are to be subject to future arrangements, when the financial condition of the country improves.
Since at the time of the Ninth World Health Assembly in 1956 it appeared probable that some at least of the inactive Members would shortly return to active membership, the problem of their accumulated arrears was considered. The Health Assembly decided (i) that contributions should be paid in full for the years in which they had been active Members; (ii) that for the years during which they had been inactive Members a token payment of 5 per cent. of the contributions assessed would be treated as a full discharge of their financial obligations; and (iii) that these sums could be paid in equal annual instalments over a period of not more than ten years.

Expanded Programme of Technical Assistance

Mention has been made earlier of funds received from the Special Account for the United Nations Expanded Programme of Technical Assistance for Economic Development. Funds first became available to the Programme for the eighteen-month period from 1 July 1950 to 31 December 1951. For the first few years, the major part of the contributions were made available to participating organizations on the basis of fixed percentage shares, established by the Economic and Social Council. However, in 1954 the Council and the United Nations General Assembly decided that, beginning with 1955, funds should no longer be allocated to the organizations participating in the Programme on the basis of percentages fixed in advance, but should be distributed according to the requests submitted by governments and the priorities.
established by them. Country programmes formulated by governments are considered by the Technical Assistance Board—which draws up the overall programme for the following year—and approved by the Technical Assistance Committee which, subject to confirmation by the General Assembly, authorizes the allocation of funds to each of the participating organizations in proportion to their shares in the approved overall programme.

WHO has obligated the following amounts under the Expanded Programme.

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>1,342,490</td>
</tr>
<tr>
<td>1952</td>
<td>4,351,689</td>
</tr>
<tr>
<td>1953</td>
<td>4,189,357</td>
</tr>
<tr>
<td>1954</td>
<td>3,754,545</td>
</tr>
<tr>
<td>1955</td>
<td>4,411,749</td>
</tr>
<tr>
<td>1956</td>
<td>5,450,454</td>
</tr>
<tr>
<td>1957</td>
<td>5,523,144</td>
</tr>
</tbody>
</table>

The amount received by the Organization for any year depends on (a) the total amount of voluntary contributions by governments to the Special Fund and (b) the priority that governments give to health work in their national programmes for economic development. There is therefore some difficulty in planning health work under the Expanded Programme, because the amount that will be available for any year is accurately known only at the end of the previous November, i.e., six months after the programme for that year has been considered by the Health Assembly.

United Nations Children’s Fund

Chapter 10, “A Co-operative Endeavour”, contains an account of co-operation with the United Nations Children’s Fund (UNICEF) and of the part this organization has played in assisting international health programmes. The work of UNICEF is financed by voluntary contributions, mostly from governments. Close working relations are maintained between the two organizations and large sums are devoted by UNICEF to projects which it assists jointly with WHO for the benefit of the health of mothers and children.

Publications Revolving Fund

Income from sales of WHO publications is listed above as one of the minor resources of WHO. In 1948 a Publications Revolving Fund was set up,
derived from the similar fund maintained by the Interim Commission and credited with the receipts from sales of WHO publications; it is used to meet the cost of printing additional copies of publications for sale, and some incidental expenses. The Health Assembly reviews periodically the amount of this Fund and, if it exceeds the probable calls on it, transfers the excess to miscellaneous income.

**Working Capital Fund**

The Working Capital Fund is not a source of income. It is a fund made up of sums placed by Member States at the disposal of the Organization, to be used, if necessary, to finance its work until the contributions from Members for the year have been received or to meet unforeseen or extraordinary expenses. The total of the Fund is determined by the Health Assembly and the share of that total to be provided by each Member is based on the scale of assessment. The amounts so provided are at the disposal of the Organization but continue to stand to the credit of the Members. Any advances from the Fund are repaid to it when Members' contributions to the budget for the year come in, or, if necessary, by a special provision in the budget for the following year.

An illustration of the present policy of the Health Assembly as regards the use of the Working Capital Fund occurred during the Tenth World Health Assembly in 1957. The Assembly had to deal with two fairly substantial items of expenditure for 1957 which had arisen since it had approved the 1957 programme and budget. One was the increase in staff costs that resulted from revised scales of salaries and allowances that had been adopted by the United Nations and recommended by the Executive Board for adoption by WHO; the other was the costs of the emergency action taken in the Eastern Mediterranean Region. Both of these had been provisionally met from the Working Capital Fund.

The Assembly decided that these costs were properly chargeable to 1957 and that the Working Capital Fund should be reimbursed by a supplementary budget for 1957, which was financed from casual income.

**Proposals for Raising Additional Funds**

From time to time proposals have been made for augmenting the regular income of the Organization. At the Second World Health Assembly, the delegation of Belgium suggested that a World Health Defence Fund should be set up, possibly by an international loan contracted and managed under
the auspices of the International Bank for Reconstruction and Development, under the guarantee of all Member States, which should contribute towards the interest and amortization charges in the proportions laid down in the scale of assessment. This proposal was studied by the Executive Board, after the Director-General had consulted the International Bank and the International Monetary Fund, and was rejected by the Third World Health Assembly. The main ground for this decision was that, as the International Bank had pointed out, Members which were able to give the guarantees required for the loan should equally be able to undertake corresponding commitments to meet WHO's annual budget.

At the Third World Health Assembly (in 1950), the delegation of India suggested that Member States should be recommended to issue World Health Seals for voluntary purchase by the public, and that the proceeds should be divided between WHO and the national health service of the country concerned. This proposal, with slight modifications, was adopted. The scheme ran for some years, but the receipts were not large and the supply of World Health Seals was discontinued at the end of 1955, by a resolution of the Eighth World Health Assembly.

The Executive Board at its seventh session (in 1951) suggested that it might be possible to come to an arrangement with certain Member States that they should impose a special tax on certain products (selected by each country according to its economy) and that the proceeds should be devoted to assisting the budget of WHO. The Fourth World Health Assembly asked the Director-General to obtain the views of Member States on this suggestion: the replies were not encouraging and the proposal was dropped.

A proposal for the creation of a special fund of $10,000,000 to grant financial and material assistance to under-developed Member countries for the improvement of their national health services was placed before the Eighth World Health Assembly in 1955 by the Government of Ceylon. The Assembly postponed consideration of this proposal pending the decision on a proposal before the United Nations for the establishment of a Special United Nations Fund for Economic Development (SUNFED), and decided that the matter should be kept under review. A report on the situation as regards SUNFED has been submitted to subsequent Assemblies but, since the United Nations' examination of the question is not yet completed, no further action has yet been taken on the Ceylon proposal.
Co-operation is, it seems needless to say, the basis of all international institutions. Article 2 of the Constitution of the World Health Organization prescribes that in order to achieve its objective the Organization shall establish and maintain effective collaboration with the United Nations, specialized agencies, governmental health administrations, professional groups and any other appropriate organizations, and promote co-operation among scientific and professional groups which contribute to the advancement of health. The Organization is further directed to co-operate with other specialized agencies where necessary in certain specific tasks—the prevention of accidental injuries, the improvement of nutrition, housing, sanitation, recreation, economic or working conditions and other aspects of environmental hygiene—and in the study of administrative and social techniques affecting public health and medical care, including hospital services and social security.

Regular and close liaison between all bodies concerned with the improvement of public health was obviously considered important by the authors of the Constitution, not only in order to ensure the efficient handling of problems in which more than one organization had an interest but still more to obviate duplication of work and possible divergencies of policy.

Relations with the United Nations and Specialized Agencies

WHO's relationships with the United Nations and the other specialized agencies are particularly close. The Constitution provides for relations with the United Nations and other intergovernmental bodies through the conclusion of formal agreements, and these agreements were considered to be of sufficient importance to call for ratification by a two-thirds majority of the Health Assembly.
The Interim Commission prepared for consideration by the First World Health Assembly a series of draft agreements with the United Nations, the Food and Agriculture Organization (FAO), the International Civil Aviation Organization (ICAO), the International Labour Organization (ILO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The draft agreements were adopted unanimously, with a few minor amendments, by the Health Assembly and by the appropriate authority of the other contracting party; in the case of ICAO, however, the Health Assembly preferred, on the proposal of ICAO, to continue relations on the informal basis subsisting in the time of the Interim Commission. The agreements with the three specialized agencies mentioned contain a clause providing for their review three years after their entry into force. The Tenth World Health Assembly, in 1957, decided that the arrangements for consultation and co-operation prescribed in the agreements had proved satisfactory and concluded that the agreements did not require revision in the existing circumstances.

These agreements make provision for reciprocal representation at meetings, the establishment of joint committees for special purposes (except in the case of the United Nations), the exchange of information and documents, the co-ordination of personnel arrangements (especially for the avoidance of competition in recruitment and for facilitating interchanges of staff), and the co-ordination of statistical services, with a view to ensuring the maximum technical efficiency and the avoidance of overlapping.

Co-operation with the United Nations

Chapter IX of its Charter enjoins upon the United Nations the duty of promoting higher standards of living, solutions of international economic, social, health and related problems, and universal respect for, and observance of, human rights, and makes provision for bringing into relationship with the United Nations the specialized agencies “established by intergovernmental agreement and having wide international responsibilities”. The functions allocated to the United Nations under this chapter for co-ordinating the activities of the specialized agencies are vested in the Economic and Social Council, under the authority of the General Assembly.

Under Article 62, paragraph 1, of the United Nations Charter, the Council may “make or initiate studies and reports with respect to international economic, social, cultural, educational, health, and related matters and may make recommendations with respect to any such matters to the General Assembly, to the
Members of the United Nations, and to the specialized agencies concerned”. Article 63 authorizes it to enter into agreements with any of the specialized agencies, defining the terms on which the agency is to be brought into relationship with the United Nations and, furthermore, to co-ordinate the activities of the specialized agencies through consultation with and recommendations to the agencies. Under Article 64 it can call for regular reports from the agencies and communicate its observations thereon to the General Assembly.

All these points are covered by the agreement into which WHO has entered with the United Nations. Under a special clause WHO agrees to participate in and co-operate with any body set up by the Economic and Social Council for the purpose of facilitating co-ordination of the activities of the specialized agencies. The body at present entrusted with that function is the Administrative Committee on Co-ordination, which was established in 1949 and is composed of the Secretary-General of the United Nations and the executive heads of the various specialized agencies.

An article of some importance is that entitled “Personnel Arrangements”, under which the two organizations, recognizing the desirability of a single, unified international civil service, agree to develop as far as practicable common personnel standards and methods so as to avoid discrepancies in the terms of employment. It is in virtue of this article that among other things the staff grades and scales of pay of the two bodies have been brought into line and that WHO staff are eligible for membership of the United Nations Joint Staff Pension Fund. Under the same article WHO participates in the International Civil Service Advisory Board, which was set up to advise the United Nations and specialized agencies on questions of staff recruitment and standards. Another article relates to budgetary and financial arrangements, the object of which is to combine efficiency with economy and to secure co-ordination and uniformity in these matters.

Other articles in the agreement relate to the assistance to be rendered by WHO to the Security Council and the Trusteeship Council, and also with regard to non-self-governing territories, on matters within its competence. Article X invests WHO with the duty of supplying information at the request of the International Court of Justice and authorizes WHO to request advisory opinions from the Court subject to certain conditions.

Within this framework, WHO has reported each year to the Economic and Social Council and has participated in a number of activities common to the United Nations and several specialized agencies, such as the preparation of reports on the world social situation, the development of international social
programmes and of concerted practical action in the social field, including long-range activities for children, housing, rehabilitation of the physically handicapped, industrialization and urbanization, family levels of living, utilization of water resources, etc. The Tenth World Health Assembly expressed the hope that in order further to develop co-operation in such fields the Economic and Social Council would consider establishing procedures to associate the governing organs of WHO with the formulation of its decisions to initiate any broad programme under United Nations leadership. For instance, it has for many years supplied the United Nations organs responsible for trust and non-self-governing territories with observations and information on health conditions and on its own work in these territories (see also Chapter 24). WHO has assisted the United Nations in many technical programmes. These are referred to in the relevant chapters of this volume.

**Co-operation with the United Nations Children's Fund (UNICEF)**

With none of the special bodies of the United Nations has WHO collaborated more closely than with the United Nations Children's Fund (UNICEF), originally known as the United Nations International Children's Emergency Fund. UNICEF was created by resolution of the General Assembly on 11 December 1946, primarily for the benefit of children and adolescents of countries which had been victims of aggression and, secondarily, for child health purposes elsewhere. The Fund was formed from assets made available by UNRRA and voluntary contributions from all sources, governmental and private, to be administered by an Executive Director under policies established by an Executive Board in accordance with any principles laid down by the Economic and Social Council. With regard to staffing, the resolution called for the utilization to the maximum extent feasible of the staff and technical assistance of specialized agencies, in particular WHO or its Interim Commission.

The Interim Commission responded by seconding a full-time medical officer as expert adviser in public health and liaison officer who also served as Deputy Director of UNICEF's European Office, and a paediatrician to work with UNICEF. It also decided that ten per cent. of all fellowships awarded by the Commission from UNRRA funds should be devoted to child health. Technical and statistical advice was given to UNICEF's campaign of mass vaccination with BCG.
The First World Health Assembly found that UNICEF's health projects fell within the competence of WHO and declared that the Organization was ready to handle them as soon as suitable arrangements could be made. It recommended that pending the assumption of responsibility by WHO the health projects financed by UNICEF should be established by mutual agreement between the two bodies and that the implementation of these projects should be regulated by a Joint Committee on Health Policy. This committee was established as a temporary body to operate only until all UNICEF health activities had been taken over by WHO or terminated. It was to be advised by WHO's expert committees.

These recommendations were accepted by the Executive Board of UNICEF, which also agreed that all fields of activity in which UNICEF would collaborate with WHO should be approved by the Joint Committee, and that the implementation of the projects should conform with the expert advice given by WHO, the object being "to guarantee that all medical activities shall be carried out in accordance with the international authority in this field."

The UNICEF/WHO Joint Committee on Health Policy consists of representatives of the Executive Boards of WHO and UNICEF. At its first session, in 1948, it decided on the procedure to be followed with regard to UNICEF health projects. At its third session in April 1949 it defined the principles that should govern the co-operative relationship between the two organizations.

According to these principles UNICEF's role in health programmes is to furnish, under its agreements with governments, the required supplies and services, while WHO will study and approve plans for all health programmes for which countries may request supplies from UNICEF. WHO will also be responsible for making available to governments, at their request, international health experts to help in drawing up plans of operation for UNICEF health programmes or for the implementation of any health programme. The role of WHO will be subject to the provisions of its Constitution and the limitations of its resources; beyond this it will provide services against reimbursement by UNICEF.

The procedure and principles summarized above were approved by the Executive Boards of both organizations and endorsed in 1950 by the Third World Health Assembly, which also urged the Joint Committee to continue examination of the application of the principles so as to ensure their full implementation and the discharge by WHO of its technical responsibilities as the directing and co-ordinating authority on international health work. The same Health Assembly authorized the Director-General to accept...
funds from UNICEF for payment of the emoluments of WHO personnel assigned to projects assisted jointly by UNICEF and WHO and to administer such funds in accordance with the Staff and Financial Regulations of WHO.

On the instructions of the same Assembly the Director-General, in May 1950, negotiated with UNICEF an agreement setting forth “principles governing UNICEF/WHO staff co-operation”. Under these principles, which were subsequently approved by the directing organs of both bodies, WHO staff members, irrespective of whether they are paid from WHO’s budget or from UNICEF funds, are appointed in accordance with WHO Staff Regulations and are responsible in technical matters to the appropriate officers in WHO. At the same time it was recognized as desirable that senior medical staff assigned to UNICEF headquarters or regional offices should be selected in agreement with UNICEF. It was agreed that the international project personnel paid from UNICEF funds should as a rule be advisory and that where an international expert was expressly asked for by a government to direct a service, he or she should be replaced by a national as soon as possible. It was also laid down that responsibility for the implementing of programmes lay with the administration of the country concerned.

The relations between the two bodies have been reviewed at each session of the Health Assembly, and at most sessions of the Executive Board since 1950. The Fifth World Health Assembly gave approval to the principle that WHO should assume, subject to the limitation of its financial resources, the responsibility for the employment of the technical personnel needed for future joint activities and requested the Executive Board to propose a procedure for the joint development of the health programmes of UNICEF and WHO. The Board reported in 1953 that it saw no need for any change in the current arrangements. The Seventh World Health Assembly recorded its opinion that the projects which had been carried on by WHO jointly with UNICEF were among the most important activities of WHO and had contributed greatly to the improvement of maternal and child health on a wide basis.

The arrangement whereby UNICEF reimbursed WHO for the costs of certain international health personnel continued until the end of 1956. UNICEF having intimated in March 1955 that it would be making no allocation for international health personnel in 1957 and subsequent years, the Eighth World Health Assembly decided to allocate funds to provide for half these costs in 1956 and expressed the hope that UNICEF would defray the other half. It also requested the Director-General to include in his annual budget estimates, beginning in 1957, provision for such international health
personnel costs, with due regard for the necessity of WHO's maintaining a balanced public-health programme.

The present position is that WHO provides the international health personnel and UNICEF the supplies. UNICEF also defrays any international health personnel costs which could not have been foreseen at the time of preparation of the WHO budget estimates.

An account of the technical work accomplished by the WHO/UNICEF joint programmes will be found under the appropriate headings elsewhere in this volume. It will suffice to indicate here that the activities undertaken have ranged over practically every field of interest to child health—the campaigns for BCG vaccination, the programme for the supply of streptomycin, the campaign to combat syphilis in expectant mothers and in children up to eighteen years of age, malaria projects, training and fellowship programmes, to which in later years were added projects relating to tuberculosis other than the BCG campaigns, maternal and child health, nutrition (in association with FAO), environmental sanitation, health education, training, aid to hospitals, milk hygiene, the control of trachoma, treponematoses, goitre, etc.

Co-operation with the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA)

Special mention must be made of the Organization's contribution to the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), with whose technical health activities WHO has been closely associated ever since 1948. WHO's responsibility began with the dispatch of an expert in the autumn of 1948 as technical assistant to the United Nations mediator in Palestine to undertake "a general inspection of the health situation" among the Palestine refugees. Certain health programmes were then developed for 1949 and 1950, and under the agreement concluded with UNRWA the Organization undertook to plan a medical programme for the Palestine refugees and to provide technical supervision for health activities carried on with funds made available by UNRWA or from any other source. WHO undertook to appoint the chief medical officer and another medical officer (a malarialogist) and to pay all their emoluments and, subject to reimbursement by UNRWA, similarly to appoint and pay a public-health engineer. WHO also agreed to assist in the recruitment of other medical and auxiliary
medical staff. For each of the years 1949 and 1950 WHO made a grant of $50,000 to UNRWA. For 1951 the grant was reduced to $42,857 and it then ceased, but WHO agreed to pay the salary of a nurse, in addition to those of the chief medical officer and the malarialogist. This arrangement has continued until the present time. The agreement with UNRWA, signed in 1950, was extended from year to year and finally for a five-year period ending on 30 June 1960.

**United Nations Korean Reconstruction Agency (UNKRA)**

The United Nations having, in September 1950, requested WHO to assist in rehabilitating the civilian population of Korea, WHO provided an administrative officer and five teams, each consisting of a medical officer and a sanitation officer, to be at the disposal of the Unified Command. It also appointed a medical director to co-ordinate health and welfare activities and a public-health officer, both of whom were assigned to the Korean Government to assist the Minister of Public Health in the administration of health and relief programmes. In November 1950, in response to a further request from the United Nations, five additional teams consisting of two persons each were provided by WHO. No credits having been voted by the Fourth World Health Assembly for 1952, any staff who agreed to stay in Korea were transferred to UNKRA at the end of 1951, WHO helping the agency to recruit additional medical and auxiliary personnel for health work. Co-operation with UNKRA in other ways and assistance to the Korean Government take place within the framework of the Organization's activities in the Western Pacific Region.

**Expanded Programme of Technical Assistance**

Among the other forms of co-operative endeavour undertaken in conjunction with the United Nations and specialized agencies, special mention should be made of the Expanded Programme of Technical Assistance.

In 1949, the Economic and Social Council recommended, and the United Nations General Assembly approved, a comprehensive plan for an expanded programme of technical assistance for economic development through the United Nations and the specialized agencies. This programme seeks to achieve economic development through an international transfer of skills. Its chief
instruments are the demonstration of new techniques, training of the nationals of the less-developed countries in the use of improved methods and the encouragement of governments to introduce improved techniques into their national development. The methods employed are the assignment of experts, organization of seminars and training institutions, the award of fellowships for studies abroad and the provision of equipment and supplies needed to support projects.

The General Assembly stated with regard to technical assistance: (i) that it should not be a means of foreign economic and political interference in the internal affairs of the country concerned and should not be accompanied by any consideration of a political nature; (ii) that it should be given only to or through governments; (iii) that it should be designed to meet the needs of the country concerned; (iv) that it should be provided, as far as possible, in the form desired by that country; and (v) that it should be of high quality and technical competence.

The Economic and Social Council laid down a number of guiding principles to be followed by the organizations participating in the Expanded Programme with regard to standards of work and personnel, the conditions which participating governments should be expected to observe, co-ordination of effort, concentration and economy, and the selection of projects.

To carry out the plans, the Administrative Committee on Co-ordination established a Technical Assistance Board, under an independent Executive Chairman, consisting of the executive heads (or their representatives) of the United Nations and of the specialized agencies which participate in the Expanded Programme. The Economic and Social Council also established a standing Technical Assistance Committee, consisting originally of the eighteen members of the Council, but increased in 1957 by the addition of six countries not Members of the Council, including one non-Member of the United Nations. The Programme is financed through a special account, administered by the Secretary-General of the United Nations, to which contributions made by voluntary pledges of governments are credited, and from which transfers are made to the participating organizations exclusively for the Technical Assistance Programme and for related administrative expenses. Various aspects of economic development—labour, agricultural production, education, health, for example—fall naturally within the programmes of specialized agencies, and projects within the competence of the participating organizations are carried out by them. The activities undertaken under the

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1 For financial and budgetary aspects, see p. 125.
Programme are expected to be suitable for integration in the normal work of the participating organizations, and the organizations are expected to ensure the fullest use of existing facilities. So far as WHO is concerned all activities undertaken with Expanded Programme funds have from the outset been an expansion of its normal work for governments.

The plans of economic development outlined by the Economic and Social Council in 1949 were warmly welcomed by WHO as providing a further opportunity to extend its programmes. The Director-General had already in the previous year drawn up a "supplemental operating programme of advisory and technical services" for 1950, distinct from but complementing the "regular operating programme." The Executive Board, in transmitting the Proposed Programme and Budget Estimates to the Second World Health Assembly, invited governments to indicate their willingness to make additional contributions for the financing of this supplemental programme. By the time of the Second World Health Assembly, the Economic and Social Council had adopted a resolution which resulted in a comprehensive plan for an extended co-operative programme of economic development through the United Nations and specialized agencies. The Health Assembly approved the supplemental programme subject to arrangements being made to finance it. In the event, the two contributions which had been made to WHO to carry out the supplemental programme were, with the agreement of the governments concerned (Ceylon and Yugoslavia) diverted to the Technical Assistance Special Account. The Third World Health Assembly in 1950 approved a revision of the "supplemental operating programme" to be financed by funds available through the Expanded Programme of Technical Assistance, and authorized the Executive Board to act on behalf of the Health Assembly in connexion with any aspect of the Programme. Thereafter, the Health Assembly annually authorized the Executive Board and the Director-General to take the necessary action for WHO to participate in the Expanded Programme, until the Ninth World Health Assembly, which accepted the amendments to the basic resolutions adopted in 1954 by the Economic and Social Council and the United Nations General Assembly, and authorized continued participation in the programme.

The various programmes of Technical Assistance in which WHO has participated during the years of its operation have been mainly for strengthening health administrations, assisting in the control of communicable diseases causing economic loss and training professional and auxiliary staff. Technical Assistance projects have normally been made part of the general health programmes of the countries assisted. The same principles have governed such
projects as have been applied to the WHO regular programmes. Special importance has been given to the co-ordination of Technical Assistance programmes with those being undertaken by various bilateral aid arrangements.

Co-operation with the Specialized Agencies

In addition to the regular arrangements for co-operation provided by the agreements with ILO, FAO and UNESCO, the Organization has been closely associated with these agencies in the accomplishment of particular projects. The Organization has co-operated with ILO in such projects as the establishment of the International Anti-Venereal-Disease Commission of the Rhine (with a view to the application of the 1924 Brussels Agreement on facilities to merchant seamen for the treatment of venereal disease), other aspects of the hygiene of seafarers and occupational health (for each of which questions a joint ILO/WHO committee has been set up) and the medical examination of migrants. Joint expert committees were established with the United Nations, ILO and UNESCO on the physically handicapped and the mentally subnormal child. Lastly, following a decision by the World Health Assembly, an arrangement has been made whereby disputes arising under the WHO Staff Regulations can be referred to the ILO Administrative Tribunal.

Co-operation with FAO has been concentrated mainly on work in nutrition and the zoonoses. Joint expert committees have examined these and related subjects (such as the use of food additives, milk and meat hygiene) and their recommendations have provided the basis for a number of joint FAO/WHO activities—nutritional surveys, training courses, seminars and the co-ordination of research programmes on brucellosis and other zoonoses. A study group with FAO and ILO has considered the toxic hazards of pesticides to man. Work with FAO is also mentioned under individual subject headings (Chapters 16, 21 and 22). The First World Health Assembly drew attention to the joint responsibilities of WHO with UNESCO and FAO in rural sanitation and hygiene.

As was stated earlier, the agreement concluded with UNESCO makes provision for the division of responsibility between the two agencies in certain fields where their interests might tend to overlap. UNESCO's programme of fundamental education (combined now with the question of community development) includes the study of various subjects of direct interest to WHO, e.g., school health programmes, health training for teachers, the teaching of the social sciences, etc. Other subjects in which collaboration has been
instituted with UNESCO are the medical aspects of research conducted at high altitude research stations, the development of arid lands and control or utilization of water, the use of radioisotopes, etc. Liaison too was maintained in connexion with the work of the International Association of Universities and its Interim Committee in order to permit WHO to give guidance on the health aspects of that work.

Co-operation between ICAO and the Interim Commission took mainly the form of representation at one another’s meetings when subjects of mutual interest were under discussion. There was also collaboration between the two secretariats in regard to the disinsecting and disinfection of aircraft. WHO has continued to co-operate with ICAO on international quarantine matters; the two organizations have examined problems of the hygiene and sanitation of airports, and a manual on this subject, for the guidance of health administrations in the operation of international airports, is being prepared.

Relations with two other specialized agencies, the World Meteorological Organization and the Interim Commission of the International Trade Organization, are based on an exchange of letters between the heads of the secretariats. In the case of the International Monetary Fund the Executive Board of WHO at its eighth session in 1951 noted the excellent working relationships established between the two agencies. Health experts have been assigned by WHO for work with various missions organized by the International Bank for Reconstruction and Development.

Contact with the Intergovernmental Maritime Consultative Organization is, by decision of the Second World Health Assembly, maintained at the secretariat level for the exchange of documents and study of common problems, while relations with the Office of the High Commissioner for Refugees have continued on the informal basis on which they were initiated with the International Refugee Organization.

Co-operation has been maintained with the International Telecommunication Union on various matters concerned with notifications made under the International Sanitary Regulations, particularly the Organization’s epidemiological radio bulletins, in connexion with which ITU includes in its “List of Special Service Stations” the relevant transmitting stations. ITU also participates in certain aspects of the work for the hygiene of seafarers—for example, by providing information on the stations that give medical service by radio to ships at sea.

The Organization has been in touch with the Universal Postal Union (UPU) at different times with regard to the transport of dangerous goods,
including therapeutic substances, insecticides, etc., and delays in the shipment of perishable biological and pathological materials due to variations in national postal regulations. It contributed to the Union's work in connexion with the occupational risks of postal workers.

Negotiations have been initiated with the Executive Secretary of the Preparatory Commission of the International Atomic Energy Agency, and will be pursued with the Director-General of the IAEA, for the conclusion of an agreement between the two organizations. Such an agreement is recommended by the Atomic Agency's Statute, the need for co-ordination with a view to the avoidance of duplication of work having been foreseen by the Conference on the statute of the IAEA held in New York in the autumn of 1956. WHO had already been represented at the Geneva Conference of 1955 on the peaceful uses of atomic energy and the Ninth World Health Assembly had emphasized the need for continued collaboration with the Secretary-General of the United Nations and the specialized agencies concerned; it had further requested the Director-General to collaborate and provide appropriate assistance to the United Nations Advisory Committee on the Peaceful Uses of Atomic Energy and the United Nations Scientific Committee on the Effects of Atomic Radiation as well as to governments sponsoring the establishment of the IAEA. WHO was represented at the conference held for this latter purpose in Vienna in the autumn of 1957.

Co-operation with Other Intergovernmental Organizations

Formal agreements under Article 70 of the Constitution were concluded with two intergovernmental organizations—the International Committee of Military Medicine and Pharmacy and the International Bureau for the Protection of Industrial Property. Relations were established through an exchange of letters between two of the regional offices of the World Health Organization and intergovernmental organizations of a regional character: the Council of Europe in 1952 and the League of Arab States in 1954. Relations were also established—mainly through the regional offices—with other intergovernmental bodies such as the Intergovernmental Committee for European Migration, the South Pacific Commission, the Committee for Technical Co-operation in Africa South of the Sahara and the Colombo Plan Bureau. Contact has also been maintained with the Office International des Epizooties.
Co-operation with Non-governmental Organizations

An important development in institutional international relationships set up after the Second World War has been the provision made in the constitutional instruments of various organizations for co-operation with non-governmental organizations—not only international but also national bodies, given the consent of the government concerned. The governments engaged at San Francisco in 1945 on preparing the Charter of the United Nations did not overlook the advantages to be found in the enthusiasm, knowledge and experience of international associations, and they inserted in the Charter Article 71, which authorizes the Economic and Social Council to make arrangements for consultation with non-governmental organizations (NGO's). The corresponding article—which bears the same number—in the Constitution of WHO reproduces this clause and goes a step further, since it authorizes arrangements for co-operation as well as consultation with non-governmental organizations. This addition is the logical sequel to the functions laid on the Organization in Article 2 (b) and (j) of the Constitution.

Principles determining the criteria for admitting such associations to official relationship and the privileges and obligations thus conferred were defined by the Third World Health Assembly in 1950. To be eligible for admission to official relationship with WHO a non-governmental organization must be concerned with matters falling within the competence of WHO and pursue aims and purposes in conformity with the spirit, purposes and principles of the WHO Constitution. It must be of recognized standing and represent a substantial proportion of the persons organized for the purpose of participation in the particular field of interest in which it operates. It must have a directing body and authority to speak for its members through its authorized representatives. A national organization may be admitted, with the consent of the government concerned, if there is no international body covering its activities or if it offers experience upon which WHO wishes to draw; but in general national associations affiliated to international organizations are expected to present their views through the international body or through their government.

Information as to eligibility submitted voluntarily or by invitation from applicant bodies is scrutinized by a standing committee on non-governmental organizations set up by the Executive Board on the instructions of the Health Assembly. The committee then recommends to the Board either acceptance or rejection or postponement of consideration of the application, the final decision resting with the Board. The list of non-governmental organizations in official
relationship is reviewed every two years with a view to determining whether relations should be maintained or terminated with each organization on the list.

A non-governmental organization admitted to official relationship is entitled to appoint a representative to participate, without right of vote, in WHO meetings and on the invitation of the chairman to address the meeting on an item in which it has a particular interest. It also has access to non-confidential documentation and, at the discretion of the Director-General, to other documentation made available for distribution. It is entitled to submit memoranda to the Director-General, but the latter retains the right to determine the nature and scope of the circulation to be given to them.

The foregoing rules are still in force. To them the Sixth World Health Assembly added in 1953 a clause to the effect that there was no objection to the admission to relationship of more than one body concerned with a particular subject, although some anxiety was expressed lest this wider latitude might cause certain difficulties.

At the end of 1957 forty non-governmental organizations were in relationship with WHO. A full list is contained in Annex 10. Admission to relationship is by no means a formality. Each application is carefully scrutinized. The main grounds for refusing admission have been that the applicant’s activity covered only part of a wider but still specialized field, or was only of marginal interest to WHO, or that the candidate represented not national groups but only individuals, etc. In some cases applications have been reviewed at successive sessions of the Board before a decision was taken on the establishment of formal relations.

Non-governmental organizations admitted to relationship fall into two main categories: those engaged in some particular branch of medical science or research and those representing a more general interest.

The latter, which is also the smaller category, comprises one major association which is not specifically concerned with health matters, the World Federation of United Nations Associations (WFUNA). This body’s interest in WHO is an extension of its interest in the United Nations and related organizations. Its co-operation takes chiefly the form of publicity for WHO organized either by itself or by one of its constituent national societies, e.g., in connexion with World Health Day or other events. It encourages the formation of national committees for WHO and, in co-operation with WHO, organizes each year during the World Health Assembly a seminar on world health attended by doctors and medical students from various countries.

Co-operation has been particularly active with the World Medical Association, which the Executive Board in a resolution dated January 1955 thanked
for its active interest in the work of the Organization and its fruitful collaboration. Mention should be made of the world conference on medical education in 1953, of which WHO was a co-sponsor with the World Medical Association.

The Council of International Organizations of Medical Sciences (CIOMS) is a special body set up under the joint sponsorship of UNESCO and WHO. Its principal task is the co-ordination of medical science congresses, but it has engaged in a variety of other activities as well, e.g., organization of symposia in connexion with international medical congresses and of meetings to discuss the selection, training and support of research workers, and more recently of a study group on methodology in geographical pathology, etc. A member of the WHO secretariat attends the Council's meetings in an advisory capacity.

Two non-governmental organizations with which WHO has been especially closely associated from its earliest days are the International Committee of the Red Cross and the League of Red Cross Societies. The League has been associated with WHO in the international tuberculosis campaign, in the revision of the handbook on the hygiene of seafarers and ship medicine and in the provision of emergency relief to refugees into Turkey in 1951. In 1950, the League awarded the World Health Organization the Count Bernadotte Memorial Medal for advice and assistance in meeting the health needs of Arab refugees from Palestine. Among activities in which WHO has been associated with the International Committee of the Red Cross is the work done by the latter for uniformity of medical equipment for both military and civilian needs.

The occasions on which the Organization has received the assistance of one non-governmental organization or another in official relationship are too numerous and diverse to be described in detail, but a few examples may be mentioned. WHO has had frequent contacts with the World Federation for Mental Health, including in 1956 participation in the Federation’s group on “Effective Functioning of Discussion Groups and Small Conferences” and in its annual meeting which centred on the subject of mental health in the home, institution and school. Another association with which WHO has been constantly in touch is the Fédération dentaire internationale. Again, WHO received assistance from the International Council of Nurses, the International Committee of Catholic Nurses and the League of Red Cross Societies in organizing the technical discussions at the Ninth World Health Assembly on “Nurses: Their Education and their Role in Health Programmes”, while the International Council of Nurses was considerably helped by WHO in preparing its conference on the planning of nursing studies. In the same year, valuable
information was exchanged between WHO and the International Leprosy Association on recent developments on field methods of therapy. WHO and the International Organization against Trachoma have been working for some years together in the exchange of epidemiological information on trachoma in different countries and in planning WHO's programme of co-ordinated research on trachoma.
PART III

TEN YEARS OF WORK
Previous chapters have described how WHO came into being, what its purposes are, and how it is organized for its work. In this introductory chapter to Part III a brief review is given of the methods of work that have been developed for WHO's various types of programmes, at Headquarters and in the regions. This is followed by a short account of the circumstances of each of the six WHO regions and how those circumstances have affected the kind of assistance that their countries have requested from WHO and the choice of methods used in meeting the requests. Finally there is a note on some of the more significant trends that the decade has shown.

Most countries, old or new, have found occasion to turn to the Organization for aid. On the one hand, WHO has contributed to the world's technical resources for health work, by services that are more fully considered in subsequent chapters. Here it is enough to recall that the inheritance of the Organization included international technical services concerned with statistical nomenclatures and definitions, standards for drugs and biologicals, and standard descriptions of strains and types of bacteria and other micro-organisms. WHO has assisted by providing simple and convenient ways of combining and co-ordinating work, in different countries and by different groups and individuals, in many branches of medicine and health. It is used also as a convenient repository of experience and information from which authoritative guidance can be obtained on scientific and technical questions.

On the other hand, many countries in all regions have sought from the Organization direct help and guidance in organizing particular aspects of their plans to provide better health services for their peoples. A significant proportion of the world's population still lacks the full advantages of health, often because of poverty and the misery of their physical environment. The references in the opening chapter to the deplorable living conditions found in early
industrial communities are no longer true of those particular countries, but they represent the degrading environment and circumstances that still obtain in many communities today.

The questions presented to the Organization have been legion. The problems of ill-health and disease prevalence are themselves complex, and they are aggravated by the fact that so many countries of the world lack comprehensive and efficient health services. The application of medical knowledge to the health needs of a community is essentially a matter of administration. There are many communities in which little can be done to introduce the benefits of modern medical science and medical care until there is a local and central administration that provides the machinery of efficient government: and that in turn may require better economic and social services and a higher standard of education. Such deficiencies have directly determined the nature of much of the Organization's assistance to countries.

The aggregate of requests year by year from countries for assistance has formed the regional programmes which have become the major preoccupation of the advisory services of the Organization. Country requests have grown in number and diversity, but it is to be noted that neither the number of requests for services nor the variety of projects undertaken is necessarily an index of regional or world health conditions. Many countries have made few or no requests for direct assistance by WHO as they have been able to build up suitable services themselves or they have obtained advice and assistance from other sources.

Finally, the intergovernmental status prescribed for the Organization by its Constitution, its system of decentralization to regions and its staff and administration policies, have influenced the choice of WHO technical methods.

Projects

The Organization's advisory services are in one sense a combined programme, but it has been found convenient to base them on the administrative and technical unit known as the "project". To meet a request from a country, the regional director consults with the national authorities to determine the form of international assistance to be supplied (this procedure is described on page 116). A suitable expert or team is then recruited by the Organization,
and briefed on the purpose of the project, the conditions in the region and country, and the general administrative and technical procedures that the Organization has found useful in similar circumstances. The regional office assists in the necessary liaison and co-operation with the national counterparts and local services with which the expert or team will work. The international staff is assigned to assist the government, not to control the project; and the course of the project is thus determined by the local needs, environment, and epidemiological conditions.

A system of reports to the national health administrations and to the Organization’s regional office ensures that the projects are properly developed or modified as circumstances change during their progress. When the international staff is withdrawn, the local services apply, extend and continue the work as necessary, so that it becomes an integral part of the national health services.

It is in such country programmes that the criteria established by the World Health Assembly and the Executive Board in the general programmes of work (described in Chapter 9) have been most generally applied. These criteria have enabled regional directors and governments, regional committees and the Organization as a whole, to decide whether projects are suitable before they are formally included in the programme submitted to the World Health Assembly, and to ensure their efficient operation.

This method of providing advisory services to governments is consistent with the constitutional intergovernmental character of the Organization and with the established policy of programmes to strengthen national health services. Similarly WHO does not use methods or procedures isolated from or independent of the administrative, social or economic systems of the countries in which it works.

For the many hundreds of projects that the Organization has assisted in each year of its existence, it has found it necessary to develop contacts, mainly through its head office technical staff, with national health services and institutions in all countries, from which to obtain the consultants, advisers and administrators that it has needed for the country programmes.

The use in this work of staff with limited contracts has certain advantages. The technical problems have varied from year to year and continuing WHO assistance has been sometimes required. The system has enabled the Organization to select the best available adviser for each particular local problem
and to recruit technical staff appropriate to the needs of the moment: but the system does not exclude the use of an experienced team for several successive projects that deal with substantially the same problem in different countries. In general, the consultants and advisers employed in this *ad hoc* way have adjusted themselves satisfactorily, both as officers of an international organization and to the circumstances of their work, and have been welcomed in the countries they serve.

The technique of local demonstrations is well known: it has been used in most of the Organization's country projects. Such demonstrations are not made in isolation: each has been part of a country programme, and the country's counterpart staff have been trained to continue and extend the demonstration when the international staff has completed its work. The mass campaign—examples of which are described later, particularly in the chapters on the treponematoses and on tuberculosis—is a special case of the demonstration project, enlarged to a comprehensive local service.

Special forms of demonstration have been used on occasion to assist several countries from one or more regions with some common problem. They have included laboratory, clinical and field demonstrations, and technical meetings and courses of different kinds. The international assistance has often been co-ordinated by a group of agencies. UNICEF has joined with WHO in many such demonstrations. The general technical direction of these inter-country projects has been given by WHO Headquarters, but their planning and execution has been the responsibility of the regional organizations.

**Technical Meetings**

Much use has been made by the Organization, especially in the later years of the decade, of the scientific meeting, from the small expert advisory committee of a few selected specialists to the large conference attended by numbers of people of varied experience. Such meetings are used in many ways. They may be roughly divided into advisory meetings and educational meetings. The first group includes expert committees and study groups, on which more details are given below; the second includes conferences and seminars. The conference and the seminar shade into one another, but the conference—which is usually on a larger scale—is primarily for an exchange
of views on strategy and broad methods; the seminar normally deals with a more closely defined and limited subject and produces, so far as possible, concrete conclusions on that subject which are then disseminated generally.

Technical and scientific meetings have thus been used to give authoritative technical direction to the policies and programmes of the Organization; to pool and exchange information, to suggest outlines of co-ordinated research, and for training people of all categories concerned directly or indirectly in international health and medicine. They have been one of the most dependable methods for co-ordinating the plans and programmes of the miscellany of bodies, governmental and non-governmental, that contribute to regional or world health.

**Expert Advisory Panels and Committees**

In most of the chapters in which the technical work of the Organization is described, reference is made to the WHO system of expert advisory panels. This is now a most useful and effective way of securing technical information and guidance for the whole programme undertaken by the Organization, in the field or centrally. The World Health Assembly, Executive Board and Secretariat have relied on it for general technical direction in formulating programme policy. The expert advisory panels comprise large numbers of the world’s leading medical scientists and health administrators in the fields of work in which WHO is interested. Their views and recommendations, contained in the reports of expert committees or expressed by the panel members individually, have been used by the Executive Board and Secretariat in preparing the WHO programmes.

By 1957, the number of panels had grown to thirty-six and it will be seen from Annex 8 that they now cover very many fields of health and medical practice. Reports produced by expert committees, if authorized for publication by the Executive Board, are published in the Organization’s *Technical Report Series*.

The system of expert panels and committees is supplemented by technical meetings such as study groups, conferences and similar gatherings. The membership has included many scientists invited as individuals, whether members of expert panels or not.
Training

The chapter on education and training describes the variety of methods used to diffuse knowledge and to impart skills and experience to selected fellows or groups. The basic methods are not new. The whole system of fellowships, which are now extensively employed by the Organization, had many successful international antecedents; in particular it was widely used by well-known private foundations.

In this comprehensive system WHO has acted as a co-ordinator. It has not created its own training institutions. It has found countries everywhere eager to offer services and institutions for the instruction of WHO fellows, and to supply teachers to go to other countries that needed help in launching or improving their own teaching. To use existing local resources in this way has proved better, technically, administratively, even psychologically, than the establishment of special international centres and institutions.

Co-ordination and Co-operation

The arrangements thus far described—consultant and advisory staff, expert advisory panels and committees, and other technical meetings—do not exhaust the methods by which the Organization has obtained the assistance and co-operation of medical services and individuals in every part of the world. For many purposes it has directly approached country medical services, institutions, universities, research laboratories and individual workers. Formal laboratory networks have been established by the Organization for reference and exchange of information on a variety of subjects, and for co-ordinated programmes of research. Among the best known are probably those for influenza and poliomyelitis virus research and for biological standardization. The system has been gradually extended until it covers most fields of health and medicine and enlists the co-operation of many hundreds of institutions.

This association is based in many cases on a system of formal agreements between individual countries and the Organization. In some cases annual grants are paid to national institutions assisting in this international work. The Organization has also assisted such institutions in other ways, as by facilitating an exchange of workers or by providing essential technical supplies.
This method of drawing on, and helping to co-ordinate, the medical resources of the world is one of many which the Organization took over from its predecessors. Indeed, most of the methods of international technical work now used by the Organization had been evolved before it came into existence.

Frequent reference is made in this volume to the fact that the Organization has obtained the co-operation of non-governmental as well as governmental organizations in international health programmes. This use of non-governmental resources has been valuable, both for obtaining information and for ensuring the wide application of any necessary development or investigation. Non-governmental organizations have in this way supplied technical data, made known the objectives of the Organization, joined in various programmes and assisted in developing interest in international health work.

Investigation and Research

To increase knowledge is naturally a direct or indirect objective in most WHO programmes; and for this purpose the Organization has used several methods of investigation and research. WHO does not normally operate its own research institutions but uses existing national centres and institutions whose services are made available by the responsible national authorities.

The general or special survey of existing conditions; the inquiry into a particular problem by a number of investigators in laboratory, hospital or field; the analysis of existing circumstances to guide further research, and the co-ordination of such activities in an international health programme, are all used by WHO. Much of this work, especially work on biological standardization, epidemiology, health statistics and nutrition, continues long-standing international programmes that originated in the time of the League of Nations or earlier. Other work, such as that on resistance to insecticides and definitions of pathological tissues, has been undertaken to meet newer problems. WHO also assists the training of local staffs in the techniques needed to extend the application of the research or survey.

The use of national resources by an international agency such as WHO for its international programmes has therefore been a prominent feature of the decade; and much willing participation has been given by many services, institutions and people.
A natural adjunct to providing, firstly, general technical services for all countries, and, secondly, direct services to individual countries has been the use of international publications. The Organization therefore at the outset found it necessary and desirable to continue and expand the international publications that it had taken over from its predecessors; and it is obvious that publications are one of the most valuable and most generally applicable methods available to WHO for diffusing and exchanging information.

**THE REGIONS AND THEIR PROBLEMS**

*African Region*

The African Region consists of Africa south of the Sahara, excluding Sudan, Ethiopia, French Somaliland and Somalia, which belong to the Eastern Mediterranean Region. The population in the Region is about 145 millions.

Differences of climate are considerable, even within the equatorial zone. The coastlands are humid and warm, but there is a central plateau on the higher parts of which the temperatures all the year round are mild.

The Region is a geographical unit: the same fauna, the same flora—and the same diseases—are found generally. The majority of the population live on a subsistence basis and their social organization is simple. Industry is confined to a few areas. Economic development did not begin much before the end of the nineteenth century, but in some places it has developed rapidly.

Many of the public-health problems of Africa are similar to those in other parts of the world. Many of the territories have not been self-governing and their health services have largely been provided by the metropolitan powers; they have in this way been provided with basic health services which have generally included, for example, district hospitals, stationary and mobile clinics and simple district nursing. At the time when WHO started work in Africa, much research had been done, especially into tropical diseases, and much had been done for the control of communicable diseases, with the methods and resources available. Centres of some importance in medical research have grown up in several countries.

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1 For map showing the regional offices and the areas they serve, see p. 85.
In the past the public-health services in the Region had their hands full coping with the urgent task of bringing under control the major epidemic diseases (smallpox, sleeping sickness, yellow fever, malaria, yaws, leprosy, etc.); and in this they have had considerable success. Smallpox and sleeping sickness are now substantially under control; though the latter is still found in pockets of infected bush-land. The incidence of malaria, yaws, the venereal diseases and leprosy has also been greatly reduced in many territories. Two diseases which still give much trouble in the Region are bilharziasis and oncho­cerciasis. Tuberculosis is now known to be more prevalent among the African population than was previously believed.

There have in recent years been some considerable technical developments, which are co-ordinated in the Commission for Technical Co-operation in Africa South of the Sahara (CCTA), set up by the governments of the Region. On health questions the CCTA keeps in touch with the Regional Office of WHO.

In those circumstances, WHO’s work in Africa was at first directed to local inquiries to discover in what problems the Organization could assist, perhaps in co-operation with other international agencies; to the provision of fellowships for training suitable candidates; to some assistance to current programmes against communicable disease, particularly against malaria and yaws, and for the improvement of maternal and child health and environmental sanitation.

Work against the communicable diseases, particularly malaria, yaws, bilharziasis and tuberculosis, has been intensified and extended in co-operation with governments, and the territories of the Region have been helped to exchange information and so to arrive at the methods of control most suitable for their circumstances.

The following examples show how WHO’s methods of work have been applied in Africa (other instances of work done in the Region will be found in the chapters on specific subjects).

Two regional conferences on malaria were held, in 1950 and 1955, at the second of which particular consideration was given to the special difficulties of adopting in Africa the policy of malaria eradication. A similar conference on yaws was held in 1955 and the yaws control campaign, started in Liberia in 1952, was extended to several neighbouring territories. The researches into the etiology of bilharziasis are described in Chapter 17. Surveys of the
incidence of tuberculosis have been made in different parts of the Region, on lines suggested by WHO.

WHO has taken part in investigations into the malnutrition that is found in many parts of Africa and in action to improve the diets of the people concerned. With the assistance of CCTA, a seminar on vital and health statistics was held at Brazzaville in 1956, to help governments of the Region to improve their statistical services and to make the best use of the sources of statistical information already available. There was a seminar on environmental sanitation at Ibadan in Nigeria in 1955 at which lines of development suited to territories with limited resources were worked out.

To facilitate comparison of methods and results of research into cancer of the liver in Africa, WHO helped to arrange for the exchange of workers between two institutes, one in Dakar and the other in Johannesburg, that were independently engaged in studying this question.

Educational work has been much expanded. Special courses have been given for training workers, for malaria campaigns for example, or in nutrition, and the number of fellowships awarded has substantially increased, in public-health administration, sanitation and health education in particular.

In much of this work there has been close co-operation with CCTA, and UNICEF has given very substantial assistance with equipment and supplies.

The Regional Office for Africa in its early stages was handicapped by serious difficulties of accommodation and recruitment. Thanks to the assistance of the French Government, the accommodation is now satisfactory, and this in itself has assisted the problem of recruitment. For administration, the Region has been divided into four areas. One is served from the Regional Office and there is a public-health officer in each of the other three. This arrangement permits better liaison with the governments of the Region.

Region of the Americas

This region comprises the whole of the Western Hemisphere and includes a wide range of climate, from the Arctic Circle to Cape Horn, from desert to tropical forest. The range of economic development is equally wide and the resources available for the improvement of health and social welfare are very different in the several countries of the Region.
For many years the more developed countries have done much to control communicable diseases, to improve sanitation and, more recently, nutrition. The need for joint action against certain communicable diseases led to the formation, at the beginning of this century, of the Pan American Sanitary Bureau. Unlike the other regional organizations of WHO, therefore, that of the Americas was not a new creation but was based on an organization that had been active in public-health work for nearly half a century. The details of the agreement by which the Pan American Sanitary Organization (PASO) and its Bureau (PASB) act in the Americas as the regional committee and the regional office of WHO will be found elsewhere in this volume (see page 57). The position of the Pan American Sanitary Organization as an inter-American specialized organization and as the regional organization of the World Health Organization in the Western Hemisphere was recognized by the Organization of American States (OAS).

These circumstances have permitted an exceptionally rapid growth of the regional organization's work during the first ten years of the World Health Organization, and there is now a unified international programme of health work that covers all territories in the Region, in which there is no fundamental distinction between the WHO and the PASO items.

This unity does not completely cover the two continents, for Colombia is a Member of PASO but has not yet ratified the Constitution of WHO, and Canada, a Member State of WHO, has never joined PASO.

The expansion of health work in the Region has also benefited from the number of sources from which it is financed: they include, as in other regions, the WHO regular budget and funds from the Expanded Programme of Technical Assistance, and also the PASO budget and the technical assistance funds of OAS. Recently a PASO special malaria fund has been created. PASO has therefore in the past been able to take independent action on special regional problems, such as the eradication of *Aedes aegypti* and malaria. The Institute of Nutrition of Central America and Panama (INCAP), which was launched with the aid of a generous private donation, is largely financed by special contributions from a group of countries; it is under the general administration and supervision of PASB.

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The administration of international health work in this region has been increasingly decentralized. Even before 1947 there were zone offices of PASB in Guatemala City and Lima. In accordance with various decisions of the Pan American Sanitary Conference and Directing Council/WHO Regional Committee for the Americas, operations in the Region have since 1952 been divided among six zones with headquarters as follows: Zone I, Washington, D.C.; Zone II, Mexico City; Zone III, Guatemala City; Zone IV, Lima; Zone V, Rio de Janeiro; Zone VI, Buenos Aires.

These offices have technical and administrative responsibility for planning programmes and implementing approved projects in close collaboration with the governments concerned.

Three points to which the Pan American Sanitary Conference and Directing Council/Regional Committee of WHO has given special attention are first, the strengthening of the fundamental health services in every country; to this end, it is urged, more and more attention should be given to the development of comprehensive public-health projects. Secondly, means must be provided for training the necessary personnel and developing each country's resources for that purpose, with special attention to nursing education and to training in environmental sanitation. Thirdly, action should be jointly planned and co-ordinated against communicable diseases for which suitable means of eradication are available, e.g., in the campaigns for the eradication of *Aëdes aegypti* from the continent and of yaws from Haiti.

The belief that it is practicable to eradicate, not merely to control, certain communicable diseases that have been a danger to all countries of the Region has had a marked effect on health work in the Americas during the past ten years.

Malaria and yaws have already been mentioned. In 1950 the Pan American Sanitary Conference/Regional Committee of WHO decided that smallpox could be eradicated and provided funds to start the programme. Smallpox is no longer present in any country north of the Isthmus of Panama, and it has been eradicated in three countries of South America.

A number of countries have entered into agreements for co-ordinating border health programmes, and have organized annual or biennial meetings at which national and local authorities of adjacent countries can discuss common health problems and exchange information and ideas.

The Institute of Nutrition of Central America and Panama (INCAP) affords a good illustration of regional action on common problems. Its
functions are to conduct research on nutrition, to stimulate and guide the practical application of the science of nutrition and to train students.

Education has a prominent place in all projects in the American Region. In the first five years fellowships predominated in the educational programme, but the work has been considerably broadened since 1952. Several hundred public-health workers, mainly physicians, have obtained specialized training in public health in the schools of public health in Brazil, Chile and Mexico, in pursuance of the policy of training Latin-American workers as far as possible in Latin-American schools.

In nursing education attention is given to the adequate preparation of nurses to be teachers and supervisors in hospitals and public-health services. Training courses are arranged for auxiliary nursing personnel.

Pioneer work in dental health is being undertaken on carefully planned lines.

A special feature of the Region of the Americas is the large number of projects for comprehensive health services. Experience has shown that it is necessary to provide advisory services and support, both locally and centrally, from the outset.

Another point to which special attention has been given is the improvement of health statistics throughout the Region. PASB/Regional Office of WHO has helped to improve the facilities for training by strengthening statistical training centres in schools of health and by courses conducted by field consultants. Collaboration with other organizations, such as the United Nations Department of Social Affairs (Population Branch), the USA-Mexico Border Public Health Association, and the United Nations Statistical Commission, has assisted better co-ordination among government agencies concerned with population, vital statistics, case reporting, and health personnel and facilities; and the quality of the data has been improved.

South-East Asia Region

This region includes Afghanistan, Burma, Ceylon, India, Indonesia, Nepal and Thailand; and much of its area therefore lies within the tropics.

The social and economic background and health problems of the different Members are essentially similar. Their economy is predominantly
rural; and living standards are low, often bordering on the bare subsistence level.

As would be expected in these circumstances, the main health problems of the Region have been general malnutrition; high maternal and infant mortality rates; a high incidence of communicable diseases, often associated with inadequate sanitation; acute shortage of all grades of technical personnel and of essential resources; a virtual lack of public-health services except in a few urban centres. There was therefore after the Second World War a widespread desire for better social services, and co-operation with WHO offered an opportunity to satisfy part of this need.

The Regional Office, which was the first WHO regional office to come into operation, opened in 1948. Because resources were limited, it was found necessary to begin with immediate short-term projects, especially for the control of communicable diseases. The method of work in all cases was to establish demonstration and training projects in specific areas, with the aid of workers of the country assisted and of other local resources. At the same time projects designed to promote positive health were started; the first of them was in maternal and child health. From the outset special attention was paid to the training of counterpart physicians, and the training of nurses and of auxiliary staff and technicians was begun as soon as possible. In these programmes the Regional Committee took a close interest and the national health administrations worked in co-operation with WHO staff.

Shortage of equipment and supplies has been a serious handicap, but UNICEF has helped by providing them, both for demonstration projects and for training.

From 1952 onwards experience in the field made clear that the effective control of communicable diseases would require mass attacks on a nation-wide scale, employing many auxiliary personnel working under qualified physicians. Demonstration programmes accordingly gave way gradually to mass programmes such as those for BCG vaccination and for malaria and yaws control.

In some countries the large programmes of malaria control are changing to programmes for eradication. Tuberculosis, the most important communicable disease in the Region after malaria, is now being attacked by the wide use of domiciliary and ambulant therapy with modern drugs.

Much has been done to improve medical education. Some of the work is described in the chapter on education and training. Progress in the training
of physicians has been slow, because of the shortage of qualified teachers and
the heavy costs of modern medical schools, but there has been some improve­
ment in the last two or three years.

Special attention has been given recently to the establishment of full-time
chairs and departments of preventive medicine and paediatrics.

Other kinds of training have been expanded. For example, courses for
nurses, midwives and auxiliary nursing staff, organized with the help of WHO,
were training 1850 students in 1952 and double that number in 1956.

In the last three years the training of health workers, the extension of rural
health services, better sanitation and health education, and the absorption of
specialized projects into the general health services have increased in relative
importance. Some countries in the Region also have undertaken large pro­
grames of community development in which rural health centres have an
important place.

The absence of reliable vital and health statistics precludes any positive
statement as to the general health of the population. It is generally assumed
that birth rates are tending to rise and death rates to fall, but that the infant
mortality rate has not as yet shown much improvement in most countries
and that morbidity has not much changed, though the large programmes of
malaria control are presumably having some effect.

Countries in South-East Asia have received aid in public-health work
from other organizations as well as from WHO; from UNICEF, from the
bilateral programmes of the United States of America (especially for malaria
control and eradication), from the Colombo Plan and from the Rockefeller
and Ford Foundations.

European Region

The European Region comprises not only the European countries but
covers also Algeria, Greenland, Malta and Morocco ( provisionally). The
industrial revolution came early to many European countries, the general
standard of living is reasonably good, communication between countries has

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1 In 1952, Turkey was admitted to the European Region while provisionally suspending its
activities in the Eastern Mediterranean Region.
been relatively easy and there is an old tradition of a community of learning. In spite of some differences of cultural background and in degree of industrial development, there is similarity of public-health problems throughout the Region. WHO's work in Europe has in consequence evolved on lines rather different from those in other regions.

When WHO started its programmes in Europe the effects of the Second World War were still evident even in those countries that had remained neutral. Scientific and medical contacts had been loosened or lost; the construction of hospitals and other institutions had been brought to a standstill; malnutrition, venereal disease and tuberculosis had increased.

Nevertheless the basic medical and public-health services did at least exist in the great majority of countries, so that international health work could readily be concentrated on matters of common interest. In the period under review the programme has included many inter-country projects, particularly in professional education and training.

Assistance to individual countries has consisted largely of fellowships or aid to teaching institutions. In some cases, though to a less extent than in other regions, specific programmes have been undertaken in countries with special needs, usually with Technical Assistance funds or in co-operation with UNICEF. For certain countries consultants have been provided to assist in the planning and development of their health services or of special branches such as rehabilitation, statistical, or hospital administration services.

Countries have been helped to develop their public-health laboratories, by fellowships for study abroad or by the provision of consultants.

Joint studies have been made with countries with a view to obtaining more accurate and more comparable statistics and reaching a uniform system of notifying and reporting communicable diseases. WHO is also encouraging the introduction of statistics and the use of epidemiological methods throughout the whole field of public health.

Administrative services have been assisted mainly by long-term and short-term fellowships. One-quarter of all the fellowships granted in 1956 were in public-health administration.

Assistance has also been given to national schools of health. A series of travelling study-groups has given senior public-health officers an opportunity to learn about the health problems and the organization of services in other countries, and to exchange ideas.
Some other examples will illustrate the application in Europe of WHO's methods of work. Different kinds of assistance have been given to programmes for maternal and child health. Some countries wished to start a basic maternal and child health service; some already had such a service in being, but asked advice on special difficulties; some were planning or developing a scheme of rural maternal and child welfare. Others asked for help with school health schemes; and on this subject a special study tour was organized in Denmark and the Netherlands in 1953, in which almost all Member States in the Region took part, and a conference was held at Grenoble in the following year.

In mental health, international fellowships have been awarded to psychiatrists and psychologists, and to public-health administrators, for study abroad. Inter-country meetings have been arranged on child mental health, with particular reference to child guidance, the sub-normal child, and the child in hospital. There have been inter-country meetings on alcoholism; fellowships have been provided for its study, and drinking habits in several European countries have been surveyed.

In health education the Organization has sponsored two conferences, one in London in 1953 and the other at Wiesbaden in 1957. The rapid expansion of health education in the Region is producing a growing demand on the Regional Office for assistance of different kinds.

In environmental sanitation, a series of seminars was organized with the co-operation of various governments and a committee of experts was set up to advise the Regional Office on the needs of the Region and the best methods of assisting governments.

On the health aspects of the peaceful uses of atomic energy, two health physics courses were organized in 1955 and 1957.

The European Region is much used in the training of students from all parts of the world; of the total number of countries which have received WHO fellows, sixty-two per cent. have been countries of Europe.

**Eastern Mediterranean Region**

Most of the Eastern Mediterranean Region is situated within the tropical or sub-tropical zone. It has a considerable diversity of climates and its countries and territories are in different stages of development. Some of them are
trusteeship or non-self-governing territories. Others have only recently acquired full independence. A good number of the countries and territories have similar racial, cultural, linguistic and sociological backgrounds, and generally speaking, the health problems of most of the regional Members are also remarkably similar.

The first task of WHO in this region was to meet urgent requests of governments for assistance in the control of communicable diseases—malaria, tuberculosis, venereal diseases, bilharziasis, leprosy, plague, poliomyelitis, relapsing fever, smallpox, trachoma, etc. Such programmes still account for nearly half the total public-health expenditure in the Region. But gradually, as those diseases came under control, programmes of longer term became possible, especially those for training technical personnel.

In all countries there is a shortage of trained personnel. Some already have schools and institutions for training professional health workers and need fellowships for advanced or specialized studies abroad; for others the first priority is to establish their own institutes for training auxiliary workers.

An interesting project of education and training is the Health Training Centre at Gondar in Ethiopia which was set up in 1954 with WHO staff. The Centre has been provided for the training of various types of auxiliary health workers, of which there were virtually none in Ethiopia. The project was launched with the co-operation of UNICEF and the United States International Co-operation Administration.

Iran, Iraq and Pakistan have included elaborate health schemes in their long-term general planning for economic and social development. Sudan has a plan of health development covering the next ten years and there are signs that other countries may take similar action fairly soon.

Two points in connexion with communicable diseases in this region may be mentioned here. First is the general trend in the Region towards eradicating malaria. Iran, Iraq, Lebanon and Syria, with the help of the Regional Office, have embarked on eradication programmes; and Egypt, Israel and Jordan were in 1957 preparing similar action. The programmes already started have been assisted by UNICEF and some by UNRWA and the United States International Co-operation Administration. The chief difficulty has been that in some areas there is not yet the administrative machinery that would be necessary for fully effective action.
The second point is that bilharziasis, which is spreading in many countries of the Region with the extension of agricultural irrigation systems, is still a challenge to preventive and curative medicine. WHO has helped to measure the extent of the problem and to show its significance by epidemiological surveys made by consultants in a number of countries. Assistance was given to a field trial of new molluscicides, and WHO-aided control projects have been or are operating in Egypt, Iraq and Syria.

Maternal and child health has always been regarded as an important part of many health programmes in the Region.

Governments have been helped to develop and improve their methods of public-health administration. Fellowships have been awarded both for the study of public-health services in other countries, and to attend abroad degree courses in public health.

An important project has been a public-health demonstration in the Calioub area of Egypt. Its purpose has been to develop, in regional centres, satisfactory community services in health, agriculture, education and social welfare. The project has met with certain administrative and local difficulties, but it has demonstrated some of the practical methods of undertaking rural health services. Similar projects have been planned for Iraq, Lebanon, Sudan and Syria.

A number of countries have been helped to establish or develop public-health laboratories.

Increasing industrialization has led to requests from Egypt and Iran for comprehensive occupational health surveys for which ILO and WHO provided expert consultants.

An exchange of technical information on the various aspects of sanitation took place at a regional seminar held at Beirut in October 1956 and attended by public-health engineers and medical officers from seventeen countries (including two in the European Region). WHO sanitarians have been associated with various projects planned in the Region, some for teaching and training, and have given technical advice on questions of sanitary engineering.

Much remains to be done on vital and health statistics. As a first step a training course was organized in 1951 which was attended by forty-four participants from nine countries. Fellowships have since been granted for statistical education and training, and good work has been done by the International Statistical Centre in Beirut.
Western Pacific Region

The Western Pacific Region stretches from Japan in the north to New Zealand in the south, and its countries comprise every diversity of climate and show wide variations in technical progress. There is a corresponding variety in their health problems. Some of them have up-to-date public-health services; in others, modern ideas of medicine and health services were only beginning to appear when the Regional Office was set up in 1951. In some of the countries social and political disturbances have been a serious handicap to the development of public-health services.

The first thing to be done when the regional organization was established was therefore to determine the Region's most urgent needs—a task that was often complicated by the absence of basic data.

As in other regions, the main purpose of all WHO programmes of assistance has been to strengthen the national health services. The emphasis has gradually shifted from projects for the control of communicable diseases such as malaria, yaws, tuberculosis and diphtheria to programmes for training health workers. This is in line with the general programme of work for the period to 1960 that was approved by the Regional Committee as a guide in raising health conditions in the Region to a standard compatible with the countries' financial and technical resources.

At the outset, experts in public-health administration were assigned to certain countries to help in planning their public-health services and adapting modern ideas and techniques to local needs and technical and economic capacities, to assist with long-term planning and to co-ordinate the aid received from different agencies. These duties have since been taken over by area representatives, each of whom serves a group of countries. Three such posts have been established and a fourth—for the northern area—will, it is expected, be created soon.

To meet the shortage of trained personnel in many of the countries in the Region, the education and training programme has been gradually intensified and adjusted to the needs and resources of particular countries. Although there is a wide range of conditions in the Region there are groups of countries that have similar health problems and which need health workers with the same kind of training. A number of projects was therefore undertaken to assist regional educational institutions for each such group.
Fellowships have permitted studies abroad, ranging from observation of modern public-health practices and advanced medical and allied techniques to thorough training in particular subjects, including public health.

Countries where there is an acute shortage of medical and ancillary workers of all types have been helped with the training of sub-professional staff so as to provide a versatile type of auxiliary health worker for general duties, especially in rural areas. As the number of trained workers grows, more advanced courses can be organized so that the standard of training will gradually be raised. In all this educational work the Regional Office has maintained close relations with other agencies in the Region, such as the United States International Co-operation Administration, the Colombo Plan and the Rockefeller Foundation.

As in other regions, the control of communicable diseases, especially of malaria, yaws and tuberculosis, has from the outset been one of the Regional Office's main objectives. Governments are now being encouraged to expand WHO-aided malaria control programmes into eradication campaigns, and two countries of the Region have already adopted this change of policy. The importance is recognized of co-ordinated control of malaria in adjacent territories, and there are now two inter-country boards at work, one for Burma, Cambodia, Laos, Malaya, Thailand and Viet Nam and the other for North Borneo, Brunei and Sarawak.

Some other examples follow, to illustrate the application of WHO methods in this region.

The first yaws campaign was launched by the Government of the Philippines in 1951, and since then several other governments have initiated yaws projects with help from WHO and UNICEF. Negotiations are under way with other governments, so that all yaws endemic areas in the Region are being drawn into a wide regional programme.

Tuberculosis campaigns with BCG mass vaccination have been undertaken by ten countries with help from UNICEF. Tuberculosis services are being improved and expanded and the idea that tuberculosis should be viewed as a public-health rather than a clinical problem is gradually gaining acceptance.

WHO's assistance for the control of communicable diseases has also included work on bilharziasis, leprosy, trachoma and poliomyelitis.

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1 This board is in fact inter-regional.
Interest is growing in environmental sanitation and its effect upon the people's health. Governments have been assisted to define their sanitation problems and to include sanitation in their health programmes.

In many countries it was found that there was not enough trained nursing staff for the efficient operation of health programmes. Almost every country in the Region has received WHO assistance for the improvement of its nursing and midwifery services.

In maternal and child health also, the greatest handicap has been lack of qualified staff. The needs are still great, but a number of the main problems are gradually being overcome: WHO has provided consultants, and fellowships; UNICEF has helped with equipment and supplies.

In many countries where the health needs are greatest there are no adequate statistics. A seminar on vital and health statistics was held in Japan in 1952. Surveys have been undertaken and recommendations have been made to governments.

The value of inter-country and inter-regional projects was early recognized. Within the limited funds available, activities benefiting more than one country and inter-country projects have been encouraged as far as practicable, sometimes in co-operation with other regions. Eighteen inter-country projects have been carried out and twenty-eight are being planned.

SOME TRENDS

Ten years is a relatively short period for identifying general trends in the work of a body such as WHO. But in certain subjects particular trends are clear and are described in some of the following chapters.

There is no doubt about one trend—the amount of work. As measured by such indices as the size of the budget and the number of staff, it has almost trebled during the decade. The small number of country projects in the few “priorities” of the First World Health Assembly in 1948 contrasts with the hundreds in 1957 in a wide range of health and medical subjects.

The character of the projects has been changing. The single service of limited scope has been increasingly replaced by the comprehensive project that assists a country to organize, for example, a mass campaign against a communicable disease, or provides a visiting team of medical teachers.
have also been more fully planned and more carefully controlled in their operation. A normal sequence is now the initial survey, the associated epidemiological review, the operation of the project and the final analysis of work done. Regional work has also been broadened by the more frequent requests in recent years for inter-country projects, demonstrations or seminars.

There has been a significant and natural trend in the educational and teaching programmes. The early single fellowship is now often replaced by a system of fellowships provided as part of a whole country programme, and visits by full teaching faculties, as well as by single teachers, are now used to assist local education programmes. Educational meetings are more prominent in number and variety. Seminars, study groups, and conferences, as well as group training programmes such as courses, have become a feature of most technical programmes in recent years. Co-ordinated programmes in which several national and international agencies co-operate have become more important. Indeed the amount of time now given to co-ordinating plans and programmes is growing year by year.

As the scientific basis of medicine and health has expanded, recent technical programmes of the Organization have included such subjects as radiation medicine, insecticide resistance, and antibiotics.

In conclusion, three general statements on trends may be ventured: action to meet emergencies is giving place to programmes, planned in advance, for a period of years; projects to bring about a particular advance are giving place to educational work from which general advance may come; and emergency action to control communicable diseases is giving place to investigation of their fundamental causes, and to work for the eradication of some.
CHAPTER 12

Malaria

The Interim Commission of WHO, recognizing the importance of malaria, decided that immediate action was necessary; it accordingly convened, early in 1947, an Expert Committee on Malaria to study and advise on this problem.

The general facts about the distribution and prevalence of malaria in the world at this time were known in detail for some areas, and roughly for almost all. Of the four varieties of the infection the two most important, due respectively to the parasites *Plasmodium vivax* (vivax malaria) and *P. falciparum* (falciparum malaria), were estimated to affect some 300 million persons yearly and to cause about three million annual deaths. Though principally a tropical disease, malaria has existed as far north as Archangel (64°N) and as far south as Córdoba in Argentina (32°S).

Despite the high figure of annual deaths, and though it is often a major cause of infant mortality, the importance of malaria consists mainly in the chronic invalidism it produces. It is insidious rather than dramatic in its effects except when, for reasons imperfectly understood until recently, an epidemic flares up, as in Ceylon in 1934-35. It leads to an increased number of deaths from other causes, impairs physical and mental development, and affects fertility and birth rates. It has serious repercussions on agriculture, commerce and industry. Wherever it exists, human progress is retarded or inhibited. The development of many potentially fertile areas of the world is barred by its presence; other areas, in which human activities have encouraged the breeding of the anopheline mosquitoes that carry it, have been developed and later abandoned.

The epidemiology of the disease is determined partly by climate, which affects the breeding of mosquitoes and the development in them of the malarial parasite. Nevertheless, in lands with similar climates malaria may behave
in very different ways. There are regions, notably in the Pacific islands, where malaria does not exist simply because there are no anopheline mosquitoes. Anophelines could in all probability establish themselves if introduced. There are also certain very efficient vectors which are known to be capable of establishing themselves if accidentally introduced into countries outside their present habitat, and of intensifying the transmission of malaria. The growth of international air traffic favours accidental dissemination of anophelines, a problem demanding vigilance.

Such was the problem, as seen in 1946. The old-established methods of control by minimizing mosquito breeding, and of alleviation or cure by the use mainly of quinine, had been by no means ineffective, but the potentialities of two new classes of antimalarial weapon, the insecticide DDT and synthetic antimalarial drugs, were great. The synthetic drugs had been used before and DDT during and after the Second World War, but their possibilities were as yet scarcely explored. The first report of the Expert Committee, in 1947, was devoted largely to suggestions for experiments in their use.

Although controlled experiments in the use of two new antimalarial drugs, chloroquine (aralen) and proguanil (paludrine) were proposed, the Committee placed its faith in the use of DDT against adult mosquitoes as the main instrument for malaria control. The decision was made not only on grounds of efficiency, but also for economic reasons. Malaria, poverty, low population density and lack of development are inseparables in the rural tropics. The administration of antimalarial drugs, at least weekly, would demand organization that does not exist and could not be set up in most of the affected areas. Prevention of mosquito breeding by attacking the larval forms in water becomes more expensive per person the lower the human population density. In contrast, the use of DDT as a house spray, once or twice a year, demands a comparatively small, mobile organization, and its cost, which depends on the number of houses to be sprayed, remains about the same per head whatever the population density, except in rare circumstances.

Other chemicals, notably benzene hexachloride (BHC) and dieldrin, have been developed, supplementing, not replacing, DDT. Difficulties, foreseen and unforeseen, have had to be overcome, but WHO's original policy of relying on residual insecticides for world malaria control has never been superseded.

Besides reporting on the technical aspects of malaria control, the Expert Committee made recommendations on malaria policy which were adopted
by the First World Health Assembly. Demonstration teams were to visit any malarious country requesting assistance. The basic composition of a team was a malariologist and an entomologist, with the addition of a sanitarian or a sanitary engineer. With a view to creating local malaria organizations, the Expert Committee recommended that governments should appoint nationals to understudy each member of the international team. At the same time, it was recommended that WHO should provide expert lecturers for existing schools of malariology, assist in setting up courses in malariology in regions not yet provided with such facilities, provide fellowships for individual training abroad, and circulate literature both on technical subjects and on the health education of the public.

Seven teams were operating by the end of 1949, all in Asia—four in different provinces of India, one in Afghanistan, one in Pakistan, and one in Thailand. Preparations for an eighth, in Iran, were under way. Six of these teams were established with the co-operation of UNICEF, which supplied equipment, transport, insecticides and drugs, WHO supplying the professional staff; for the seventh, WHO itself provided the supplies. In the same year, WHO assumed technical charge of malaria control among Palestine refugees. Consultants and lecturers were appointed to several centres, and facilities for training WHO fellows were established at five institutions. Forty-seven experts had been designated in over thirty countries to furnish additional technical advice by correspondence.

Expansion of activities continued smoothly in 1950, by the end of which year nine demonstration teams were at work. Those previously established had expanded their areas of operation, and in India and Pakistan during 1950 the number of persons protected from malaria was increased fourfold. In the demonstration areas of Thailand and Pakistan, and in at least one area of India, there was evidence that the transmission of malaria had actually been interrupted.

At the request of the governments concerned, several teams were able to work on other health projects during the periods between transmission peaks, and after spraying operations were completed. These included a successful kala-azar survey and treatment programme in Pakistan, typhus control in Afghanistan, a small plague control operation in south-west Bengal, the preparation of plans for filariasis control in Calicut (Madras), and certain general assistance in sanitation and public health. More consultants were
made available to assist governments and fifteen fellowships in malaria were awarded.

One of the outstanding events of 1950 was the Malaria Conference in Equatorial Africa, held at Kampala. Representatives of eighteen territories adopted a resolution recommending governments to control malaria by modern methods as soon as feasible, and to seek the co-operation of WHO in planning arrangements which, necessarily, would spread across national frontiers.

With the co-operation of UNICEF it was possible to undertake a total of twenty-two projects in 1951. The Afghanistan Government was able to take over full responsibility for two field projects, while the project in Thailand, started three years earlier with UNICEF help, led to a national five-year programme for the elimination of malaria as a major public-health problem in the country.

It was found necessary in some instances to modify the original demonstration methods. In certain areas of the world, for example, the Western Pacific Region, the reaction of the local vector of the disease to residual insecticides was not known, and had to be determined by experiment on a comparatively small scale. Doubts had been expressed whether those particular anophelines did in fact rest on the sprayed walls of houses for a long enough time after biting to pick up a lethal dose of insecticide. Pilot projects showed that the local vectors, *Anopheles leucosphyrus* in Sarawak and *A. minimus flavirostris* in the Philippines, could be attacked successfully by the usual method of spraying dwellings with residual insecticides.

In 1951 there occurred, through incidental circumstances, an event that marked a turning point in the history of WHO’s policy in malaria control. Greece, which had converted its malaria-control programme (begun with assistance from the Rockefeller Foundation) into a nation-wide DDT spraying campaign since 1946, found difficulty in procuring the DDT necessary to maintain coverage over the whole area. It was decided, instead of reducing the dosage, to continue spraying, as warranted, with the required strength in some areas, but to discontinue it altogether in others. The results proved that discontinuance of spraying in such circumstances did not result in a startling recrudescence of malaria, but cases did occur. The local malaria service established a special organization of “epidemiological surveillance”. This picked up cases easily enough, evidently before they infected enough mosquitos for the disease to become widespread again.
In 1953, this finding was discussed by the Expert Committee on Malaria and at an international conference for Asia, held at Bangkok. The Expert Committee advised that health administrations should give careful consideration to discontinuing residual spraying, with proper safeguards, after some years of malaria control. The appearance of resistance to DDT in vector anophelines in several malarious areas made the discontinuance of spraying urgent and not merely desirable. It was also hoped that, with the prospect of spraying campaigns limited in time, governments would be more easily encouraged to establish nation-wide schemes and to co-operate with one another across land frontiers. Clearly, the larger the area under control, the safer discontinuance would be, and without co-ordination of programmes across frontiers countries which eradicated malaria from their own territories would remain exposed to the danger of their neighbours' malaria and would have to maintain active control at least on their borders.

The Expert Committee, at its 1953 meeting, reaffirmed its belief in the feasibility of WHO's original aim of “eliminating malaria from the world as a public-health problem”. In 1954, the XIV Pan American Sanitary Conference gave special attention to the concept of actual eradication of malaria by intense co-ordinated antimalaria work. Eradication, previously regarded as an ideal in favourable circumstances, had now become a matter of urgency through the need for breaking the cycle of transmission before the anticipated development of insecticide resistance in the vectors. Aware of the increasing danger of resistance in anophelines; considering the good results achieved in many parts of the world (and, indeed, the almost complete absence of setbacks in the early stages of residual insecticide spraying campaigns); noting, too, the encouraging Greek experience after the discontinuation of spraying, the Executive Board brought these considerations to the notice of the Eighth World Health Assembly in 1955. As a result, the Health Assembly decided “that the World Health Organization should take the initiative, provide technical advice, and encourage research and co-ordination of resources in the implementation of a programme having as its ultimate objective the world-wide eradication of malaria.” The same resolution authorized the Director-General to obtain financial contributions and to establish a Malaria Eradication Special Account.

MALARIA

In pursuance of the Assembly's resolution a five-year plan was drafted; consultants were sent to assist countries and to assess the degree of insecticide resistance in vector anophelines where reported; a research programme was suggested to several institutes whereby insecticide resistance would be induced in laboratory colonies of anophelines so that the factors that produce resistance might be determined; "operational" research in pilot projects in the field was redoubled; established international teams in twenty-one countries intensified their work; new projects were started in Indonesia and North Borneo; consultants visited many countries, notably those of the Eastern Mediterranean and European Regions, to obtain their co-operation in an inter-regional programme of malaria eradication, the details of which were later discussed at a conference in Athens in 1956.

The Athens Conference, attended by representatives from France (Algeria), Greece, Iran, Israel, Italy, Morocco, Portugal, Turkey, Yugoslavia (and many other countries less intimately concerned geographically), endorsed as advisable and feasible the policy of an internationally co-ordinated campaign for eradication.¹ Later, experts from Egypt, Iran, Iraq, Lebanon, Pakistan, Saudi Arabia and Syria attended an advisory meeting with the Expert Committee. During the same year the policy was endorsed at regional conferences held in Cambodia, Borneo, Viet Nam and Kenya, and at meetings for countries in the Region of the Americas. The number of WHO malaria field projects rose to thirty-four, including two in additional countries—Ethiopia and Sudan.

In 1956 the Ninth World Health Assembly endorsed and re-emphasized the policy of eradication. The Tenth World Health Assembly's resolution was concerned particularly with the stimulation of inter-country arrangements with a view to minimizing the danger of importation of sources of infection, and the suggestion that all governments should supply information not less frequently than once a year on the development of their programmes.

The present policies of malaria eradication, now accepted generally, have been developed from the following epidemiological and public-health considerations.

*Malaria eradication* means the ending of the transmission of malaria and the elimination of the reservoir of infective cases in a campaign limited in time. This must be distinguished clearly from two other concepts. *Malaria*

control, until recently the sole aim of campaigns in most countries, implies the reduction of the disease until it is no longer a major public-health problem. Control must be maintained by continuous active work, and the programme is therefore unending. Vector eradication means the total elimination of all members of the species concerned, so that they do not breed when the programme is ended. It is therefore a project limited in time. It is feasible, and has been achieved, in some places, but is not practicable everywhere. Malaria eradication is the application of the same principle, not to the mosquito but to the malaria parasite, and has been shown already to be applicable in many countries. As generally used, the term does not imply that vector eradication is necessarily to be achieved too. Falciparum and vivax malaria die out in infected individuals within three years; the aim of eradication is to break the cycle of transmission for three years, so that thereafter antimosquito measures can be discontinued, leaving the vector anophelines in existence but without the possibility of becoming infected—a state known as anophelism without malaria.

Anophelism without malaria is known to exist in many formerly malarious countries in which no specific antimalarial campaign has been undertaken—England and parts of continental Europe are examples. But in the tropics, too, e.g., eastern India, there are malaria-free districts, despite the presence of one or more notorious vector species, and the proximity of malaria areas. This condition, however, is not necessarily stable.

Eradiation might have remained an exceptional aim if events had not made it a preferable one to mere control. In particular, as already stated, the fear has arisen that the permanent maintenance of control by means of the residual insecticides might prove to be impossible, owing to the development in the vector mosquitos of resistance to the effects of these. Besides this, an eradication campaign calls for the provision of special finance for a limited time only, a necessity more easily understood by the local people and their legislative representatives than indefinitely continued expenditure on malaria control.

A malaria eradication programme is a development of normal malaria control, but differs radically from mere control in a number of ways, apart from those already mentioned. The standard of its execution must be perfect, and must be checked by constant surveillance of the population for fresh cases. The source of any case must be investigated, and spread from that source
prevented. As the campaign approaches its goal, the detection of residual foci of transmission becomes more important. This may be difficult as many foci are likely to display themselves only through the movement of residents, to appear as malaria cases in areas supposedly cleared of the disease. The source of the infection must be sought, and may turn out to be overlooked hamlets or possibly a group of regular migrants.

Whatever the mechanism of an eradication campaign, its task is accomplished when the evidence of surveillance and a methodical search for cases indicate that transmission is completely ended and that the number of potentially infective carriers is reduced, if not to zero at least to an insignificant level. The active campaign is then discontinued, but it is the essence of a successful eradication campaign that it must include a surveillance organization efficient enough to recognize reintroduction at the earliest possible moment. It is to be assumed that the apparent elimination may not be perfect, and that immigrants or infected mosquitos from outside the country may reintroduce the disease. While anopheline vectors exist, this may happen at any time. The most likely source is an immigrant or a person with long-standing symptomless infection, who will therefore not be detected as a case but will infect a certain number of anophelines. The appearance of even one such case must be the signal for an immediate intensive search for other cases, and also for a temporary and local antimosquito campaign. The number of secondary cases arising from this source will be fairly small, but being non-immunes they will become highly infective to mosquitos. Malaria is then transmitted with increasing frequency until an obvious epidemic results.

The speed with which an epidemic may result from the reintroduction of malaria into a malaria-free area depends on temperature and the characteristics of the local vector mosquito. Theoretically, infection due to *P. falciparum* could reach 100 per cent. in less than two months after the appearance of the secondary cases, and *wivax* infection in not much over a month.

Deliberate eradication has been accomplished, and is standing the test of time, in several formerly malarious countries, notably in the Mediterranean areas and the Americas. Its general feasibility, however, has been the subject of argument and confusion: in some countries routine campaigns with residual insecticides achieve excellent results, while in others similar campaigns (carried out with equal efficiency) diminish the numbers of the vector mosquitos, but not the incidence of malaria. For example, Ceylon and African
territories differ radically in the pictures they present of malaria and its amenability to control.

The distinction between apparently irreconcilable conditions has been explained by a minute study of the epidemiology, in particular of the characteristics of different species of anophelines. Such epidemiological principles now govern the strategy of malaria eradication.

A process of sexual development, requiring twelve days in optimum climatic conditions, takes place in the mosquito, which in order to transmit malaria must bite at least two humans at not less than twelve days' interval. This being so, several individual characteristics of different vector species are of great importance. The longevity of the mosquito, its appetite for man as compared with its appetite for lower animals, and the frequency with which it feeds are the most important. Two extreme examples will illustrate this. The natural mortality of Anopheles gambiae, the principal vector in tropical Africa, is about 10 per cent. per day. This mosquito feeds only on man, and bites usually every other day. One of the most important vectors in India and Ceylon, A. culicifacies, has a daily mortality of 22 per cent. Moreover, it feeds on lower animals in preference to man. The chance that A. gambiae will take a single human feed in its lifetime can be calculated to be 136 times as great as the chance that A. culicifacies will do so. Their respective chances of taking two bites within the interval necessary to transmit malaria are very much more divergent.

A further conception must be explained, that of the reproduction rate of malaria, which is the number of fresh cases to which each existing case gives rise in the prevailing circumstances. If this rate is more than one, malaria will increase until the community is saturated with it, and will remain at this level. If it is less than one, malaria will decrease and eventually die out. If A. gambiae is the local vector, the reproduction rate is maintained above one if each case infects no more than one mosquito. If the vector is A. culicifacies, attracted more to lower animals than to man, 800 mosquitoes must be infected by each human case to maintain the reproduction rate of malaria at one.

These calculations provide a complete explanation of the difference between malaria carried by the two mosquitoes. With A. gambiae as the carrier, malaria saturates the community, and is stable from year to year and decade to decade. With A. culicifacies as carrier, the maintenance of malaria depends
on the existence of a large mosquito population. Any antimosquito measure may be sufficient to reduce the local reproduction rate to below one. On the other hand, if breeding increases in a malaria-free area an epidemic is the first result. Such malaria is in fact unstable.

*A. gambiae* and *A. funestus*, the vectors in tropical Africa, typically produce stable malaria. *A. gambiae*, in particular, has every quality required for the successful transmission of malaria. A strong, long-lived mosquito, which bites man in preference to any other animal (except at the extremes of its geographical range), it takes large blood meals and is likely to acquire infection from minimally infective humans; its eclectic breeding habits make antilarval campaigns against it difficult; it tends not to rest for a lethal length of contact on insecticide-treated surfaces; in several areas it has developed a practically complete resistance to the effects of some insecticides. It has been exterminated by very thorough antilarval campaigns from two areas, Brazil and Egypt, which it invaded outside its normal habitat. This is one of the striking contributions made to international health by the Rockefeller Foundation in assisting country services. However, its extermination in Africa south of the Sahara and north of the Union of South Africa is probably impossible. Malaria eradication in the area in which *A. gambiae* is the carrier is a problem of much greater difficulty than anywhere else in the world, with the possible exception of New Guinea. *A. gambiae* has been the subject of a WHO monograph.¹ Its biology and other characteristics are at present the subject of intensive research.

There are other vectors of a stable type of malaria: *A. minimus* in Assam, *A. fluviatilis* in South India, *A. sacharovi* and *A. labranchiae* in the Mediterranean zone. In their presence, anophelism without malaria never occurs naturally.

The malaria policy described above has had an indispensable counterpart in the technical field: detailed working-out of methods and terminology.

It was essential that malariologists of different countries should speak exactly the same technical language. Considerable confusion in the terminology of malaria still existed in the nineteen-forties, extending even to the zoological names of the different species of parasite. A WHO committee undertook

¹ Holstein, M. H. (1952) *Biology of Anopheles gambiae*, Geneva (World Health Organization: Monograph Series No. 9)
the task of drafting a standard terminology, of which English and French versions were published in due course.\(^1\)

Another WHO committee assisted research into the properties and uses of the new synthetic antimalarial drugs, and collated the results in a monograph published in 1955.\(^2\)

It is still accepted that chemotherapy and chemoprophylaxis can play a most important part in malaria control and eradication. Antimalarial drugs are available in the event of an epidemic resulting from failure of control with residual insecticides. Some of the new drugs appear to exert a prophylactic action if given only once a month. Even that is a difficult administrative task, though strikingly good results were achieved in Morocco by giving a very high proportion of the population monthly doses of chloroquine, amodiaquine, or pyrimethamine. In Brazil chloroquine was administered by mixing appropriate amounts of it with common salt. Subsequently WHO sponsored further controlled experiments in this technique. An important discovery, with regard to mass drug prophylaxis, was that pyrimethamine is secreted in human milk in sufficient concentration to be effective as a prophylactic for child as well as mother. Finally the last stage of an eradication campaign, epidemiological surveillance, depends on the rapid and efficient treatment of all discovered cases.

Because of their possible danger to man, it was vitally important to ensure that residual insecticides could be used without danger on a mass scale, by operators of low education. In 1953 a monograph was published outlining the hazards to man from the use of toxic insecticides.\(^3\) In 1956 a study group recommended protection measures for workers applying insecticides of the chlorinated hydrocarbon and organo-phosphorus groups.

The various reports of the Expert Committee on Insecticides deal with specifications for the chemical, physical and biological characteristics, dosages and keeping qualities of insecticides and their formulations, and for the design, construction, reliability and efficiency of spraying apparatus. These have

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2. COVELL, G. et al. (1955) Chemotherapy of malaria, Geneva (World Health Organization: Monograph Series No. 27)

3. BARNES, J. M. (1953) Toxic hazards of certain pesticides to man, Geneva (World Health Organization: Monograph Series No. 16)
been useful in ensuring the efficiency of campaigns in the field. For example, in the early days of residual spraying, difficulties arose in different campaigns because of the poor suspensibility of water-dispersible powders.

The effectiveness of a residual insecticide depends on mosquitos resting on the sprayed surface for an adequate length of time. Certain malaria vectors tend by nature not to rest indoors, and others (by genetic selection or acquired behaviour) soon cease to rest on sprayed walls. The Athens Conference therefore recommended that in some Mediterranean areas, where malaria is carried by such elusive vectors as *A. sergenti*, spraying should be extended to external resting places as discovered by careful field research, and in other circumstances that larvicidal campaigns, with the old weapons of oil and Paris green, might have to supplement the effects of residual spraying.

The most serious problem of malaria control since the foundation of WHO has been the development by anophelines of resistance to residual insecticides. The Expert Committee on Malaria, in 1950, though no examples of anopheline resistance had then been reported, anticipated its appearance at some time as other (culicine) mosquitos and houseflies were known to develop resistance. The Committee recommended the collaboration of insect physiologists and organic chemists in research on the matter.

Anopheline resistance was reported in 1951, first in Greece, where *A. sacharovi* was found resting unharmed on DDT-sprayed surfaces, and later in the United States of America, where *A. quadrimaculatus* was believed to have developed some degree of resistance after prolonged use of DDT against its larvae. In 1953, the Expert Committee, referring to this development, noted that in many large areas there was no apparent development of resistance in malaria vectors, despite the continued use of residual insecticide for periods of up to nine years. The Committee also noted that laboratory efforts to produce resistance in anophelines had been very much less successful than in the case of the housefly.

The 1956 Athens Conference, already referred to, noted that certain anopheline vectors in Greece, Indonesia and Saudi Arabia were developing resistance. But it was most concerned at receiving information that the vector *A. gambiae* in northern Nigeria had developed some degree of tolerance to DDT after less than two years of a spraying campaign. WHO issued a series of information circulars on the resistance problem, to keep workers abreast of developments.
Residual insecticides fall into two main chemical groups, chlorinated hydrocarbons and organic phosphorus compounds. The latter, with one or two partial exceptions, are not yet free enough from risk to human life for general use. The well known insecticides are chlorinated hydrocarbons, DDT, BHC, dieldrin and chlordane being the chief examples. These fall into two groups as far as resistance is concerned. One type of resistance involves BHC, dieldrin and chlordane and related compounds; the other involves DDT and its analogues but not BHC, dieldrin, etc. With the exception of *A. sacharovi* and possibly one other species, no mosquito yet has developed resistance to both groups. The fact that resistance is generally restricted to one group offers a possible solution to local problems of resistance by using an insecticide of the other group, even though this means certain administrative difficulties. It is also possible that development of organic phosphorus compounds will later add to the insecticide armoury.

Since 1954, there has been much laboratory research on the nature of insecticide resistance. The dieldrin resistance in *A. gambiae* and the DDT resistance in *A. sundaicus* are associated with a single Mendelian factor, either a gene allele or an inversion of a length of chromosome, which in natural circumstances occurs rarely. When such a species is subjected to an insecticide campaign, individuals possessing this factor survive and eventually breed a new resistant population.

Research at the Ross Institute, London, proved that the dieldrin-BHC resistant factor in *A. gambiae* is intermediate in expression between dominant and recessive. The fully resistant mosquito tolerates about 800 times the normal lethal dose of insecticide, and the heterozygous hybrid of resistant and susceptible parentage tolerates 50 times the normal dose. In *A. sundaicus*, on the other hand, the resistant factor is recessive, and only the offspring of parents both possessing it will show enhanced resistance. Thus the breeding up of a new resistant community of *A. sundaicus* must be very much slower than in the case of *A. gambiae*.

A practical method of testing for resistance in any community of anophelines evolved from this laboratory research work. If mosquitos of the species under investigation are subjected to a certain predetermined dosage of insecticide, then even a single survivor proves the factor of resistance to

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TUBERCULOSIS

BCG vaccination in Viet Nam

X-ray examination at a tuberculosis centre in India
THE CAMPAIGN

French Cameroons: preparing dieldrin spray

Iraq: spraying the inside of Kurdish tents
AGAINST MALARIA

Liberia: recording the date after spraying a house

Iraq: water in which mosquitoes breed is examined to find the type of mosquito larva.
A yaws control team in a Fijian village
be present. Laboratory experiment may then determine whether the factor is intermediate or recessive. If it is recessive, spraying at normal doses can proceed, and malaria eradication should be possible before the community becomes excessively resistant. If it is intermediate, spraying at normal dosages is useless, and by demonstrating this the test saves wasted effort and expenditure.

WHO now issues prepared testing outfits, the insecticide concentration of which has to be varied for different malaria-vector areas, to help field workers determine the presence or absence of resistance. The distribution of dieldrin-resistant *A. gambiae* in Africa is being mapped at present with the aid of these outfits.

The use of insecticide against the larval stage of the mosquito is believed to have hastened the development of resistance in adults, since such applications commonly cover an extensive area of mosquito population, particularly in aerial spraying. However, resistance does not appear to have occurred either in Sardinia or in Cyprus, where local conditions demanded the extensive use of larvicidal methods. Nevertheless, as an interim safeguard, WHO has recommended that the residual insecticides be used as little as possible for larvicidal work.

Nowhere has insecticide resistance appeared immediately on the commencement of a spraying campaign, for the resistance factor is always rare in a natural mosquito population.

Another problem involving genetics is that of the differentiation of *anoph* eles species by methods other than external differences. Some thirty years ago, *A. maculipennis* in Europe exhibited confusing vagaries of behaviour. It maintained intense malaria in most of southern Italy, but none in a few areas in the same zone; it was easily colonized in Holland and northern Italy, but not in Sicily; in some areas it frequented stables, in others bedrooms. Eventually it was differentiated into several sub-species by characteristics of adults or eggs which could be perceived by the naked eye or with the microscope. *A. gambiae* exhibits similar differences in behaviour which it would be more satisfactory to explain in terms of actual biologically specific types, but except for the separation of *A. melas* as a different species (by perceptible differences in the eggs) it has not been possible to do this so far. WHO is stimulating and co-ordinating research into possible differences, mainly by the microscopic study of chromosomes.
Another possible cause of ineffectiveness in efficiently applied residual insecticide is sorption of chlorinated hydrocarbons by certain types of mud used in building. A non-volatile residual insecticide applied to such a surface becomes inactive in a month or less, instead of six months or more. No reason has yet been advanced to explain why some muds should be "active" in this way. It is not difficult to make a rough and ready test of the activity of a specimen of mud, but more accurate tests must be biological—the exposure of mosquitos, at intervals of a month or two, to surfaces of the mud under test which have been treated with insecticide.

DDT and dieldrin become inactive soon after their application on active mud surfaces, particularly during periods of low humidity. However, an increase in the relative humidity may have the effect of renewing the biological effectiveness of the deposit to some extent. BHC, on the other hand, volatilizes slowly even after sorption, and actually retains its action longer on an active mud surface.

Enough has already been said of the qualities of *A. gambiae* to make it plain that the control or eradication of the malaria carried by this mosquito—i.e., the type prevalent throughout tropical Africa, south of the Sahara and north of the Union of South Africa—is a task in a category of its own. Theory suggests that this should be so, and in practice available evidence shows that three years of residual spraying by techniques which would have been successful elsewhere have not succeeded in preventing new cases of malaria. A possible exception is in high altitude malarious areas.

The *A. gambiae*-carried malaria of Africa is undoubtedly the most serious obstacle to the achievement of world eradication. It was considered by a small meeting of experts at Geneva in 1957. Admitting the comparative failure of insecticidal campaigns, the experts sought to appraise this from two angles: essential inadequacy of the method in the particular circumstances, or failure of efficiency in carrying it out.

They concluded that the explanation lay partly in inefficiency, both of men and of apparatus, and that in the particular circumstances an efficiency of almost a hundred per cent. was essential to the adequacy of standard methods. Even if this level of efficiency in carrying out the method is assumed, no general statement can be made as to the results to be expected from any one standard technique throughout the area: there must be, for each locality, adequate, accurate and reliable preliminary evaluation in pilot testing zones.
When, on the results of pilot testing, the method of control for the district is chosen and work commences, the two most important factors for ensuring success are constant checking of apparatus and close supervision of personnel at all levels. Elsewhere in the world, malaria eradication is being tackled with confidence if not without difficulties. WHO's Special Account for Malaria Eradication is intended to help in such instances.

As more and more countries achieve malaria eradication without vector extermination, the continued existence of malaria in other countries will become of increasing international importance: while the parasite exists, no country with potential vectors can forget the possibility of its importation.

Economic gains have been seen in practice to follow malaria eradication. However, another observed result is rapid growth of population, and responsible writers have expressed the fear that food supplies may not increase in proportion. While endemic malaria is itself one of the great causes of low agricultural productivity, it is realized that this danger cannot be ignored, and, therefore, a malaria-eradication campaign should be seen as part of a general programme of development and social advance.
CHAPTER 13

Tuberculosis

Since Robert Koch discovered and cultured the tubercle bacillus in 1882, much has been learnt about the transmission of tuberculosis, and the conditions that favour infection. In most of the more developed countries schemes for the control of tuberculosis had by 1948 been in force for some time; tuberculosis was a notifiable disease, and statistics of notified cases and of deaths from tuberculosis gave some idea of the size of the problem. These control schemes were of different degrees of completeness in different countries, but the main features of most of them were tuberculosis clinics (also called tuberculosis dispensaries) and tuberculosis sanatoria and hospitals. The clinics provided expert diagnosis and ambulatory treatment, and were a centre for the supervision of contacts; the sanatoria and hospitals had the joint purpose of providing treatment and of isolating advanced infectious cases. In some countries financial help was given to encourage persons suffering from tuberculosis to leave work and take treatment at as early a stage as possible. In a few countries, after the Second World War, mass miniature radiography was coming into use to discover early cases and get them treated.

In countries without reliable health statistics little definite was known about the prevalence of tuberculosis—though in most of them it was believed to be high—and tuberculosis control on the lines described was usually beyond the resources of some countries.

Before the Second World War tuberculosis had been considered a problem to be dealt with by the health authorities in each country and there was comparatively little work by international organizations. The League of Nations had assembled statistics on morbidity and mortality: individual workers, as in all medical work, had exchanged information and opinions through published material, by visits to each other's countries, and at international conferences, of which those organized by the International Union against Tuberculosis were perhaps the most important.
Towards the end of the war and in the years that followed it, the United Nations Relief and Rehabilitation Administration sent doctors and nurses to help in organizing tuberculosis control in countries, such as Greece and China, in which the disease had greatly increased as a consequence of the war. The WHO Interim Commission appointed an Expert Committee on Tuberculosis, which advised that the greatly increased incidence of tuberculosis after the war called for international support to national health administrations and recommended for this purpose a programme of training, demonstration teams and research. In 1947 the Danish Red Cross, in co-operation later with voluntary organizations in Norway and Sweden, sent doctors and nurses and technicians to several of the war-devastated countries of Europe to assist in organizing and intensifying tuberculosis control. This work was originally planned to cover all aspects of tuberculosis control but was soon concentrated on BCG vaccination, which was considered to be the measure most likely to be effective in the emergency conditions then prevailing. This decision was to have important consequences. UNICEF became interested in the work and in March 1948 the UNICEF Executive Board allocated $4 000 000 to assist the Scandinavian voluntary organizations in mass BCG campaigns in Europe and in certain countries outside Europe. Through this joint enterprise of UNICEF and the Scandinavian voluntary organizations, which became known as the International Tuberculosis Campaign (ITC), mass BCG vaccination campaigns were carried out in twenty-two countries, and a large number of international personnel were employed for the work.

The First World Health Assembly, in 1948, gave a high priority to tuberculosis in the work of WHO. The first task undertaken was the collection of information from all countries about the extent of their tuberculosis problem, the methods used for control and the facilities and personnel available. This inquiry was conducted partly by correspondence with tuberculosis specialists in each country and partly by visits of WHO consultants and others to certain countries. A report was then prepared on each country. Results showed that in most countries no reliable information about the size of the tuberculosis problem could be obtained, and no information in a form which would allow of comparison between countries. In many countries only the general impressions of hospital tuberculosis specialists and public-health administrators could be recorded. The reports also showed that in hardly any of the less developed countries had any organized effort for the control of tuberculosis yet been possible.

In the more advanced countries there had been in recent decades considerable changes in the prevalence of tuberculosis. However, while these are the
countries in which schemes for the control of tuberculosis have been most complete and have been in force for several decades, they are also the countries in which, during the same period, most attention has been given to the improvement of nutrition and housing, to environmental sanitation, and to the development of medical and social services. Even more than some other diseases, tuberculosis is affected by economic and social development, and it is therefore not possible to judge with any certainty how much of the reduction of the prevalence of tuberculosis in those countries has been due to their schemes for its control and how much is the result of economic and social improvement.

From the time of the Interim Commission, WHO had collected information and had encouraged the standardization of diagnostic techniques and uniformity of procedures. When in 1949, the Organization was ready to start planning the assistance to be given to governments in the field, it provided tuberculosis advisers in the regional offices and organized demonstration teams. These teams worked in existing tuberculosis centres or helped to set up new centres, primarily for teaching and training. As well as diagnosing and treating cases, it was necessary to develop effective methods of case-finding and after-care, and this meant training not only doctors and nurses, but all the auxiliary personnel required, particularly home visitors. The centres therefore combined the functions of the traditional tuberculosis dispensary with those performed by specialized training institutions in the more developed countries.

The first tuberculosis centres of this type to start work with WHO assistance were those at Istanbul in Turkey and San Salvador in El Salvador, both in 1950. In the years which followed others were started in a number of countries, several with joint assistance from WHO and UNICEF.

The assistance given by WHO to a tuberculosis centre consisted of providing a full team of experts for an initial period of two years, which was usually extended either for the full team or for some of the international personnel. The international team usually consisted of a medical officer (a tuberculosis specialist), a nurse, an x-ray technician and a laboratory technician (for a few projects, especially during the early years, there were two medical officers and two nurses in the team). Much of the equipment was provided by WHO and UNICEF, especially x-ray and laboratory equipment.

In the early years WHO took no direct part in the mass BCG vaccination projects; these were considered to be the responsibility of ITC, which provided the international personnel and equipment. ITC also helped a number of countries to set up BCG production laboratories. However, WHO seconded a medical officer to work in the ITC Headquarters in Copenhagen. At a later stage WHO’s work (through its Expert Committee on Biological
Standardization) in establishing minimum requirements for laboratories producing BCG for use in campaigns assisted by WHO and UNICEF, and its acceptance of responsibility for the official approval of such laboratories, after individual inspection, were of great importance in ensuring that a safe BCG vaccine was used.

On deciding not to continue its mass BCG campaigns, ITC and UNICEF—which was closely connected with the work—approached WHO to see if the Organization was willing to take over the campaigns. In the discussions which followed the view was taken that tuberculosis control was a whole, of which the BCG campaigns were only a part, and that too little was known of the interpretation of tuberculin-testing and of the effect of BCG vaccination. However, it was felt that the tuberculosis centres could have only a limited effect on the tuberculosis problem, and vaccination at that time seemed to be the only direct medical means available; and it was therefore decided that, if thorough research could be associated with the BCG campaigns, WHO could take over the work.

ITC had realized from experience that changes in techniques and methods were necessary, but that these would have to be based on careful scientific study. WHO considered that laboratory and field studies were essential to the development of effective vaccination campaigns. These considerations led WHO to establish its Tuberculosis Research Office (TRO) in February 1949, in Copenhagen. TRO worked closely with ITC and based its field research on the mass BCG vaccination projects assisted by ITC in many countries.

From 1 July 1951, WHO took over the full responsibility for the mass BCG vaccination programme, and UNICEF agreed to continue its assistance.

During the following years the research carried out by TRO had much influence on the mass BCG vaccination programme. Studies of tuberculin-testing made it possible to adopt a one-test method (Mantoux 5 TU) for selecting those who should be vaccinated. With this method, only two visits to the vaccination centre were necessary for each person, instead of the three or even four visits that had earlier been necessary. Thus fewer people were “lost” in the programme, which therefore became more effective and less expensive. The TRO developed methods for assessing the results of the mass BCG vaccination projects in terms of allergy production, which was a useful index for assessing both the BCG vaccines and the techniques used in these projects. Studies of the keeping qualities of BCG vaccine drew attention to one of the reasons for the unexpectedly low degree of post-vaccination allergy that had been found in many projects, particularly in tropical and sub-tropical countries. When care was taken to protect the BCG vaccine from light and
from the high temperatures of tropical countries greatly improved results were obtained. These few examples show that the research carried out by WHO through TRO had practical value for the mass BCG vaccination campaigns, and much of the work of the campaigns was based on it.

The need to integrate the mass BCG campaigns into the general tuberculosis-control programme, to review the position of the tuberculosis centres which were being assisted by WHO, and the need to improve the training of personnel, resulted in a re-orientation of the work. It seemed desirable, in WHO-assisted projects, to change the emphasis from treatment to preventing healthy people from contracting tuberculosis, by simple and inexpensive measures which could be applied on a community-wide scale. For this purpose it was essential to have techniques and methods suitable for application by paramedical personnel, that would be acceptable to the people of the community, and interfere as little as possible with their normal life and habits. As in the control of any other communicable disease, it was necessary that the measures should be based on a knowledge of the epidemiology of the disease and should be aimed at breaking the course of infection at the points where maximum effect could be obtained at minimum cost.

One such preventive method was the BCG campaigns, in which it had already been shown that vaccination on a mass scale was possible, and that the techniques could be mastered by non-medical personnel and were acceptable to the population. Indeed, the mass BCG vaccination projects were becoming almost too popular, and there was a danger that mass vaccination would be used indiscriminately, and not as part of a well-planned tuberculosis control programme.

At this stage another important contribution to the development of a public-health tuberculosis control programme on the desired lines had recently been made—the discovery of new antituberculosis drugs. Since the discovery of streptomycin many laboratories had been trying to find other effective antituberculosis drugs, especially drugs which could be administered orally, and a large number had been tested and recommended. The discovery of isoniazid (INH) in 1951 made it possible to consider the use of antituberculosis drugs in a public-health tuberculosis control programme. It was found that INH was the most effective of the known antituberculosis drugs; it had the further advantages of being inexpensive and easily taken by patients, and of causing very few complications when given in the doses necessary for effective treatment.

This discovery naturally had a profound effect on WHO's programme of assistance to countries in tuberculosis control (some of the work done to
find the best means of using antituberculosis drugs on a large scale is described in later paragraphs). In the meantime it appeared desirable to improve the work of the tuberculosis centres already receiving assistance, and to simplify the methods and techniques used by them.

The work of the mass BCG vaccination campaigns also improved, by the practical application of scientific facts established by the TRO and under its guidance in statistical planning and evaluation. As more national personnel were trained it became possible to reduce considerably the number of international personnel working on the projects.

Preliminary tuberculosis surveys were introduced, before vaccination projects were undertaken, to provide a sound basis for the planning of tuberculosis control programmes and to facilitate the systematic assessment of the measures used for the control of tuberculosis. The surveys were carried out by teams trained by TRO and working under its technical direction. Information about the naturally acquired tuberculin sensitivity of the population is important both for deciding whether a mass BCG vaccination project should be started and, later, for the detailed planning of the project.

With similar methods and techniques, assessment teams trained by TRO and under its technical direction undertook a systematic appraisal of the techniques and vaccines used in most of the countries in the Eastern Mediterranean, South-East Asia and Western Pacific Regions where mass BCG vaccination projects assisted by WHO and UNICEF were in progress. From this assessment conclusions could be drawn which had an important bearing on the success of the campaigns.

The Organization felt strongly the need for more research into problems directly connected with the practical execution of its work in tuberculosis. For this purpose TRO has directed the planning of the research work, the training of field personnel, the technical supervision of the field work, and the tabulation and analysis of results; the function of the project personnel in the research has mainly been limited to the collection of field data.

The following examples will demonstrate these features of the Organization’s programme.

*Prevalence Surveys for Tuberculosis.* Planning and assessment of tuberculosis control programmes must be based on objective facts collected in an unbiased way and by standard methods, which will permit comparison between results from different countries and between results from the same population groups examined at different times; and WHO has devoted much time and effort to developing standard methods and techniques for prevalence surveys. The problem was not simply to find which methods would in theory
give the most reliable information and were most suitable for standardization: it was also essential that these methods should be adaptable to conditions in different countries so that they could be applied to different population groups. Random sampling techniques, for example, had to be developed to suit practical field conditions. The tuberculin test (Mantoux 5 TU) has been proved to be a reliable, practical means of obtaining information about the prevalence of tuberculous infection in some population groups, but is quite useless for this purpose in some other groups. Systematic collection of sputum from all adults, and examination of the sputa by direct microscopy, gives reliable information about the prevalence of infectious cases of pulmonary tuberculosis. However, though it has been possible to use this method in large-scale surveys, it has also been found to be more expensive than was expected. Chest x-ray examination of everybody (except small children) followed by systematic collection and examination of sputum from every person with demonstrated pulmonary x-ray pathology seems to be the most promising method, but some of the techniques involved have still to be investigated before it can be recommended to all countries as a standard method.

Two tuberculosis survey teams started this type of work in 1955 in the African Region.

Domiciliary Drug Treatment. The Organization has kept in touch with the research being undertaken in different countries on the clinical effect of antituberculosis drugs or combinations of drugs.

For a community-wide tuberculosis control programme it is, in most countries, necessary to organize domiciliary drug treatment. In practice, this means that the drugs are given to the patient for self-administration and he is allowed to live his normal life. The clinical trials mentioned in the previous paragraph were made almost exclusively on hospital patients, and domiciliary treatment cannot be based directly on their results. A number of practical problems required study, and the Organization undertook to organize and co-ordinate such research. A large project was started in Madras, India, as a co-operative study by the Indian Council of Medical Research and WHO. The Medical Research Council of the United Kingdom undertook to conduct this research on behalf of WHO, and lent the Organization several of its personnel who had experience of tuberculosis chemotherapy trials. The object was to compare the effect of domiciliary treatment with that of hospital treatment when the same antituberculosis drugs were used, and to discover which of the available drugs (or drug combinations) was most suitable for domiciliary treatment. In this project the effect of the treatment was usually assessed on the result of the treatment of each individual patient. But it was also necessary
to assess the result of a wide scheme of domiciliary drug treatment on a community basis, and accordingly in 1957 two pilot projects were started (one in Kenya and one in Tunisia), in which the many practical problems of mass treatment in a community-wide tuberculosis control programme are being studied.

Bacteriological Assay of Tubercle Bacilli in Different Parts of the World. Different types of tubercle bacilli—such as human, bovine and avian—with quite different biological properties have been known for decades. In recent years other types of tubercle bacilli have been added to this list, such as *typhus murium*, *typhus balneus*, *typhus ulcerans* and different types of chromogenic tubercle bacilli. The biological essay of tubercle bacilli and their assignment to the different types is highly specialized work which can be done only by bacteriologists with special experience and in a properly equipped laboratory. It has become more complicated since considerable doubt has been raised as to whether the commonly used definitions of the different types of tubercle bacilli are reliable. Examination and typing of tubercle bacilli has therefore been limited to a few countries with laboratories long familiar with such work.

When a control programme is being planned for any area, it is very useful to know what types of tubercle bacilli are prevalent there. The prevalences will show whether extra-human sources of infection may be expected; the relative prevalence of different types may influence sensitivity to tuberculin; and the drug-sensitivity of different types may affect the results of drug treatment. WHO has enlisted the co-operation of five laboratories (in Czechoslovakia, Denmark, Federal Republic of Germany, France, and the United States of America) well staffed and equipped for making such examinations, to which sputum likely to contain mycobacteria can be sent for examination. These laboratories are co-operating in a study for establishing standard methods for the biological assay of mycobacteria, and the work is being carried out on lines agreed among them. WHO has acted as a co-ordinator, and is also responsible for the collection of the specimens to be examined and for their shipment to the laboratories. This study should in time also provide reliable information about the world distribution of the different types of mycobacteria, including tubercle bacilli.

Development of Suitable X-Ray Equipment. Chest x-ray examination is very important in a tuberculosis control programme—for prevalence surveys, for mass case-finding and for following up people under drug treatment. Photofluorography, especially with mirror cameras and 70 × 70 mm films, has made chest x-ray examination possible on a mass scale. The weak point
is the x-ray apparatus itself, including the arrangements for supply of electricity. The development of x-ray apparatus during the last decade has been mainly towards greater refinement and automatic working, with the result that the apparatus has become more complicated, more expensive and often requires more careful handling. What is needed in a tuberculosis control programme, especially in the technically less developed countries, is a simple, inexpensive and transportable (or even portable) x-ray apparatus which can be used by technicians who are not necessarily highly trained, and which will stand up to the climatic and transport conditions in those countries. In an attempt to overcome this difficulty approaches were made to a number of the leading manufacturers of x-ray apparatus, and some of those companies seconded engineers to work on WHO-assisted field projects for limited periods to obtain, on the spot, knowledge and experience which would assist the manufacturers to design apparatus more suitable for use in the countries where such projects are carried out.

Studies on the Epidemiology of Tuberculosis. Although a good deal is known about the natural course of events which cause tuberculous infection and disease to spread in a community, there are gaps in this knowledge, even on essential points, which it is important to try to fill. WHO is operating in two studies of the epidemiology of tuberculosis under widely different conditions—in rural districts of India and in Denmark.

The study in Denmark was based on the examination for tuberculosis of the Danish population made in 1950-52. The result of each person's examination was recorded on a card and the total file of those cards constituted an index of the population. Valuable information is obtained by comparing reported newly-diagnosed cases, known cases, and deaths from tuberculosis with this index. One of the questions it is essential to investigate is why adults contract tuberculosis—how often it is caused by a virulent infection early in life, and how often by recent exposure to tubercle bacilli. If the latter cause is usual, the neutralization of sources of infection will have a decisive effect on the control of the disease; if the former, tuberculosis control becomes much more complicated and lengthy—eradication might take a whole generation.

This study, called the "Danish Tuberculosis Index", was started by WHO and the Danish Government in 1950, and in 1957 was taken over by the Danish Government, with a supporting grant from WHO.

The Madanapalle Tuberculosis Research Station in India was also assisted by WHO from 1950, and in 1957 was taken over by the Indian Council of Medical Research (on behalf of the Indian Government) with a supporting
grant from WHO. The study is based on a systematic and periodical examination of the whole population in the study area. Much information about the epidemiology of tuberculosis in rural India has been obtained, and shows that this is in many respects quite different from the epidemiology of tuberculosis in Europe.

In several countries fewer people contract tuberculosis now than ten years ago, and many fewer people die from the disease, but tuberculosis remains a problem for the public-health administrator, although the nature of the problem is now somewhat different. The basis now exists for measures by which the sources of tuberculosis infection can be discovered and neutralized throughout a community. Further experience is needed of the practical application of mass case-finding and domiciliary drug treatment; but the principles established appear to be sound, and methods have been worked out for collecting the data necessary for planning their adaptation to the conditions of different countries.
CHAPTER 14

Venereal Diseases and Treponematoses

Venereal infections were included on the agenda of the Interim Commission of the World Health Organization in 1947, as one of the problems needing action. An expert committee to advise on this subject was formed, the problem was surveyed, and a programme for the World Health Organization was proposed.

From the start venereal syphilis was regarded as the most important of the venereal infections, the ill effects of the others being relatively small. Later the work of WHO was extended to cover the endemic treponematoses as well as the venereal infections.

Unstable social conditions during and after the Second World War, resulting from population movements of different kinds, caused a great increase in venereal diseases, both in countries which had been at war and in neutral countries. The incidence of syphilis, and the infant mortality due to syphilis, rose steeply in all countries of Europe and in the United States of America; and in Asia and Africa the prevalence of venereal diseases rose. It was estimated that at that time there was probably a minimum of 40 million cases of syphilis in the world.

Endemic treponematoses are found in many parts of the world and include non-venereal or endemic syphilis, yaws and pinta. Their prevalence is not precisely known but their importance is now realized. Surveys and eradication campaigns indicate that about half of the 400 million people living in rural tropical areas are exposed to infection by these treponematoses, especially yaws. There were about 50 million cases of yaws a decade ago.

In a number of countries syphilis is a non-venereal communicable infection of children and adolescents. Its transmission is closely related to primitive
standards of hygiene. Endemic syphilis was widespread in Bosnia until the mass campaign described later in this chapter practically eradicated it. Serological surveys have shown that in many areas a quarter or more of the people were infected. Endemic syphilis has also been found in many semi-arid countries of Asia and Africa, where probably several million people are at risk.

Yaws is mainly confined to the humid belt between the tropics of Cancer and Capricorn. The importance of the climatic factor is probably accentuated by poor sanitary, economic and social conditions. In many countries serological surveys have shown that from 30 to 70 per cent. of the population are infected with yaws, although in the same areas the prevalence of active yaws cases would probably be between 10 and 25 per cent.

Although pinta is caused by an organism closely resembling those causing syphilis and yaws, it affects only the skin. Its distribution is restricted to Mexico, Colombia, Brazil and neighbouring countries.

Venereal syphilis directly attacks the economically productive age group and causes immediate incapacity; late manifestations in untreated cases may cause further loss of manpower. Yaws, although its onset is in childhood, may cause much disability in young adults which may interfere with their working capacity in agriculture. Both these treponematoses therefore reduce productive power and are a financial burden to a country. The mass treatment of yaws in Haiti returned 100,000 persons to productive work, with a consequent increase in the national production.

**Development of Technical Policies and Methods**

The introduction of arsenical compounds for the treatment of treponematoses following Ehrlich's discovery of salvarsan in 1910 benefited millions of people. The League of Nations Health Organisation in 1935 proposed a standard treatment for syphilis lasting forty to sixty-five weeks. The length of treatment and the toxicity of the drugs used prevented its effective use as a public-health measure except in advanced countries with co-operative populations. These disadvantages were very marked in under-developed areas where treatment of syphilis and yaws was usually inadequate. All forms of treatment with arsenic and bismuth required a long period of supervision and follow-up of each case to ensure satisfactory results. Nevertheless, these techniques, applied through a system of dispensaries, undoubtedly reduced
the prevalence of early syphilis up to the beginning of the Second World War; for the most part they could not be employed satisfactorily against the endemic treponematoses in under-developed areas.

Ehrlich's hope in 1910 for a one-injection treatment of syphilis was most nearly achieved by the introduction of long-acting penicillin preparations in 1948. Following its development in 1940, penicillin was shown to be effective in syphilis in 1943-44 and its value in the other treponematoses was confirmed shortly after. By the use of long-acting penicillins, such as procaine penicillin G with aluminium monostearate (PAM) or the more recent preparations, the duration of treatment was greatly reduced, and toxicity was much less, so that it became possible to undertake mass campaigns against the treponematoses.

It was found that to kill the treponemes in the body in secondary syphilis a continuous minimum blood level of penicillin must be maintained for at least two weeks, but that the effectiveness of treatment was not increased by a higher level of penicillin in the blood or by its presence for a longer period. Some of the newer antibiotics are also effective against treponematoses but their cost prevents their wide use at present.

Early in the use of PAM considerable differences in blood level duration, which affected the clinical efficiency, were observed to follow the same dosage of PAM from different manufacturers. Studies co-ordinated by WHO resulted in international recommendations of minimum requirements for PAM and uniform methods of assay.

The cost of the drugs and their administration is important in mass campaigns, and as low a dose as is compatible with reasonable clinical efficacy is used: it is therefore important to have reliable penicillin preparations. Since a single dose of PAM is followed by treponemicidal blood levels lasting for many days, single-injection treatment has become practical in campaigns against endemic treponematoses. The early studies of the effectiveness of penicillin in the treponematoses were made in syphilis. No essential differences in sensitivity to penicillin have since been found between the treponemes of venereal syphilis and those of the other treponematoses.

The change from the treatment of individual patients to the treatment of whole communities in mass campaigns has caused many changes in outlook. In many mass campaigns contacts and latent cases as well as clinically identifiable cases receive PAM. WHO, by facilitating the exchange of scientific information, by co-operative studies, by organizing international symposia, through demonstrations and other work helped to modify the classical clinical outlook of practising doctors.
In 1949 a WHO Syphilis Study Commission visited the United States of America to observe the methods of venereal disease control in use and to evaluate their importance in national and international programmes. The Commission confirmed the value of long-acting penicillin and stressed the importance of administrative organization in mass campaigns.

Two international conferences on yaws control were held in co-operation with governments—in Bangkok in 1952 and in Enugu, Eastern Region of Nigeria, in 1955. The participants, from many parts of the world, at these conferences confirmed the value of single injections of PAM, the need for total mass treatment in areas with high yaws prevalence, the need to survey the whole of the population, the importance of re-surveys and surveillance in the later stages of campaigns and of developing rural health services to carry out this work.

Co-ordination conferences were held in West Africa in 1956 and 1957 and a seminar on treponematosis eradication, for countries of the Americas, took place in Haiti in 1956.

As part of the WHO programme to encourage the use of the new methods, experts were sent to many countries to study the treponematoses and to advise on their control, and fellowships were granted to doctors, laboratory workers, nurses and others. During the first ten years of WHO, 32 consultants visited countries throughout the world, and over 260 fellowships were granted for work on venereal diseases and treponematoses.

The Organization, at the request of governments, also sent demonstration teams to introduce methods of control which the government could expand from the pilot areas to the whole endemic area. In several countries—amongst them Ceylon and Egypt—national venereal disease control programmes were started, based on case-finding methods and penicillin treatment of cases and contacts that had been demonstrated in training projects assisted by WHO. In India, a small WHO demonstration project operated from 1949 to 1951 in Simla, and a later limited project at the Madras University, were followed by a nation-wide long-term venereal disease control programme conducted as part of the general health service. It is based on a post-graduate training programme for venereal disease control officers in Madras, the manufacture of modern serodiagnostic antigens in Calcutta, and the production of long-acting penicillin by the new Indian penicillin plant near Bombay.

In such projects, a well-equipped venereal disease centre is set up as a model to be copied later in different areas by local health administrations, and to be a training base for medical and auxiliary personnel. It is usually run by national staff, assisted by the international advisory team, normally
a medical officer, a serologist, a public-health nurse, and sometimes a health education specialist. As well as diagnosis and treatment the centre undertakes epidemiological measures, including case-finding by home visiting. Sero-logical services are used for diagnosis and follow-up of cases treated at the centre, and for sample surveys of different population groups, extending as the project develops. Demonstration and training centres of this type are usually placed in urban areas and supplement mass treatment campaigns against endemic treponematoses in rural areas.

In some countries, such as Afghanistan, Burma and Taiwan, where there were special problems of syphilis control, advantage was taken of the maternal and child health services for case-finding and treatment of children, adolescents, pregnant women and nursing mothers. Such projects usually also included demonstration and training, and have been carried out in co-operation between the government, UNICEF and WHO.

This approach was recommended in 1949 by the WHO Expert Committees on Maternal and Child Health and on Venereal Infections, which considered that in certain areas case-finding in venereal syphilis might be done through the family unit; that it might give a broader view of health and would be a type of health education acceptable to the people. This aspect of syphilis control is useful as a public-health technique, provided that the fathers are included as well as expectant mothers and children, so that incomplete epidemiological information and palliative measures are avoided.

**Mass Campaigns**

Although the general characteristics of WHO’s assistance to governments in connexion with treponematoses control programmes have been summarized above, it may be of interest to consider here a few selected treponematoses projects—against endemic syphilis in Bosnia and against yaws in Haiti, Nigeria and Indonesia—as illustrations of what has been done and what has been learnt.

Investigations in Bosnia during the years 1905-11 showed a prevalence of clinical lesions of 8.3 per cent. and a study between 1926 and 1933 gave a figure of 11.8 per cent. Attempts to control endemic syphilis with arsenicals were not successful. In 1948 the Yugoslav Health Administration initiated a national syphilis control programme, giving special attention to endemic syphilis in Bosnia, and requested assistance from UNICEF and WHO. It was realized that concurrent action to improve the standards of hygiene, living condi-
tions, and education would facilitate the campaign against endemic syphilis. A systematic serological survey was undertaken and in the course of the campaign some 438,000 people, 95 per cent. of the census population of the endemic areas, were examined. In all, more than two million examinations and re-examinations were made. A single injection of 1.8 mega units (6 ml) of PAM was found to be highly effective and was subsequently used in the campaign.

At first it was thought that the greatest danger to the success of the campaign would be from relapses, but it soon became apparent that relapses were negligible compared with reinfections and the reactivation of endemic foci, by cases that were missed, absent, or in the incubation period at the time of the first survey. The need for re-surveys to re-examine the entire population became evident. The best results were obtained when the entire population of a district was examined at the first survey and treatment was given to all household and family contacts as well as to patients with clinical or serological evidence of the disease. The contacts received single injections of 1.2 mega units (4 ml) of PAM. Recrudescence of the disease in the infected household occurred when contacts were not treated but not when all the household was treated. Permanent supervision of the previously endemic areas is necessary as part of the long-term programme. In Bosnia, it is provided by one or more health workers, selected from the field teams, who co-operate with the local health centres that are responsible for keeping the disease under control through their normal machinery against communicable diseases.

The results of the project showed that a treponematosis can be brought under control by mass treatment with penicillin, if it is given to contacts as well as to cases; that a programme against endemic syphilis can stimulate social advancement, which in turn makes the environment less favourable to the return of the disease; and that a treponematosis project can be the starting point for public-health development. The campaign in Bosnia gave useful experience for other mass campaigns. It was in effect a prototype and a pilot study which included clinical, therapeutic and epidemiological investigations. The mass serological testing in this early project gave valuable information.

A programme assisted by UNICEF, WHO, and the Pan American Sanitary Bureau was started in Haiti in 1950 to eradicate yaws. This gave effect to the recommendation of the Expert Committee on Venereal Infections that a pilot project to eradicate yaws should be carried out in an isolated area of high prevalence. For practical purposes every patient with lesions of any kind was considered to be a "yaws case" and the rest of
the population were regarded as "contacts". Surveys at the first stage of treatment showed that 36.5 per cent. of the population were treated as cases and 63.5 per cent. as contacts—3,501,450 persons altogether. With such a level of clinical manifestations, although no serological studies were made, the infection rate in the community would be expected to be 80 per cent. or more. The organization, training, supervision and field and office work of the campaign were such that, after initial trials, over 95 per cent. of the rural population were examined and treated. The whole rural population received an injection of PAM, either as patients or as contacts. The dose was 0.6 mega units (2 ml) per patient and 0.3 mega units (1 ml) for contacts, regardless of age. Studies in later campaigns have shown that the "contacts" included susceptible contacts of infectious cases and latent cases, many of whom would have relapsed later. Sample surveys have confirmed the observations of the people themselves and of the health and general administration that the prevalence of active yaws was rapidly and greatly reduced. Two years after the start of the campaign these surveys showed an average prevalence of active cases (infectious and non-infectious) of 0.57 per cent.

Two important lessons were learnt from the Haiti campaign: the importance of treating the whole population (total mass treatment) when the prevalence of clinically active yaws is high and thus the vital importance of taking into account the latent cases and contacts; and the relatively low dosage of PAM, 0.6 mega units (2 ml) for active cases, that was found to be effective in Haiti. Most other yaws workers prefer twice that dose, 1.2 mega units (4 ml) PAM for adult clinical cases and 0.6 mega units (2 ml) for adult latent cases and contacts, and half those doses for children under fifteen. These were also the doses recommended by the second International Conference on Yaws Control at Enugu in 1955. The practicability of eradicating yaws is strongly confirmed, for in some areas in Haiti no active cases have been found at re-surveys. In Haiti too it was shown that literate young men with simple training could carry out all the field work of the campaign, provided supervision was adequate and—as was the case—they were keenly interested in their work.

In the Federation of Nigeria, successful campaigns against yaws are being carried out by the administrations with assistance from UNICEF and WHO. A report on the work in the Eastern Region of Nigeria was presented at the second International Conference on Yaws Control at Enugu in 1955. This campaign started in February 1954 and has some special features. The field work has been done by teams of from ten to fourteen trained auxiliaries, many of whom have had much field experience. The co-operation of the people
has made it possible to call together 1000 to 1500 persons at one time, and
to deal with them in four to five hours. A survey for leprosy and mass
immunization against smallpox and yellow fever are carried out at the same
time. All records are reduced to the minimum required for evaluation of
progress. The dosage was 1.2 mega units (4 ml) for adults, and half doses
for children and latent cases and contacts; total mass treatment has been
usually employed. Re-surveys are made by simply trained village youths who
cover the areas for which they are responsible, visiting each house in turn
and seeking yaws cases and the contacts of the infectious ones. These are
later checked and treated by a senior officer.

The great reduction of active yaws has been remarkable. Equally impor­
tant has been the construction and staffing of a number of rural health centres,
financed by local elected councils. These have well planned buildings and
staff and are sited with a view to the development of a network within the
rural health service. Upon these centres, which are used also in a much wider
public health, maternity and curative service, is based the surveillance of the
population for the last few cases of yaws that might occur.

The Indonesian treponematoses control project, which started in 1950
with WHO and UNICEF help, is the largest national campaign in the world.
By the end of 1956 over 23 million persons had been examined and 3 ¼ million
patients treated in the initial treatment surveys and over 31 million examined
and one-and-a-half million treated in re-surveys. Indonesian experience and
studies have contributed largely to the good progress of this campaign. The
field work is based upon polyclinics each of which serves a sub-district with
a population of about 30,000. The work is carried out by a suitably trained
auxiliary worker (yaws scout) who, with the co-operation of the villagers and
the village headman, examines all the villagers in groups during four days
and by the nurse in charge of the polyclinic who checks the work of the yaws
scout on the fifth day and treats the yaws patients found. Re-surveys continue
automatically as soon as the sub-district is covered. Only patients with active
yaws are treated but careful observations show that a great reduction of
yaws is obtained, perhaps after a little longer time than when total mass
treatment is employed.

The Indonesian campaign is an example of the successful adaptation of
policies and recommended techniques to local conditions. Since the polyclinic
is being developed into a rural health centre, the yaws campaign is integrated
into the health service from the start of the campaign. Total mass treat­
ment is adopted in places where it would be impracticable to use the above
methods.
There are many other campaigns and most of them have some development to demonstrate. The technical policies and methods are continually being reconsidered and revised where necessary after study of work in the field.

When mass campaigns were first started, progress was hampered by the scarcity of trained national staff, and the lack of facilities for recruitment and training, as well as for maintenance of transport. Another problem was how to provide adequate supervision of field work. The situation has now improved but some difficulties are likely to continue for a considerable time. Evaluation is important in guiding the development of campaigns, and the need for periodical re-surveys and surveillance is now generally accepted.

It is recognized that treponematoses control contributes to the social and economic development of many areas: in recent years WHO-assisted national campaigns against endemic treponematoses have been approved for implementation under the Expanded Programme of Technical Assistance. UNICEF has also contributed to these campaigns.

The overall cost of treponematoses and venereal disease control has been sharply reduced since the introduction of penicillin. In dispensaries and in clinical practice the shorter treatment has greatly reduced the number of patients and has simplified procedures: the cost of personnel and administration has fallen but the cost of penicillin is still approximately half of the total cost per patient, though it is much less per patient than the cost of metal chemotherapy. The total average cost of mass campaigns per person examined is now $0.40 in some areas, all national and international expenditures taken into account; per person treated, it is less than one US dollar.

International Standardization of Serological Reagents and Methods

During the period under review much progress has been made in the international standardization of serological reagents and methods. In 1949 WHO convened a Sub-Committee on Serology and Laboratory Aspects of Venereal Infections and Treponematoses (of the Expert Committee on Venereal Infections) and in 1950 a supporting expert advisory panel was established. In the same year a WHO International Serological Reference Laboratory was started at the Statens Serum Institut in Copenhagen, which, with members of the Expert Advisory Panel on Venereal Infections and Treponematoses, has conducted
a series of co-ordinated studies that have assisted the standardization of reagents and methods in the non-treponematous serological tests for syphilis. Following the work of Mary C. Pangborn and her associates, WHO established in 1951 international reference standard preparations of cardiolipin and lecithin, which are available from the WHO International Serological Reference Laboratory at Copenhagen. A monograph on the same subject was published by WHO.¹

To make possible international comparison of these serological tests for syphilis, studies were required in the production of freeze-dried international reference sera of standard reactivity for use in calibrating antigens and techniques.

Since 1952 the Reference Laboratory at Copenhagen has co-operated in a co-ordinated study of the newly introduced Treponema pallidum immobilization (TPI) test and work on the constancy of titre and optimal survival conditions for pathogenic Treponema pallidum, and the provision of freeze-dried standard sera for the test has been undertaken.

The studies in both groups of tests have been made possible by the cooperation of specialized laboratories in many parts of the world.

In 1954 a second WHO International Serological Reference Laboratory was set up in co-operation with the US Public Health Service, at the Venereal Disease Research Laboratory at Chamblee, Georgia. It has played an important part in the above studies.

The Study of Treponemes

In 1950 the International Treponematosis Laboratory Center was established in the Department of Microbiology of the Johns Hopkins University, under the joint auspices of WHO and the Johns Hopkins University School of Hygiene and Public Health. Here the studies of treponemes of syphilis and yaws, started by Turner in Jamaica in 1932-34, were extended to treponemes from endemic syphilis and amplified to include important practical studies of freshly-isolated treponemes from different sources, to determine their characters, susceptibility to penicillin and relations to each other, and the general biology of the treponematoses was investigated. This work has clearly shown

that infection with treponemes from endemic syphilis produces responses similar to those produced by other treponemal infections. The results of these pioneer studies have recently been published by WHO.\(^1\)

**Further Research**

Although much knowledge has been gained and great progress made in the control of the treponematoses, many problems remain which urgently need further study.

Further investigations into the details of the transmission of the endemic treponematoses should be undertaken to augment the good results of mass treatment and perhaps to replace it, especially if drug resistance should appear or if drug reactions in rural communities become a serious hazard. Further studies are needed to determine the level of yaws in a community at which the mass treatment phase may be ended and the necessary surveillance handed over to the routine health services of the area.

To achieve permanent results in a yaws campaign it is essential that more should be known about how to interest a community in measures planned to help them and how to earn their continued co-operation. This is a question of health education and community development in its widest sense.

Simple tests for treponematosis should be developed that will require only simple equipment and a small quantity of blood and will give results within a few minutes of the collection of the blood. Such a test would simplify the serological surveying of samples or limited areas and would greatly facilitate the assessment of the extent and intensity of yaws in a community.

**Control of Venereal Infections in Ports**

One particular aspect of the work against venereal infections with which WHO is concerned is their control in ports and the treatment of seamen. In 1924 the Brussels Agreement—the first international health agreement to

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provide free treatment and medical care for seamen of all nationalities in major ports—was established through the co-operation of the Office International d’Hygiène Publique, the League of Nations, the League of Red Cross Societies, the International Union against Venereal Diseases and the Treponematoses, and the Belgian Government. It was originally administered by the Office International d’Hygiène Publique and it became the responsibility of WHO under the Protocol concerning the OIHP signed in New York in 1946. Sixty-seven countries have now acceded to it. The International List of Venereal-Disease Treatment Centres at Ports is now published from time to time by WHO.

In view of the reduction in syphilis and the improved status of seafarers, it is being considered whether any changes in the Agreement are desirable. A study group was called by WHO in 1956 and examined the ways in which the technical implications of the Agreement could be redefined, widened, and brought up to date as necessary.

WHO was instrumental in the establishment of the International Anti-Venereal-Disease Commission of the Rhine, on which were represented the five countries sharing the Rhine river system. On the suggestion of the International Union against Venereal Diseases and the Treponematoses, the Netherlands Government established the Rotterdam Port Demonstration Centre, with the assistance of WHO. Part of the work of the Centre is to study certain aspects of maritime venereal-disease control and the functioning of the Brussels Agreement. These subjects have also been among those considered by the Joint ILO/WHO Committee on the Hygiene of Seafarers, which has met twice—in 1949 and 1954.

Work with Other Agencies

The frequent references in this chapter to work undertaken jointly with UNICEF make it unnecessary at this stage to elaborate further the close co-operation with that organization. In addition to the work with ILO on the particular aspect of venereal disease control described in the preceding section, and with the International Union against Venereal Diseases and the Treponematoses, with which it is in official relationship, WHO has helped with and taken part in various meetings called by international bodies connected with venereal infections and treponematosis in general. Among these were the Tenth and Eleventh International Congresses of Dermatology, held
in 1952 and 1957 respectively, and the First International Symposium on Venereal Diseases and Treponematoses, held in Washington in 1956. At that symposium the international character of the venereal disease problem, and the need for co-ordinated action by all nations, were emphasized.
Ten years ago the prospects for the control of most epidemic virus diseases were poor. Highly effective vaccines were certainly available against two of the most important diseases—yellow fever and smallpox—and the control of urban yellow fever had been accomplished in many areas, but even in connexion with these diseases many problems were still outstanding. For other diseases, influenza, poliomyelitis, and hepatitis, for example, much research clearly was needed before specific control could be hoped for.

However, it became clear that the facilities available for the study of virus diseases were inadequate in many countries and often entirely lacking. A high priority was therefore given to fellowships and training courses in virology, with a view to bringing the virus laboratory into its proper place as another tool for health officers in the control of communicable disease.

With the demonstration that many viruses could be propagated in tissue culture virology has entered into a new era during the period under review. The full significance of these revolutionary developments is still difficult to appreciate. Not only have they made possible extensive epidemiological studies that were formerly impracticable, but they have opened a realistic possibility of producing vaccines against a number of different diseases. At the same time, difficulties have been created by the isolation for the first time of large numbers of viruses whose role as disease-producing agents is obscure. The identification and study of these viruses have proved a major challenge to virologists all over the world and it has become clear that international co-operation and co-ordination are essential for smooth progress. In the two principal groups of respiratory viruses and enteric viruses WHO is tackling the problem by an extension of its two established programmes on influenza and poliomyelitis.

The enteric viruses, Coxsackie and ECHO, were considered by the Expert Committee on Poliomyelitis at its meeting in 1957, and, in addition to influenza,
other respiratory viruses, including the adenoviruses, will be considered by the Expert Committee on Respiratory Virus Diseases when it meets in 1958. Plans for co-operative studies are being made.

The experience of the past few years has revealed a problem to which no satisfactory solution has yet been found. The preparation of the large variety of antigens and antisera needed in modern virological work imposes a serious burden on even the best equipped virus laboratory, and is an almost impossible task for many smaller laboratories. The greatest amount of work lies in the testing and standardization of the reagents, which is very time-consuming. Preparation of large batches of reagent would considerably reduce the number of tests needed and would result in a cheaper product, but few laboratories have facilities for large-scale production. Efforts to solve this problem are continuing.

Virus diseases are mentioned, where appropriate, in several chapters of this report—for example, in connexion with international quarantine, the zoonoses and other communicable diseases. However, the importance of recent developments in influenza and poliomyelitis justifies a more detailed review of these diseases.

**INFLUENZA**

The appearance of epidemic influenza is viewed with concern in the country initially involved, among neighbouring nations, and indeed in all continents. It was natural, therefore, that the World Health Organization should be called on to play a co-ordinating role in the struggle against the disease.

It may be useful first to examine briefly the reasons for concern at the appearance of epidemic influenza, since it will help to define the objectives of a worldwide plan.

The first is the memory of the 1918-19 pandemic which killed more than fifteen million people. No one knows whether this disaster will ever recur, for no one knows the combination of circumstances which brought it about. Assuming that it was caused by a variant of the influenza virus, there is a real basis for anxiety because, within certain limits, the virus shows no stability in nature and, as far as is known, a variation that has occurred once may occur again.
The second cause of concern is the highly infectious nature of influenza and the fact that it appears to produce no permanent immunity.

The third reason is the effect of influenza on the economics of a country. Although naturally difficult to measure, it may be considerable as records such as national insurance claims or records of absenteeism in factories show.

Finally, influenza or its main complication, pneumonia, from time to time causes many deaths. In Liverpool, for example, in 1951 the weekly death-rate exceeded the highest figures of the 1918 pandemic, although this time it was mainly the old who died; in the Netherlands in 1949, 2200 people died within a short period.

The objective of the WHO influenza programme is then to assist: first, in plans against the possible recurrence of a pandemic, and second, in devising control methods to limit the spread and severity, and consequences of the disease. Which of the two is regarded as the most important depends on the point of view. However, in the light of present knowledge they can both be approached only in one way.

Before showing how this is being attempted, it is necessary to touch briefly on some fundamental technical questions.

Three main types of the virus of influenza have so far been discovered: the two most important of them—A and B—comprise several subgroups. In the case of virus A these may differ so much as to afford little or no protection, after infection or vaccination, from subsequent infection by a virus of a different subgroup.

This was demonstrated in 1947 when a vaccine made from a strain of virus A (PR8) which had given good results in the 1943-44 outbreak, failed to give any protection at all. It turned out that the virus causing the 1947 epidemic was of another subgroup (FM1) which differs considerably from PR8. This subgroup of virus A was first detected in Australia in 1946. In retrospect that was a most important observation, because if we had known then what we know now there would have been time to prepare a vaccine before the 1947 outbreak. Nevertheless, the danger of the sudden appearance of a new strain of virus remains one of the most serious problems.

Apart from the antigenic variation just described, strains of virus may differ considerably in their ability to spread and to kill. Strains differ also in

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3 Some authorities regard the Sendai virus, otherwise known as the Haemagglutinating Virus of Japan, as a fourth type—influenza D.
their power to stimulate antibody production. The latter quality is obviously highly important in selecting strains for incorporation in vaccines.

During an epidemic the virus breeds true, within certain limits; that is to say, an outbreak caused by one strain of virus A is not related to one caused by a different strain, even if it occurs near by and at about the same time. This is of considerable importance in studying the epidemiology of influenza.

The consequences of these facts are: that successful vaccination against influenza depends on knowledge of the virus causing the epidemic; that continuous vigilance is necessary to detect new and potentially dangerous strains of virus at the earliest possible moment; and that epidemiological reports can be correctly interpreted only in terms of laboratory studies of the viruses responsible.

These are the technical conclusions which must be considered in planning to attain the objectives already set out. It will be seen that the essential knowledge required is early information regarding the nature of the virus causing an outbreak, and a careful analysis of its characters—especially its antigenic structure; and that this information must be gathered from as wide a geographical area as possible. This was appreciated as long ago as 1941, when the US Armed Forces Commission on Influenza set up a network of laboratories for the isolation of influenza virus, with a central reference laboratory known as the Strain Study Center, whose functions, as the name implies, was to study and compare strains of virus isolated in different places. Valuable though the work done by this organization was, its usefulness was inevitably restricted.

In April 1947 at its third session the attention of the Interim Commission was drawn to the problems and dangers of epidemic influenza. The Commission instructed the Executive Secretary to send an observer to the Fourth International Congress on Microbiology, in Copenhagen in July of that year, to obtain from the experts gathered there as complete information as possible on the subject. At Copenhagen an informal meeting of forty-five interested scientists was held, and a small committee of nine members from as many countries was chosen to consider how the views expressed could best be put into practice. At the committee’s request, a memorandum was prepared embodying the suggestions made, which was placed before the Interim Commission at its fourth session in September 1947.

The proposals were that a World Influenza Centre should be set up with responsibility for collecting and distributing information, carrying out and
co-ordinating laboratory work on influenza, and training laboratory workers. It would work in close co-operation with a number of regional laboratories. The Interim Commission accepted the proposals and decided to establish and finance an international influenza centre in England. The United Kingdom Medical Research Council agreed to the establishment of the World Influenza Centre at the National Institute for Medical Research in London, and the WHO influenza programme had begun.

As the network of regional and national influenza laboratory centres developed it became clear that there would be great advantages both in speed and in convenience if another international reference laboratory served the Western Hemisphere. The US Strain Study Center in New York agreed to work as the Strain Study Center for the Americas, to act for the whole continent exactly as the Centre in London acts for the rest of the world. These functions have now been transferred to the International Influenza Center for the Americas at the US Public Health Service Communicable Disease Center Virus Laboratory, Montgomery, Alabama. The two reference laboratories co-operate closely so that the overall world picture can be seen.

At the end of 1957 there was a total of sixty WHO-designated influenza centres in forty countries, with the following regional distribution: four centres in the African Region; eleven in North America and six in Central and South America; two in South-East Asia; twenty-nine in Europe; two in the Eastern Mediterranean Region and six in the Western Pacific.

Many other laboratories are co-operating informally in various regions, but the network is not yet worldwide. In some countries no suitable laboratory is as yet available. As a temporary solution a number of influenza observers have been designated. They are unable to undertake laboratory studies but they furnish epidemiological reports and collect specimens which are sent to nearby centres for examination.

The functions of the Influenza Centres are twofold. First, to report with all speed the occurrence of influenza within a country, with an estimate of its extent and severity. This information is sent in parallel to WHO Headquarters in Geneva, to the regional office, and to the appropriate reference laboratory in London or Montgomery.

In time of epidemics information about the incidence of influenza is collected telegraphically from national health administrations. Frequently, however, the first news of an outbreak reaches the WHO epidemiological
services from an influenza centre and is followed by reports of laboratory results. The information is distributed in the several epidemiological weeklies issued and airmailed from Geneva, Alexandria, Singapore, and Washington, and—if sufficiently important—by cable and in the daily epidemiological radio bulletins (see Map 2, Chapter 18). In addition, summaries are sent by airmail to all the Influenza Centres at regular intervals so that the information on the prevalent virus and other technical data which is needed for the proper use of vaccines is available as soon as possible.

The second function of the Influenza Centres is to identify the type of influenza by serological tests, or preferably by virus isolation. The results are reported in the same way, and the viruses isolated are dispatched by air to the appropriate reference laboratory as soon as possible for further study and comparison with strains isolated elsewhere.

The second function raises difficulties other than the mere mechanical ones of transport. When an unusual strain is isolated, it is natural for a laboratory to wish to characterize it fully before passing it on to others. This takes time and it is just these unusual strains which are potentially so important. They may be needed at once for the manufacture of vaccine because they may have unusual virulence and ability to spread. It is essential that these strains should be made freely available the moment any unusual characters are recognized.

Strains collected by the two reference laboratories and which show obviously unusual characteristics are exchanged without further delay, so that they are available for vaccine production in both hemispheres if necessary; they are also sent to other Influenza Centres and to vaccine producing laboratories. Most strains do not show such unusual features and are subjected to careful antigenic analysis and characterization by the reference laboratories to clarify their relationship with other strains.

In co-ordinating the work of a large number of laboratories in many different countries, it is found that technical procedures vary in different places and sometimes the results obtained are not comparable. The experience of workers varies too, and many virologists ask for advice and guidance on new techniques. It is also important that new knowledge should be disseminated as widely and as quickly as possible, so that its practical application is not delayed. Sometimes special problems arise which need co-ordinated research for their solution. Sometimes several workers, unknown to each other, work
for long periods on the same approach to the same problem, causing unnecessary duplication and waste of effort.

An Expert Advisory Panel on Virus Diseases has been established to advise on influenza and other virus diseases, and an Expert Committee on Influenza was convened in 1952. The Committee reviewed the work of the WHO programme and made suggestions for more effective international collaboration. It studied certain technical questions, including the methods of comparing and typing strains, and diagnostic procedures, and gave precise details of recommended methods for performing diagnostic complement-fixation and haemagglutination-inhibition tests. It also described the preparation of antisera for the comparison and typing of strains of influenza virus, and the preparation and use of crude cholera filtrate for the destruction of inhibitors. Other subjects reviewed included influenza virus vaccines, the collection and distribution of epidemiological information, control measures, and the therapy of influenza pneumonia.

The recommendations of the Expert Committee have gone a long way towards ensuring comparable results in different laboratories, and this has been aided by the provision by WHO of standard diagnostic reagents to laboratories in the WHO network.

Space does not permit a comprehensive review of the achievements of the WHO influenza programme or of the mass of data collected in the course of the past ten years. It may, however, be useful to review briefly the behaviour of the most important influenza virus, type A, during this period which culminated in the pandemic of 1957 when the programme was subjected to its most severe test.

In the winter of 1947-48, soon after the World Influenza Centre started, an epidemic of influenza A broke out in Sardinia and soon spread to the mainland of Italy and across western Europe even up to Iceland. Strains received at the Centre were all of one serological type and it appeared that we were witnessing the spread of a particular virus. In 1950-51 another outbreak occurred which showed several unusual features. The main outbreak was preceded in May 1950 by a local prevalence in Sweden. Nothing was detectable in Scandinavia between June and September although a special watch was kept; but it was in Scandinavia—Denmark and Sweden—that the main epidemic

began in October 1950. Viruses isolated then were of the same serological type as those isolated in the previous May. In the United Kingdom there were two concurrent epidemics; a week after an epidemic due to the Scandinavian virus had broken out in Newcastle, a particularly virulent form of influenza appeared in Liverpool and Belfast and killed many elderly people. The virus responsible was a different serological type and was named the Liverpool type. This type was prevalent in countries bordering the Mediterranean though nowhere was it the cause of such a high mortality as in Liverpool. Later it crossed the Atlantic and caused influenza in North America in 1951. This Liverpool virus had previously been isolated some months before in Australia and South Africa. Thus in 1950-51 both the two main theories regarding the origin of influenza epidemics received support. The Scandinavian virus must, it is felt, have been latent in Scandinavia during the summer waiting for the right stimulus to activate it in the autumn, and then it must have spread across the North Sea and elsewhere, just as the Liverpool type apparently came from across the equator.

In 1953 the next outbreak took place. The viruses were similar to those isolated in 1951, some much like the Scandinavian viruses, others indistinguishable from the Liverpool type strains, but there was much more a suggestion of activation of latent viruses and less of orderly spread. Influenza appeared almost simultaneously in Europe, North America and Japan, and the main viruses in all three areas were of the Scandinavian type. From a few countries, notably Portugal, predominantly Liverpool viruses were obtained, but the general trend was for the Scandinavian virus to replace the Liverpool strain. There was no major influenza wave in 1955, but late in the spring there were a few influenza A cases in the United Kingdom, Ireland, New York State and India. From all these places viruses of a rather new type were isolated although there were a few of the Scandinavian type as well and a solitary Liverpool virus from Lisbon. These small spring outbreaks soon subsided but contrary to the experience of 1950-51 they were not followed in the winter by extensive outbreaks due to the new virus. Early in 1956 outbreaks of a mild character occurred in some European countries and Japan due to viruses of the Scandinavian type, but later in the spring a new antigenic variant (named the Dutch 1956 strain) was again isolated first in the Netherlands and shortly afterwards in India, Tanganyika, Canada and Berlin. This variant did not cause extensive outbreaks until December 1956 when a widespread epidemic
was reported in Japan. The virus was, however, isolated in a number of other countries early in 1957.

At the beginning of May 1957, news was received of extensive epidemics in Hong Kong and Singapore. Later information revealed that this epidemic began at the end of February in China in Kweichow Province and spread throughout China in March reaching Hong Kong about the middle of April. The delay in receiving this information re-emphasizes the importance of truly worldwide coverage in this programme. Virus was isolated in Singapore and in Japan in the first half of May; about the end of the third week in May the World Influenza Centre, the Walter Reed Army Institute for Medical Research in the United States of America, and the Walter and Eliza Hall Institute in Melbourne, Australia, announced that it was completely different from any previously isolated strain and that existing vaccines would not give protection against it. The strain was therefore immediately distributed by the World Influenza Centre and by the International Influenza Center for the Americas to Influenza Centres and vaccine manufacturers throughout the world.

The epidemic rapidly reached pandemic proportions. The infection spread widely in the southern hemisphere and in the tropics between June and August. In the northern hemisphere local introductions were noted with outbreaks in ships, military and naval units and in camps. About the beginning of September, it spread more widely, involving first schools and then the general population on a rather extensive scale. At the time of writing it had spread throughout the populated parts of the world. The disease remained essentially benign. Some deaths have been attributed to it and its complications (particularly pneumonia) but nowhere has there been anything resembling the severity of the 1918-19 pandemic, although a most careful watch has been maintained for any warning signs.

Vaccine production has presented a number of problems, most of which were fairly rapidly overcome. However, the efficacy of the vaccine cannot at present be estimated.

In spite of technical difficulties considerable quantities of vaccine have been produced in some countries. However, in view of the relative mildness of the disease, many health authorities did not consider it justifiable to expand production to the scale necessary for anything approaching nationwide vaccination.

Nevertheless, it would appear that the WHO influenza programme fulfilled the major task allotted to it. Early warning was given of the impending
pandemic in time for many parts of the world to organize health services to meet the threat and for some countries to attempt to protect priority groups by vaccination. Had the network of centres covered the whole world there would have been an additional two months in which to prepare.

This pandemic is the first to occur since modern methods for study of the virus became available. A number of studies have therefore been planned and are being co-ordinated by WHO in the hope of learning more of the epidemiology and prospects of control of influenza. One or two examples only can be given here.

The WHO Influenza Centre in the Netherlands discovered in June that antibodies to the new virus were present in some persons of over seventy. WHO was immediately informed, with the result that it was possible to arrange the collection of sera from elderly persons in some other areas not yet involved in the epidemic. The studies have confirmed the Dutch findings, a result which would have been impossible if collection of the sera had been delayed until the epidemic had reached the area. This discovery may prove to be of great importance since a possible interpretation is that the new virus is related to the virus responsible for the 1889-90 pandemic.

In view of the possibility that certain domestic animals, particularly swine, may play a role in the epidemiology of human influenza, arrangements were made by WHO to collect sera from swine and other domestic animals in different parts of the world before the epidemic reached them. Later, after the epidemic has passed, further sera will be collected from the same animals and the two compared for antibodies against the Asian strain.

Extensive studies are being made in several countries on the preparation and use of influenza vaccines, both inactivated and live attenuated virus vaccines. Studies are also in progress regarding local prophylaxis and treatment with specific serum.

These and other studies will be evaluated by the expert committee which is due to meet in 1958.

POLIOMYELITIS

Infantile paralysis is as old as history: typical results of this disease can be seen in ancient Egyptian sculptures; yet it was not until a little more than a hundred years ago that it was recognized as an entity, and only within the last sixty or seventy years has it been recognized as an infectious disease.
Early this century it was shown that poliomyelitis was a contagious disease spread both by typical and abortive cases and by healthy carriers, and that it was caused by a virus. Measures used to control other contagious diseases were therefore proposed for the control of poliomyelitis, such as quarantine of the patient and his attendants, and the safe disposal of bodily excretions. There was little or no objective information on which an assessment of the value of these measures could be based. Indeed, the general verdict of health officers was that they were of little use.

During the years following the First World War there was little progress. Primates were the only experimental animals available and their cost and the difficulty of handling them limited the work which could be done. Further, the fact that certain monkeys could most readily be infected by the olfactory route led to the assumption that this also held good for man, an error which held up our understanding of the epidemiology of the disease for many years.

Following the discovery in 1939 that type 2 virus (Lansing) could be adapted to mice, there were hopes of more rapid progress, which were to some extent fulfilled when it was shown that infection with this virus was widespread in areas where clinical disease was rarely recognized.

Rather surprisingly the incidence of clinical disease seemed to be in inverse relationship to the incidence of infection. This apparent contradiction is still not fully understood: there appear to be two probable factors, both of which may be partly responsible.

Poliomyelitis is now known to be primarily an alimentary infection, predominantly spread by the faecal-oral route, and it has been observed that the mean incidence of paralytic poliomyelitis over a number of years appears to increase as the hygiene and sanitation of a country improves. It has, indeed, been shown (in a study carried out by the World Health Organization) that the incidence of poliomyelitis tends to increase as the infant mortality rate decreases, the latter being an index of improving hygiene and sanitation. At the same time, more children of older ages are affected and eventually as much as one-third of all cases may be over the age of fifteen.

Serological surveys have confirmed that this delayed infection does in fact happen. Further, certain studies have indicated that the probability of paralysis resulting from an infection with the poliovirus in non-immune people increases with increasing age. According to this explanation, in countries
where the infection is widespread and occurs in the great majority of children in infancy, paralysis will result less often than in countries where the infection is less widespread and is delayed until school age or after.

It is difficult to explain all the facts in this way, because the difference in the incidence of paralysis after infection in the different age-groups is not sufficient to account for the difference in its incidence in countries of greatly different levels of social and economic development, unless the number of undetected cases in under-developed areas is very much higher than has been thought.

The other possibility is that there may be varieties of poliovirus which are less virulent and therefore less likely to cause paralysis. There is now conclusive evidence that such viruses exist; they have been recovered from symptomless persons and have also been evolved by passage in the laboratory. According to this theory, many of the viruses causing widespread infection in countries with poor hygiene and sanitation are of relatively low virulence and rarely cause paralysis.

Again it is not possible to explain all the facts on this theory alone, because many of the viruses circulating in these areas are fully virulent for monkeys.

It is evident that there are many factors in the epidemiology of poliomyelitis which we do not yet understand, and that the sanitary measures which have proved to be highly effective against other alimentary infections, such as typhoid fever, have been of little value in the control of poliomyelitis. In fact, they seem in the past to have done more harm than good, because their main effect has been to delay infection to an age at which it is more liable to produce paralysis. Since general control measures have been shown ineffective, specific measures have been sought in an attempt to control the disease. A vaccine against poliomyelitis was tried out in the nineteen-thirties, but for various reasons the trial ended in disaster and further progress was delayed for many years.

Before the Second World War poliomyelitis had been considered a serious problem in only a very few countries. There had certainly been a tendency for the average incidence to increase over the years and for the disease to affect older age-groups (see Table 1, showing changing age distribution in Denmark 1), but the significance of this was not fully appreciated and it was

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1 A similar tendency has also been observed in other countries.
TABLE 1. PERCENTAGE DISTRIBUTION OF NOTIFIED CASES OF POLIOMYELITIS
BY AGE-GROUPS: DENMARK, 1911-53

<table>
<thead>
<tr>
<th></th>
<th>0-1 year</th>
<th>1-4 years</th>
<th>5-14 years</th>
<th>15 years and over</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1911-20: all cases</td>
<td>8.5</td>
<td>47.1</td>
<td>32.8</td>
<td>11.6</td>
<td>100.0</td>
</tr>
<tr>
<td>1921-30: all cases</td>
<td>8.3</td>
<td>37.6</td>
<td>35.0</td>
<td>19.1</td>
<td>100.0</td>
</tr>
<tr>
<td>1931-40: all cases</td>
<td>1.8</td>
<td>18.5</td>
<td>47.4</td>
<td>32.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>
| 1941-50:  
  paralytic cases | 4.4 | 26.9 | 30.3 | 38.4 | 100.0 |
  non-paralytic cases | 2.0 | 19.0 | 47.4 | 31.6 | 100.0 |
| 1951-53:  
  paralytic cases | 3.9 | 34.1 | 29.6 | 32.4 | 100.0 |
  non-paralytic cases | 2.2 | 24.1 | 46.6 | 27.1 | 100.0 |

not until the late nineteen-forties, when the disease began to increase rapidly in some areas, that alarm became widespread. This increasing trend has continued and more countries have suffered serious outbreaks for the first time, often followed by further outbreaks of increasing severity at shorter intervals. In some countries the incidence in the decade following the war became tragically high because anything more than minimal paralysis is a permanent disability, so that in effect the morbidity from successive outbreaks is cumulative.

The extensive studies sponsored by the National Foundation for Infantile Paralysis in the United States of America after the Second World War resulted in early progress. Perhaps the first important step was that extensive typing studies undertaken by the Foundation showed conclusively that we had to deal with not one virus but three distinct immunological types.

Then came the great discovery by Enders, Weller and Robbins that poliovirus could be grown in tissue culture; this discovery completely changed the outlook, not only in poliomyelitis but in almost all virus diseases. It made possible extensive studies on the epidemiology and the pathogenesis of the disease, and, with the development of a synthetic medium suitable for the growth of poliovirus, opened up the prospect of a vaccine against poliomyelitis of a purity unapproached by almost any other vaccine.

In view of these developments the Third World Health Assembly decided that an Expert Committee on Poliomyelitis should be convened to advise how progress might be accelerated. The Committee met in 1953, reviewed existing knowledge in detail and proposed a programme which would provide some of the epidemiological information needed for the proper application of the
vaccine when it became available. Development of the vaccine was at that time making good progress, aided by the considerable resources of the Foundation, but there were serious gaps in our knowledge of how to use it. High on the list was the need for better information about the incidence and age incidence of paralytic disease. In many countries this was lacking or known to be quite inaccurate, in others there were no means of distinguishing in national statistics the relatively harmless non-paralytic form from the paralytic disease. The Third World Health Assembly had indeed already called attention to the importance of reporting the two conditions separately. Unfortunately, some countries still have not followed this advice. The Expert Committee on Poliomyelitis in 1957, repeated the advice and went further by recommending that the term “non-paralytic poliomyelitis” should no longer be used and should be replaced by “aseptic meningitis syndrome” because of the multiplicity of infectious agents which could cause this syndrome.

Because of the lack of reliable statistics, much of the information needed for decisions regarding poliomyelitis vaccination could be obtained only by laboratory tests and epidemiological surveys. But in many countries adequate laboratory facilities were lacking. Therefore, following the proposals of the Expert Committee, WHO designated in each region an experienced laboratory which could assist countries to obtain the necessary information. At the same time fellowships were granted for the training of virologists and laboratories were supplied with reagents essential for the new techniques but difficult to obtain. Extensive studies were carried out under this programme and the information collected and published gives the results of studies of the viruses prevalent in different parts of the world, including the typing of several thousand viruses, and the immunity status of populations in more than forty countries.

As is now well known, Dr J. E. Salk and his associates, aided by the National Foundation for Infantile Paralysis, in a long series of studies, worked out methods for the preparation of an inactivated vaccine. This work was brought to a successful conclusion in 1954 in the greatest field trial in the history of medicine, in which it was shown that the vaccine was both safe and effective. Immediate steps were taken to apply the vaccine in the United States of America on a large scale, and preparations for its use were also made in a

\[1 \textit{Wld Hlth Org. techn. Rep. Ser.}, 1954, 81\]
number of other countries. Probably no new public-health measure has ever
been applied so rapidly on a mass scale after the laboratory research which
led to its development. It was almost inevitable, therefore, that this transition
should be attended by serious difficulties. Considerable confusion resulted
both among the general public and among health authorities. Many health
authorities found it difficult to decide whether they should take steps to
bring the new control method into general use, and, if so, what these steps
should be.

During the late spring, summer and autumn of 1955, the vaccine was
used on a large scale in the United States of America, Canada and Denmark,
and on a smaller scale in some other countries. In November 1955, therefore,
it seemed opportune for the World Health Organization to call a meeting of
leading experts from nine countries to review the experience of each in the use
of the vaccine. Suffice it to say that apart from about two hundred vaccine-
associated cases of poliomyelitis—almost all of which occurred as a result
of a single incident—many millions of children have been safely vaccinated.
Evidence is accumulating that this has been of real value in reducing the
incidence of paralytic poliomyelitis. The group was also able to define some
outstanding problems and to plan co-ordination of further research, and the
report of its meeting presents some essential facts and important recommenda-
tions which have helped the governments of several countries to formulate
their policies on poliomyelitis vaccination. 1

Already increasing proportions of children and young adults in several
countries have been or are being immunized with vaccines based on the pro-
cedure developed by Salk. Various modifications have been introduced but
it is clear that many problems are still short of complete solution. Although
the safety of the vaccine can now be assured there is divergence of opinion on
the best way of attaining it. Vaccines of adequate potency are not yet regularly
produced and, in particular, evaluation of their antigenic potency still leaves
much to be desired. Until satisfactory methods are established and further
experience is gained many important practical questions will remain unan-
swered, notably the keeping qualities of vaccine and the optimal procedure
for immunization, including route of injection, dosage and interval between
injections, the duration of immunity and the need for reinforcing injections.

Although it is admitted that the development of inactivated poliomyelitis vaccine is a major step towards the control of the paralytic disease, many scientists believe that the final conquest of poliomyelitis may be achieved in a different way. There are large areas of the world where poliomyelitis infection is widespread but where paralysis is rare. In these areas, the balance between infection and immunity is in some places almost as favourable as we have been able to achieve by artificial means in any other infectious disease. We have seen that this balance appears to depend on the dissemination of relatively avirulent viruses among infants at a very early age. If we imitate this natural process artificially, we may be able to achieve the same results, or even to improve upon the natural balance, because we may be able to ensure that all the viruses disseminated are of very low virulence whereas in nature some are fully virulent. If this method were successful, not only would there be hope of a more solid immunity against poliomyelitis, but the possibility of eliminating or reducing the movement of virulent polioviruses in a given community might be realized—a result that cannot be attained with inactivated virus vaccine.

It is evident that the dissemination of living viruses, even though they may be shown to be of low virulence in the laboratory, is not a measure to be undertaken lightly. Prolonged and painstaking research is necessary to ensure that we can do this with safety. However, in the last few years intensive laboratory work, some of which was supported by WHO, has provided a sound foundation on which to base the selection and characterization of strains suitable for trial as live virus vaccines and the field study of vaccine using attenuated strains of all three types is already in its early stages.

All these various problems were considered by the Expert Committee at its meeting in 1957, and intensive research is under way in a number of countries on many of the problems defined. One of the most important recommendations of the Committee was for a carefully designed extension of field trials of live virus vaccine. The Committee emphasized that in making this recommendation, it did not intend that the use of such vaccines should displace the use of an inactivated vaccine in any of the areas where it is currently being used or will be used shortly; but the intention was to supplement it, or to provide a substitute for it in areas where the use of the inactivated vaccine is not feasible. A massive programme of vaccination with the inactivated vaccine is very expensive and can hardly be justified in areas where poliomyelitis is, relative to other diseases, a minor problem. Further, facilities for administering the
necessary three doses and probable reinforcing doses in the future are limited in such areas. It is believed that if the proposed trials are successful live virus vaccine will prove cheaper and simpler to administer, as it is given by mouth and not by injection, and it is possible that reinforcing doses may not be necessary. This would make it feasible to apply poliomyelitis vaccination in areas where it is at present impracticable. The Committee stressed that when deciding whether or not to introduce vaccination, countries should not only review past experience but should attempt to estimate what might happen in the next decade. Signs suggesting an imminence of epidemic poliomyelitis are a fall in infant mortality below a rate of 75 per 1000 live births and the appearance of cases of paralytic poliomyelitis in older children as well as in infants. Modifications and extension of the WHO poliomyelitis programme designed to improve international co-operation in the study of poliomyelitis and similar diseases as well as of the newly discovered groups of viruses which may be confused with poliovirus were suggested and are being implemented.

In addition to the epidemiological and virological studies already outlined, WHO has given assistance in training courses in the care of poliomyelitis, particularly the fatal bulbar form, and in rehabilitation of the physically handicapped.

In the work on poliomyelitis we have witnessed in the last decade one of the great achievements of modern medicine. In a few short years we have progressed from a situation where it seemed that nothing could be done to check an almost worldwide increase of the disease, to one where we can exert a considerable influence over the paralytic form. The last word has not been said, but in the words of the Expert Committee:

Research will continue and new facets of poliomyelitis emerge in the field, but the foundations in the past have been well and truly laid and we can feel confident now that future changes will be in detail and accent rather than in principle.
WHO's work on veterinary public health is largely concerned with the study and control of zoonoses—the diseases which are naturally transmissible between man and animals. Of the eighty or so zoonoses that have been defined, fifteen to twenty—including rabies, brucellosis and bovine tuberculosis—can be considered of major importance, causing much human suffering and death, and considerable loss of livestock. Apart from the well-established zoonoses, the adaptation of micro-organisms to new animal hosts and to man is resulting in unsuspected human-animal relationships in certain diseases, as recent findings on arthropod-borne (arbor) viral encephalitides have shown. The possible role of animals in the epidemiology of human influenza and poliomyelitis are among the problems awaiting clarification.

Until recently, incomplete statistics resulting from poor reporting have led to a serious underestimation of the extent of zoonoses in man. Their chief victims are among the people in rural areas who are in closest contact with animals, and where ignorance and primitive conditions often increase the difficulty of applying measures which experience has shown to be effective. In many areas there is a tendency to accept subclinical and chronic infections as inevitable and the first steps to combat such diseases as bovine tuberculosis, brucellosis or leptospirosis are often taken only when economic losses in livestock reach undue proportions. Health education is needed to bring to those engaged in animal husbandry simple information on these diseases. On the other hand, where there is an awareness of the problems involved, public agencies and enlightened livestock owners have pursued policies which have reduced or eliminated some of these diseases.
Much of the work described in this chapter has been undertaken in close co-operation with FAO, which is concerned with the improvement of agricultural production and methods, and the raising of levels of nutrition and standards of living, particularly among rural populations. FAO has therefore a direct interest in the diseases of livestock and in the quality of foods of animal origin. Close relations were established early between the two organizations for joint work against certain zoonoses and on milk and meat hygiene. Certain joint expert committees, joint reference laboratories and other activities to which both organizations have contributed are described in this chapter.

Rabies and brucellosis were the first zoonoses to be singled out for WHO’s attention soon after its establishment; standard methods for dealing with these and other zoonoses—Q fever, hydatidosis, leptospirosis and bovine tuberculosis—were worked out with FAO and other official or private agencies. Surveys undertaken to determine the incidence and prevalence of certain diseases have given information for planning control measures and, more generally, have brought some of the problems into clearer perspective and provided a more balanced picture of their relative importance in different parts of the world. The unsolved problems in the diagnosis, treatment and control of various diseases have been determined as a preliminary to a concentrated attack on them by research laboratories in many countries. Expert committees, conferences and seminars have been used to assess progress and disseminate information, and assistance has been given with the training of scientific and auxiliary workers.

**Rabies**

Rabies is one of the most dreaded diseases because it is invariably fatal once clinical signs of the disease have appeared. The classical Pasteur treatment for rabies is still used in many parts of the world, but it consists of a long series of inoculations, which are often painful in themselves and sometimes cause severe neuro-paralytic accidents. The total number of human deaths due to rabies is relatively small but the disease is important because of the many people who have to undergo the unpleasant course of treatment each year, and because rabies in a community causes much disruption of normal life.

Rabies was discussed at the First World Health Assembly and six months later the Executive Board instructed the Director-General to undertake a
study of current methods of treatment and control, as a first step to clearing the confusion which then existed. The results of the study were reviewed by an Expert Committee on Rabies which met in 1950. Its report recommended methods of rabies prophylaxis in man and animals on the basis of information then available but pointed to the need for research on some fundamental questions: the improvement and standardization of laboratory methods; potency tests for vaccines; the paralysis-producing factor (or factors) in vaccines; the local treatment of wounds; new vaccines; and the importance and effect on control programmes of rabies in wild animals. It was also agreed that the value of serum in human prophylaxis should be assessed in field trials. Clearly none of these problems could be successfully tackled in any one laboratory or country. During the following three years, a co-ordinated series of research projects was carried out, with the help of members of the Expert Committee and other scientists, by nine laboratories in seven countries, aided by small grants from WHO. These projects included field trials in Iran on the use of hyperimmune serum in persons severely exposed to rabies, experiments in Spain on the local treatment of wounds, field trials in Malaya and Israel of new vaccines for the control of rabies in animals, standardization of potency tests for vaccines and sera (in France and the United States of America), and studies for modified schedules of serum and vaccine for prophylaxis in man which would give better protection with less risk of paralytic accidents (in France, India, Iran, Israel, Spain, and the United States of America).

An Expert Committee, in 1953, reviewed the co-ordinated research work of the previous three years and was able to make several recommendations that marked appreciable advances. These included the use of chick-embryo vaccines for the vaccination of animals against rabies, improved potency tests for vaccines, better definition of the indications for post-exposure treatment in man, arrangements for the transfer of animals between countries, and more effective methods of diagnosis. But the Committee considered that further research was necessary on other problems of rabies control and studies were therefore continued during the next three years.

In the meantime a number of regional meetings on rabies were organized by WHO. The first was held at the Institut Pasteur at Coonoor, India, in 1952 for rabies workers in the South-East Asia, Western Pacific and Eastern

Mediterranean regions and included lectures, discussions, demonstrations and training in the latest laboratory techniques. Some of the papers on diagnosis, vaccine and serum production and potency testing presented at that meeting were later expanded and published by WHO in a monograph entitled *Laboratory Techniques in Rabies*¹ to serve as a guide for laboratories. A second meeting on the same lines was held at Muguga, Kenya in 1955 and a training course for countries in Latin America was held at Caracas, Venezuela in 1957.

The measures and techniques recommended in the first two reports and the monograph have been widely adopted; and WHO has assisted by making strains of viruses and sera available to national laboratories and by giving technical guidance. In these ways the technical collaboration of many laboratories has been made available for work on several problems.

In 1956 the Expert Committee reviewed² the cumulative results of the work done and found itself able to make a series of recommendations, some of which were distinct departures from previously accepted ideas of rabies prophylaxis and control. Among them were the combined use of serum and vaccine in treating persons severely exposed to rabies, the infiltration of serum in the local treatment of wounds, the prevention and treatment of side reactions to serum and vaccine, the pre-exposure immunization of persons repeatedly at risk of bites by rabid animals, the use of vaccines in different species and age-groups of animals in control campaigns, simplified forms for case-reporting and case-histories to improve statistics and for evaluating procedures used in prophylaxis, and the establishment and use of an International Standard Serum and a Reference Vaccine. The field trials included in the research had brought out some weaknesses of procedure, and they were corrected.

The work already done should facilitate the general use of more effective measures against rabies. But other important problems, of less immediate urgency, await solution, such as the epidemiology of rabies in wild animals, more accurate laboratory methods, further improved vaccines and reduced schedules for their use, and techniques for quicker diagnosis. These problems can now be dealt with systematically as the previous ones have been.

Two features of this work deserve special note. The first is WHO’s position as a co-ordinator of research, which enables it to enlist the help of

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many laboratories throughout the world for a joint attack on problems that could not be handled adequately in any single laboratory or country. The second is that this co-ordination, and its results, have been secured at relatively small cost to WHO.

**Brucellosis**

The importance of brucellosis lies in the physical suffering and reduced capacity for work of large numbers of agricultural workers and other exposed persons, and in the considerable losses from reduced milk production and breeding efficiency of diseased live-stock.

Human brucellosis is almost always derived from exposure to infected cattle, swine, sheep and goats, or their products; it can be an acute or a chronic debilitating disease. The areas principally affected are the Latin American and Mediterranean countries and Eastern Europe, although recent surveys indicate that the disease may be of considerable importance in Africa and Asia.

When WHO started work in this field, knowledge of the control of bovine brucellosis was fairly advanced in some countries, although several problems of diagnosis and vaccination required to be clarified. The control of swine brucellosis, however, has remained unsatisfactory because of difficult diagnostic procedures and because of the policy requiring the isolation and slaughter of infected animals discovered. The most serious of the three types of brucellosis is the *Br. melitensis* infection from goats and sheep. Since the work of the British Malta Fever Commission at the beginning of the twentieth century very little more had been learnt about dealing with brucellosis in sheep and goats or preventing its transmission to man.

These facts were discussed at the First World Health Assembly and led to a brucellosis programme designed to meet the needs of most countries. The main items of the programme were: surveys of the prevalence in man and animals; improvement of statistics; epidemiological studies on transmission; standardization of the sero-agglutination test and of diagnosis for man and animals; the simplification of bacteriological techniques for the culture and typing of *Brucella*; critical studies on human therapy; and the use of known effective measures for the control of brucellosis in animals and for preventing its spread to man.
This programme clearly required collaboration with national and international public-health and agricultural authorities. The first step therefore was to co-ordinate the work of WHO, FAO and the Office International des Epizooties (OIE)—the principal international agencies concerned with the human and veterinary aspects of brucellosis. Joint FAO/WHO Expert Committees on Brucellosis were convened in 1950 and 1952 and recommendations were made on the principal problems mentioned above. An International Standard Anti-Brucella-abortus serum was established to make the diagnostic procedures more uniform. One of the chief steps taken to implement these recommendations was to designate FAO/WHO Brucellosis Centres in different parts of the world. At the end of 1957 there were fifteen such centres—seven in Europe; three in the Americas; two in the Western Pacific; and one each in the African, South-East Asia and Eastern Mediterranean Regions. They prepare and test standard antigens, vaccines and other biological products; stimulate studies on brucellosis prevalence in man and animals, and promote programmes of brucellosis control in animals; undertake research on special problems; and serve as diagnostic teaching and information centres for their own and nearby countries. WHO has prepared and distributed over 150 documents giving information about brucellosis, based on the work done by these centres and other brucellosis laboratories. Through this exchange of information the latest advances in research have been communicated to leading brucellosis workers throughout the world. The co-ordinated work of these centres is already giving very satisfactory results. Of great importance is the progress made in the adoption of more uniform laboratory procedures, especially for the diagnosis of brucellosis and the production of biological products, so that results reported in one laboratory have precise meaning elsewhere. When difficulties or divergent results have been found by one centre it has been possible to enlist a second centre for checking.

Specifically, the centres are working on such problems as adapting the stained antigen test (Abortus Bang Ringprobe—ABR) to milk of sheep and goats; the use of cortisone and similar substances in experimental brucellosis; dissociation of Brucella; persistence of Brucella in various cheeses; development of vaccines for sheep and goats; and therapy of human brucellosis. Small financial grants or supplies for laboratory work are provided by WHO and FAO to assist certain centres. Many members of the FAO/WHO Expert Advisory Panel on Brucellosis, although not attached directly to any
of the centres, are collaborating with them in their own laboratories and clinics.

The most important problem in brucellosis today is the control of the infection in sheep and goats. Because this type of infection is most prevalent in the under-developed countries which could not carry out test and slaughter policies, the only practical solution at present is to develop an efficient vaccine. FAO and WHO have given much attention to this problem during the past five years. They have fostered collaborative studies in the FAO/WHO Brucellosis Centres at the Institut Pasteur in Tunis, and in the Department of Bacteriology in the University of California. Experiments were made first on laboratory animals to test various preparations for their suitability as vaccines and, when several promising products were obtained, a series of experiments was started on sheep and goats. Parallel with the search for a good vaccine, the pathogenesis of the disease and diagnostic procedures were studied, for they were still little understood, in spite of the time that had passed since the work of the Malta Fever Commission. The facilities of the Central Veterinary Laboratory at Weybridge, England—also an FAO/WHO Brucellosis Centre—were made available for crucial experiments to corroborate the work done in the California and Tunis laboratories. The results of this work were considered in detail at the meeting of the Joint FAO/WHO Expert Committee on Brucellosis, at Lima, in 1957, and recommendations were made on sheep and goat brucellosis which should assist in the control of brucellosis in highly affected areas.

A steady advance has thus been made by co-ordinating research, standardizing diagnostic procedures and defining the problems more clearly. Similarly, questions of the therapy of human brucellosis were closely studied in various institutions and in FAO/WHO Brucellosis Centres. This has led to the more effective treatment now available. Finally, the search for an efficient vaccine for use in sheep and goats, and improvement in the use of vaccine in cattle, were pursued systematically. WHO and FAO were co-ordinators of work undertaken by the various collaborating scientists and their laboratories.

**Leptospirosis**

For many years the problem of leptospirosis centred on rodents, particularly rats, mice and other field rodents that contaminated swamps and
other inundated areas such as rice fields. The role of dogs in the spread of *Leptospira icterohaemorrhagiae* and of “canicola fever” was known, but its importance was difficult to assess. More recently it has become apparent that leptospirosis is very widespread in domestic animals, and all the principal types of live-stock are involved—cattle, swine, horses, sheep and goats.

The first problem was to identify the immunological types of *Leptospira*, about which there was much confusion. A Study Group on Leptospirosis was convened in 1955 to decide on provisional classification of the various types of *Leptospira* and on standardized laboratory methods for their study. On the recommendation of the Group, WHO/FAO Reference Leptospirosis Laboratories were started in different parts of the world to assist in the diagnosis and typing of the organisms. At the end of 1957 six such centres—in Australia, Italy, Japan, Netherlands, the United Kingdom and the United States of America—were engaged in studies on *Leptospira* and in fostering surveys in different countries. They have undertaken to prepare reference standard sera which will be supplied upon request to other laboratories interested in leptospirosis. They are also seeking to establish a manageable diagnostic procedure for use by hospitals and laboratories in the routine diagnosis of disease in man and animals. The tests now in use require specialized procedures, and their application is therefore limited to a few well-equipped laboratories with personnel trained in that work. There has been recently some success in simplifying certain of the diagnostic procedures and it is hoped that shortly tests will be found which can be used in ordinary laboratories.

The seriousness and extent of the disease need further definition. First, however, fundamental research on technical laboratory procedures is necessary. When the new procedures have been developed they will be used in local surveys which should give more accurate information about this disease than is available at present.

*Hydatidosis*

Hydatid disease affects human populations particularly in South America and in countries surrounding the Mediterranean. It is usually transmitted to man by dogs, and, therefore, the work assisted by WHO (especially in South America through PASB—WHO Regional Office for the Americas)
has been concentrated on its control in dogs. The use of arecoline as an anthelmintic in dogs, aimed at eliminating the tapeworm *Echinococcus granulosus*, has for the past twenty years been the standard procedure in field control. The results of several years of field campaigns have shown that it is difficult to apply and not too satisfactory.

WHO has, therefore, started to co-ordinate basic research to discover an anthelmintic more effective than arecoline as used at present, and also an effective ovicide. Laboratories in New Zealand, Alaska, Lebanon and Latin American countries, and the International Hydatidological Association, are collaborating in this effort. Some procedures which seemed promising under laboratory conditions have not been found satisfactory in field work and further investigation is necessary.

*Q Fever*

Serious epidemics of *Q* fever have occurred in some countries, such as Italy, Greece and Turkey, but its extent and importance in other parts of the world were largely unknown until a few years ago. WHO, therefore, in 1952 initiated a world-wide survey with the collaboration of diagnostic laboratories in some thirty countries. WHO supplied the antigen needed for the tests and established the technical procedure for the survey, which lasted two years. The results showed that *Q* fever occurred in fifty-one countries in all continents and clearly implicated domestic livestock, particularly cattle, sheep and goats, as the principal reservoirs of the disease. During the survey some laboratories became acquainted for the first time with diagnostic procedures common to viral and rickettsial diseases and have since included this group of infections in their routine diagnostic work. Some of the epidemiological problems of *Q* fever were clarified, but others, for example, the role of ticks in transmission of the disease, still remain unsolved.

*Bovine Tuberculosis*

The bovine tuberculosis bacillus in some countries causes up to ten per cent. of all human tuberculous infections, but has been eradicated from others. The test and slaughter policies used to eliminate it from the animal population are too costly for many countries and other measures are needed.
Bovine tuberculosis was one of the subjects discussed by a Joint WHO/FAO Expert Group on Zoonoses in 1950. One of the basic difficulties has been the diversity of tuberculins and tuberculin testing procedures. WHO and FAO, in collaboration with the Office International des Epizooties, undertook work on the biological standardization of tuberculins in veterinary medicine which led to the adoption of international standard tuberculins of the mammalian and avian types.

The problem of non-specific reactors to tuberculin, now important in human tuberculosis, has been a difficulty in veterinary work for many years. The WHO Tuberculosis Research Office in Copenhagen has been in touch with the Central Veterinary Laboratory at Weybridge, England, on this matter, and WHO tuberculosis teams are also collaborating with FAO veterinarians in the field to study this problem in different areas.

**Other Zoonoses**

While WHO's work has been concentrated on the zoonoses already described, some attention has also been given—again with FAO—to other diseases. The WHO/FAO Expert Group on Zoonoses in 1950 defined the measures in agriculture and industry for the control of anthrax, and studies for rapid diagnostic tests for anthrax suitable for use in the field and abattoirs have been encouraged.

Outbreaks of psittacosis in the nineteen-thirties showed that the causative organism was not confined to psittacine birds but was found in pigeons, turkeys, chickens and other birds. The results of a survey made by WHO soon after its establishment were taken into account in the recommendations made by the WHO/FAO Expert Group on Zoonoses to change the approach to control of the disease, hitherto confined to restrictive legislation against psittacine birds. One of the difficulties in dealing with the disease is the absence of a satisfactory diagnostic test. WHO is assisting in coordinating research on laboratory techniques for diagnosis with a view to simplifying and standardizing these procedures so that they can be included in the routine tests undertaken by public-health laboratories for the detection of viral and rickettsial disease.

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The arthropod-borne encephalitides (which include Japanese B encephalitis, Murray Valley encephalitis, and the equine encephalitides) still require definition by laboratory research. Virus strains and vectors are being collected and classified in Africa, Asia and South America, where the bird and animal populations are the principal reservoirs. WHO has started to co-ordinate the research being carried out by various laboratories.

Reference is made in the chapter on influenza to the studies started in twenty-five countries in 1957 with the help of veterinary services and WHO Influenza Centres on the possible part played by swine and horses in the epidemiology of influenza.

**Meat and Milk Hygiene**

The veterinary public-health work carried out on food hygiene has been devoted principally to the prevention of transmission of diseases of animal origin, with emphasis on meat and milk hygiene. This work has been done in close collaboration with FAO and, as regards milk, also with UNICEF.

Practices with respect to meat hygiene vary greatly in different countries. In 1954 a Joint FAO/WHO Expert Committee on Meat Hygiene considered certain aspects of the subject and made recommendations that would be applicable to countries at different stages of technical development. This committee stressed the need to improve the reporting and investigation of food poisoning outbreaks, particularly those caused by meat. Abattoir hygiene, meat inspection (including laboratory investigations), and the sanitation of retail shops also received attention. A WHO/FAO Seminar on Meat Hygiene for veterinary and medical officers from European countries was held at Copenhagen in 1954, and the following year a training course on the same subject in Alexandria was attended by participants from nine Eastern Mediterranean countries. From these meetings it was evident that a comprehensive text on the detection and prevention of meat-borne diseases was required. WHO and FAO therefore published a monograph on meat hygiene based on the contribution to the Copenhagen Seminar, expanded and brought up to date. It reviews in detail the epidemiology of meat-borne diseases,

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ante-mortem care, slaughter, post-mortem inspection procedures, problems of the processing and marketing of meat, and meat hygiene problems in tropical areas. Detailed plans for abattoir construction and laboratory procedures for the examination of meat are also included and these have already been widely applied in many countries. FAO, in collaboration with WHO, is now working on the preparation of a monograph on abattoirs suitable for rural areas.

The need to increase milk supplies had directed attention to the many hygienic problems associated with the production, processing and use of milk and milk products. FAO, UNICEF and WHO have jointly run courses on milk hygiene to help in the development of milking live-stock, sterilized and dried milk, and milk by-products, and in the use of newly constructed pasteurization plants. Such courses have been arranged for European, Eastern Mediterranean, South-East Asian and Latin American countries during the past five years. A monograph on milk pasteurization\(^1\) has been published by FAO and WHO. A Joint FAO/WHO Expert Committee on Milk Hygiene, which met in 1956, made recommendations on the production, collection, transport, processing and distribution of milk, reviewed principles of milk hygiene legislation, and pointed to various matters needing further study.\(^2\) FAO, in collaboration with UNICEF and WHO, has sent survey teams on request to some countries to assess their milk problems and to advise on milk development programmes.

Since December 1952 WHO, FAO and UNICEF have co-ordinated their work by an Inter-Agency Working Group on Milk and Milk Products, which also collaborates with the International Dairy Federation and other organizations interested in the production of wholesome and safe milk.

**General Veterinary Public Health**

Seminars on zoonoses and veterinary public-health problems of interest in the European Region were held in Vienna in 1954 and Warsaw in 1957. Further seminars are planned for African, Western Pacific and Eastern Mediterranean countries. The findings of such meetings, together with the report

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of the Advisory Group on Veterinary Public Health,¹ which met in 1955, have given useful guidance on incorporating veterinary public-health work into the responsibilities of national, provincial and local health administrations. As in most branches of public health, lack of properly trained personnel has been a major difficulty. A number of fellowships have therefore been awarded. Work has also begun on incorporating veterinary public health into the undergraduate curricula of veterinary schools and into post-graduate courses at schools of public health.

**Future Trends**

Further research in which collaboration with FAO is important is needed to deal with many epidemiological problems in the zoonoses. Plans are being made, for example, to base some of this work on serological testing of humans in different age groups and of animals in different regions.

Another broad group of problems requiring early study includes influenza, the "orphan" viruses, and diseases such as toxoplasmosis, all of which are common to animals and man. The virus problem has particular urgency because of the confusion which is rapidly developing among laboratory workers and epidemiologists with regard to the classification and nomenclature of these viruses.

CHAPTER 17

Other Communicable Diseases

It has already been seen that the Organization, at the beginning of its work, gave priority to the control of certain communicable diseases, particularly malaria, tuberculosis and venereal diseases. But very early it was requested to undertake also international programmes against a great variety of other infections; also, its programmes in such subjects as school health, maternal and child health, and health administration have often included some aspects of communicable disease control.

This chapter describes work on certain diseases which have had a place of some importance in the programmes of the Organization.1 The omission of others does not imply that they have not been of local or even global importance, but merely that as yet they have not called for any large or continued international co-ordination. To the study of some of this last group WHO has made contributions on a smaller scale.

Trypanosomiasis, ankylostomiasis and leishmaniasis, for example, have in certain regions for generations caused much sickness and death, but as yet no general international co-ordination in connexion with them has been undertaken by WHO. WHO has collaborated in the work of the Trypanosomiasis Bureau of the Commission for Technical Co-operation in Africa South of the Sahara (CCTA), has assisted the study of leishmaniasis by an epidemiological survey in Iran and by other research, and has, in some country projects on environmental sanitation, assisted in the control of ankylostomiasis.

The Organization supported the trials of pertussis vaccine made by the Medical Research Council of the United Kingdom, which have shown that certain laboratory tests provide a reliable indication whether the vaccine tested is

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1 See also Chapter 18, where mention is made of some recent advances in the control of the quarantinable diseases.
likely to protect children effectively; and it is planning field and laboratory studies on the use of combined vaccines.

**Bilharziasis**

Bilharziasis is widely distributed and affects large populations in tropical and sub-tropical areas. Its incidence is increasing and the debilitating nature of the disease is a deterrent factor in food production and in programmes for economic development. The early symptoms are insidious and can be well tolerated by the patient so long as regular work is not demanded of him, but the creation of new agricultural areas, the change of irrigation schemes from periodical to perennial, the concentration of population by migration into the new regions, and the regular physical effort required for their economic development, have aggravated the problem. Such conditions can sometimes provoke a serious spread of bilharziasis, with grave clinical manifestations and increased mortality.

Before the Second World War the health authorities in Egypt and some other countries were already conscious of the medical and social importance of bilharziasis and of the economic loss that it caused. In 1938 the Health Organisation of the League of Nations prepared a report on bilharziasis and recommended epidemiological and prophylactic research, and health education. The increased attention paid to bilharziasis during the Second World War led to investigation of its distribution and of methods for its control and prevention. The First World Health Assembly recognized bilharziasis as an international public-health problem to which the Organization should give attention. A Joint OIHP/WHO Study Group on Bilharziasis in Africa was convened in Egypt as early as 1949.

Theoretically and in experimental conditions, the life cycle of the bilharzia parasite can be broken at several points—by killing the snails which are its intermediate host, by treating human patients, by good sanitation or by avoiding the risk of human infection—but in the field it has so far been difficult or impossible to apply these measures on the scale and with the thoroughness necessary. The simultaneous use of several methods has been recommended by the Joint OIHP/WHO Study Group and the Expert Committee on Bilharziasis, but so far the results have not been very encouraging and a simple, effective and inexpensive control method has yet to be found.
The need for research was emphasized by the 1949 Joint OIHP/WHO Study Group and by later groups convened by WHO on the subject. The distribution of the disease was not accurately known. The multiplicity of schistosomes causing bilharziasis in man, the variability of its clinical manifestations, the importance of schistosomes that cause schistosomiasis in domestic or wild animals and their part as reservoirs of the parasite, etc., all required further research. The intermediate hosts of the parasites had been studied, but their nomenclature and classification were still too confused to be of practical use to the field worker.

WHO has therefore concentrated its work on bilharziasis by assisting research—often in the field—on some of the subjects which the Study Group and the Expert Committee on Bilharziasis considered to be most urgently in need of elucidation. These have included epidemiological surveys, work on the identification and classification of the intermediate hosts and the parasites, and the study of the ecology of the snail hosts. Pilot projects carried out in various parts of the world with assistance by the Organization have also provided opportunities for surveys, testing molluscicides, training staff and for experiments in a combination of measures—incuding, for example, sanitary engineering, modifications in farming practices, and health education.

Epidemiological Investigations and Surveys

Following the recommendations made by the Joint OIHP/WHO Study Group on Bilharziasis in Africa in 1949, and the Expert Committee on Bilharziasis in 1952, surveys have been made in various countries with a view to obtaining an accurate picture of the geographical distribution and prevalence of human bilharziasis and its intermediate host.

The first investigations were undertaken in African territories between 1950 and 1952, and second surveys in 1955 and 1956. Nearly all the territories visited by the experts were dealt with in a comprehensive report on the distribution, prevalence, and socio-economic importance of bilharziasis which was presented to the African Bilharziasis Conference held in Brazzaville in 1956.

In the Eastern Mediterranean Region, preliminary epidemiological surveys were made in countries infected with bilharziasis, or in which infection

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was suspected, and, in some, demonstrations of methods of controlling the intermediate hosts have been given.

In the Western Pacific Region, WHO assisted with surveys in the Philippines, and the health administrations of other countries in the Region have sent information on the disease in their countries to the Organization.

The Expert Committee on Bilharziasis in 1952 made a critical analysis of methods of diagnosing bilharziasis, for the recovery of schistosome eggs in the excreta and in the tissues, and for immunological tests, and recommended standard procedures.

In a WHO-assisted pilot project in Iraq, skin-testing experiments are being made to arrive at standard reading procedures and to ascertain whether such a method would be appropriate for use in epidemiological surveys of bilharziasis and in the evaluation of control methods.

**Snail Identification, Classification and Nomenclature**

Various authorities who have written on the control of bilharziasis have agreed that the use of molluscicides against snails is the most promising method. It does not require the continuous co-operation of the population of the area (although other methods that do call for that co-operation can increase the total effect).

Before molluscicides or other control measures can be used effectively it is necessary to know in any area what species of snail are the intermediate hosts of bilharzia. This is one of the most serious gaps in present knowledge. When the studies of the intermediate hosts began it was a difficult task, even for experts, to determine their geographical distribution, for at that time the classification and nomenclature of snail species were based wholly on the morphology of their shells, and this criterion caused much confusion. The Joint OIHP/WHO Study Group on Bilharziasis in Africa recommended that a uniform classification and nomenclature of the snail vectors of bilharziasis should be established which should be based on the internal morphology of the snails rather than on the external characteristics of the shells. In 1952 the Expert Committee on Bilharziasis, which met in Puerto Rico, again emphasized the continuing confusion regarding the status of many species of snail vectors and advised that further malacological studies should be

undertaken—preferably to begin in Africa. Two years later a Study Group on Bilharzia Snail Vector Identification and Classification (Equatorial and South Africa) compiled for the use of field workers a tentative list of various African species of *Biomphalaria* and considered the principles of classification and criteria for identification. It made suggestions as to the essential information that should accompany collections sent for identification and on methods of preserving the specimens. WHO is therefore encouraging research work to determine the uniform anatomical characters of the soft parts of the snail and to revise the nomenclature and establish systematic names for the many species already described, so that identification keys may be provided, simple enough to be used by persons in charge of investigation or control work in the field. Three central malacology laboratories have been established, in Copenhagen, Paris, and Salisbury (Southern Rhodesia), to study the proper species-identification of snails collected during surveys in Africa and the Eastern Mediterranean Region.

By this collaboration between field workers and the identification centres a provisional map has been prepared of the distribution of intermediate hosts in the African Region, and a classification of African *Planorbidae* has been prepared and published by WHO. A definitive classification and nomenclature for *Planorbidae* cannot be established on African species alone, and this work has to be co-ordinated with that of malacologists specializing in American *Planorbidae*.

The classification work will make it easier to determine what species of snail act as intermediate hosts in different countries and conditions, to study their ecology and learn how they can best be killed or prevented from breeding, and to find poisons or biological enemies that will eradicate or effectively control them. On this knowledge can also be based systems of water management, and other engineering or agricultural techniques that will remove conditions favourable to the growth or breeding of snails.

**Ecological Studies**

As has already been said, the failure to control the intermediate host by chemical, physical or biological means is due, at least in part, to insufficient

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knowledge of the ecology of the snail. Knowledge of its life history, life span, mortality rate in relation to the environment, breeding season, the physical, chemical and biological factors conditioning its habitat, the seasonal and climatic factors affecting its life cycle, and the factors influencing the repopulation of the habitat, is essential for a rational and economical campaign. It is obvious that even the best chemical product will give poor results and may cause a waste of money and effort unless it is applied by methods adapted to the different local conditions, and after carefully planned pilot experiments.

The Organization is stimulating laboratory and field work on the biomics and ecology of the intermediate snail hosts. Ecological studies have been carried out in connexion with WHO-assisted bilharziasis control projects: in Egypt and Iraq preliminary surveys were a basis for the planning of the projects; in the Philippines such surveys are one of the most important aspects of the programme and have added to the knowledge of Oncomelania. Studies of the ecology of $O. quadrasi$ have suggested certain natural methods that might lead to its control.

In East Africa, ecological studies are part of the work of a WHO team working at the Institute of Malaria and Vector-borne Diseases, Amani.

WHO has also been in close contact with the bilharziasis projects carried out in Brazil and other Latin American countries with assistance from PASB.

In 1956 WHO convened a Study Group on the Ecology of Intermediate Snail Hosts of Bilharziasis, which analysed the latest available information and its application in various control measures. The Group examined sampling methods for testing the density of snails and suggested subjects most urgently requiring further investigation—preferably by scientists of several disciplines working in co-operation.

**Practical Control**

Among the methods suggested for the control of bilharziasis are environmental sanitation, medico-social education, mass drug therapy, and snail control by natural biological means or by chemical molluscicides. Each of these methods applied singly would reduce the risk of transmission, and their cumulative effect, with good timing and a well-applied strategy, should be able to break the chain of transmission.

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After laboratory tests of several thousand chemical molluscicides, mainly by scientific institutes in the United States of America, new compounds have been discovered with most of the qualities desired. The snail-killing powers of the new chemicals have been tested in the field in the Americas, Africa and the Western Pacific. In WHO-assisted pilot projects, the results obtained with the new products have been compared with those using copper sulfate. It was found that copper sulfate frequently applied reduces the snail density but is not adequate to reduce the incidence of the disease: sodium pentachlorophenate gives better results and seems more effective, but it too needs repeated application.

In the Philippines, a group of WHO experts assisted national staff in planning a long-term pilot project to determine the most effective and economical means of controlling bilharziasis. In eastern Leyte, experimental modifications in the methods of rice culture showed that one system provided three rice crops a year and led to substantial reductions in the snail density.

Control by irrigation engineering has also been tried successfully, and by clearance and drainage good agricultural land has been reclaimed. After drainage and the consequent change of vegetation, the snail practically disappeared and was found only in the drainage canals. Fish ponds have been constructed and the surrounding swamps filled in. The fish keep the ponds free from snails, and provide a source of protein.

The concentration of snails in irrigation channels in these ways may facilitate their control; the application of chemical molluscicides would then be practicable and could even lead to the eradication of the snail population at comparatively low cost.

The findings of this project are expected to clarify many epidemiological factors that are still obscure and should help in different ways to facilitate the control of bilharziasis in the Western Pacific Region.

Antimony compounds and lucanthone hydrochloride are at present the standard drugs for the mass treatment of infected populations. Although mass treatment affects the severity of infection and the rate of serious complications, it does not completely cure, and the chronicity of infection and the reservoirs of adult parasites in animal hosts prevent complete elimination of the infection. The toxicity of these drugs is also a handicap. The lack of a satisfactory therapeutic drug is a major handicap to the control of bilharziasis.
Prevention of Bilharziasis in Newly Developed Areas

Potential intermediate hosts of bilharzia are often present in wider areas than the corresponding infection. This usually indicates that the parasite has not been introduced or that the circumstances do not favour transmission at a sufficient intensity to produce endemicity.

Man's interference with natural conditions is making many new snail habitats, and economic development is opening up new areas to bilharzia. Where the development of industry results in the concentration in a newly irrigated area of a population that was previously scattered, an increase in the infection rate may follow.

The Expert Committee on Bilharziasis and other advisory groups convened by WHO to consider particular aspects of the disease have repeatedly called attention to this problem and to the importance of preventing the spread of bilharziasis in newly irrigated areas, and have suggested various methods of control for use in connexion with irrigation schemes.

Following a request by the Executive Board in January 1950, a formal cautionary notice was sent by WHO to all governments and interested inter-governmental agencies about the risk of introducing bilharziasis or increasing its intensity by irrigation schemes. The Organization has endeavoured to define guiding principles on which engineers may plan comprehensive irrigation schemes so as to prevent or reduce the frequency of transmission. It is planned to send an advisory team of consultants to countries that are developing irrigation schemes in order to determine practical ways of reducing the transmission of bilharziasis by the irrigation systems.

Training of Personnel

One of the greatest difficulties encountered in the study and control of bilharziasis is the lack of qualified and skilled personnel. The various advisory groups convened by WHO on bilharziasis have stressed the need to train key workers in malacology, ecology, epidemiology, parasitology and sanitary engineering, and have highly recommended international training courses for post-graduate workers. Over the last ten years many fellowships have been awarded by WHO for study of these subjects and in 1958 it is planned to hold an inter-regional training course on bilharziasis for key workers.
The first stage in isolating an influenza virus for examination is to inject throat-washings from influenza patients into a fertile egg, in which the virus multiplies. This picture was taken at the World Influenza Centre in London.
BILHARZIASIS

Philippines: Taking a sample of soil to be examined for snails, from the bed of a stream.

A snail trap on an irrigation canal.
India: Digging for field rodents. The central nest is often two or three feet below the surface.

Unloading traps for rodent-catching
TRACHOMA

Members of the school health committee apply antibiotic ointment to their fellow pupils in an Egyptian school.

LEPROSY

Case-finding: A team examines villagers in Thailand.
Onchocerciasis and Other Filariases

The filariases occur over wide areas and include diseases with different geographical distribution and epidemiology, pathology and clinical evolution; some of them can produce serious clinical symptoms and sequelae.

WHO's work on these diseases is of fairly recent date and has been concentrated on those which are a major problem for many countries. The blinding filariasis produced by *Onchocerca volvulus* affects populations over large areas in Africa, and also occurs in Mexico, Guatemala, Venezuela and possibly certain other countries of the Region of the Americas. The infections produced by different species of the genus *Wuchereria* are widespread in many tropical countries.

The characteristic clinical symptom of onchocerciasis is the appearance of subcutaneous nodules which contain the adult *Onchocerca*. The development is insidious: some years after the appearance of the nodules the microfilariae produced by the adult invade the skin and the eyes and cause skin lesions and blindness. In the affected areas in the Americas the incidence of blindness is commonly from 0.5 to 3.3 per cent., but may be much higher. Higher percentages have also been reported for areas in Africa. The vectors—various species of *Simulium*—breed generally in streams and rivers and therefore the fertile zones suitable for agriculture are the places most affected. In many areas in Africa, onchocerciasis is much feared and is driving the inhabitants away from rivers, and consequently reducing food production over wide areas. The disease is also an obstacle to development projects involving irrigation schemes or the expansion of agriculture in the areas where the vectors exist.

In 1953 a WHO Expert Committee on Onchocerciasis met in Mexico and reviewed the epidemiology of the disease and methods for its control: it concluded that it was not possible at that stage to decide whether control of the parasite or of the vector produced the best results but that the evidence showed that efficient and practical methods were available to control onchocerciasis.

A conference on onchocerciasis in Africa was organized by WHO at Leopoldville in 1954 to review the latest information on the epidemiology of onchocerciasis and its control in Africa. This was the first such review to be made. The conference indicated subjects requiring further research, emphasized
the need for epidemiological surveys and for internationally-planned control in areas where there is a river boundary between two territories, and recommended that training courses should be organized by WHO to meet the shortage of trained staff.

A fellowship was given for entomological studies on the biology and control of the *Simulium* vector in Africa, and training on onchocerciasis and its control was included in the programme of the malaria training courses organized in 1957 in Lwiro (Belgian Congo) and Amani (Tanganyika), so that epidemiological investigations of onchocerciasis may be carried out during the malaria surveys. An early practical result of this training was the discovery in Tanganyika of a small series of autochthonous infections by *O. volvulus*.

WHO assistance for field work began in 1956 when an expert was sent to the endemic areas in Sudan, where onchocercal blindness is a serious public-health problem. A survey has been started as a preliminary to a control project, and another project is being planned for Ghana.

A Study Group on Filariasis was held at Kuala Lumpur, Malaya, in 1955. It reviewed the epidemiological problems in various parts of the world, exchanged information on recent control work and made recommendations for national and international programmes, with special attention to filariasis caused by different species of *Wuchereria*.

**Leprosy**

WHO's interest in leprosy started early: epidemiological studies were made of the geographical distribution of leprosy and the progress of therapy was appraised to see how far it could be used in practical public-health work. The International Leprosy Association was among the first non-governmental organizations to be brought into official relations with WHO in 1948. Two years later the expert advisory panel was established and its members helped to prepare for the meeting of the Expert Committee in Rio de Janeiro and São Paulo in 1952.

The report of that committee confirmed two very important points: that leprosy is not in most cases a highly infectious disease and that, with the introduction of sulfone therapy, a good proportion of cases can be cured.
There is a much better understanding of the human and social position of leprosy patients. It was accepted that temporary isolation might still be necessary, though for infectious cases only, but it was suggested that ambulatory and domiciliary treatment could be safely and satisfactorily given to most patients. Leprosy therefore had ceased to be a 'special' disease, and had become simply one for which early diagnosis and treatment of cases, with some selective and temporary isolation, were recognized to be effective control measures.

On the recommendation of the UNICEF/WHO Joint Committee on Health Policy in May 1953, leprosy was included among the diseases for which joint assistance could be provided to countries.

Direct assistance by the Organization to governments on leprosy work started with the provision of consultants to Burma and Ceylon (in 1951) and to Ethiopia (in 1952) to co-operate with the health authorities in preliminary surveys and in the planning of programmes for leprosy control. To the end of 1957, consultants had been provided to fifteen countries. Leprosy control projects with the joint assistance of UNICEF and WHO have been undertaken or planned in Burma, Ceylon, Ethiopia, French Equatorial Africa, Indonesia, Nigeria, Paraguay, the Philippines and Thailand. In addition, the possibility of combining some form of leprosy control with other public-health services is being investigated in the Solomon Islands (leprosy survey combined with yaws control activities) and in the Yemen (out-patient leprosy treatment in some of the out-patient clinics of the general public-health services). New projects for the control of leprosy have also been planned for an number of other countries.

The clinical results of treatment with di-aminodiphenylsulfone (DDS), as it is used for mass treatment in internationally assisted projects, tend to confirm the favourable results already reported in medical literature on the treatment of leprosy patients in specialized institutions. Different treatment schedules have been adopted to meet the needs of the campaigns in various countries, and to secure efficacy and regularity of treatment for the greatest possible number of patients. Daily oral administration is practical only for patients in institutions; for out-patient or domiciliary treatment it is replaced by oral administration three times, twice or even once weekly or by treatment with bi-monthly intra-muscular injections of DDS suspensions in chaulmoogric media, or by a combination of the two.
It is not yet possible to judge the relative merits of the various treatment schedules, but already both clinical experience and studies of DDS blood levels confirm that bi-monthly injections can play an important part in mass treatment in rural areas, and that it may be possible to develop suspensions which will secure an effective blood level and a still slower absorption of the drug. This would increase the possibilities of mass treatment in rural areas and reduce its cost.

Leprosy patients no longer tend to avoid treatment because of its possible association with segregation. They now come forward spontaneously. For instance, in Burma, where at the beginning of the WHO-assisted programme only about 2000 patients were registered and treated in leprosaria, at the end of the first year about 20 000 had been diagnosed, registered and placed under treatment in the new out-patient dispensaries. Since 1954 the Government of Burma has continued the work, now assisted by UNICEF.

Similar trends, on an even larger scale, have been observed in other territories, particularly in French Equatorial Africa and French West Africa and in Nigeria. In French Equatorial Africa, for example, the number of cases registered and under treatment has grown rapidly from about 2200 registered and treated in leprosaria in 1951 to about 180 000 registered at the end of 1956, of whom 118 000 were under treatment at that date.

An example of how it is possible to extend mass treatment to a sufficient percentage of the population to reduce the transmission rate of the disease can be found in the project in Thailand. In the original pilot demonstration area some 5000 patients were detected and treated in 1955 and 1956, as compared with the 1000 which it had been estimated locally would be found in the area. Had it not been possible to detect and start treating the 4000 patients whose existence had not been suspected, the possibility of influencing the rate of infection would have been slight.

That mass treatment is feasible is confirmed by the fact that no serious toxic effects of the drugs have been reported, although, by force of circumstances, they have generally been administered by specially trained auxiliaries working under the supervision of responsible leprologists. No evidence of DDS resistance has been reported; and the leprosy reactions that were feared have not been observed in numbers sufficient to cause difficulties in the development of the campaigns.
The lower incidence of reactions with bi-monthly injections as compared with oral administration may be due to the more regular absorption of the drug administered in suspension parenterally as compared with that administered orally. It is of considerable practical value for further planning of out-patient treatment. Investigations are being made in other internationally assisted projects—as for example in Thailand, where there is a higher percentage of lepromatous cases than that reported in French Equatorial Africa and French West Africa—to determine the incidence of reactions.

The internationally assisted projects provide a useful means of obtaining more information. Attention has therefore been given to the collection of relevant data, and to keeping contact with workers in different countries engaged in basic research on leprosy. Particularly important is the research into immunology and the trials with BCG vaccination or vaccines prepared with other Mycobacteria, which appear to offer a certain degree of protection against leprosy.

A problem has been the scarcity of qualified medical specialists, which is often the most serious obstacle to the expansion of leprosy control.

The discussion of leprosy problems by representatives at the Regional Committee for the Americas and at Sub-Committee A of the Regional Committee for the Eastern Mediterranean in 1956, and the technical discussions on leprosy held at the Regional Committee for the Western Pacific Region in 1957, have already prepared the ground for inter-regional meetings to consider advances in techniques of control and training in methods of rehabilitation. The first of these, at which the continuing need for educating the public to remove old fears will also be discussed, will be held in New Delhi in 1958 after the Seventh International Congress of Leprology. Another WHO conference is planned for the endemic areas in Africa, where important activities have already been developed; other conferences will follow as local developments demand.

Trachoma and Other Eye Diseases

Trachoma, which has been described as “the disease of poverty and overcrowding”, is probably as ancient as poverty and overcrowding themselves. It has been found in all parts of the world. As the chief cause of blindness in the world, trachoma is a major problem.
Recent investigation shows that the degree of blindness produced by trachoma varies in different endemic areas. The amount of such blindness is greatly increased by the association of trachoma with different types of bacterial conjunctivitis, some of which (particularly those produced by gonococcus and the Koch-Weeks bacillus) may by themselves cause blindness and also have higher percentages of disabling sequelae when they are associated with trachoma. This association is a common epidemiological feature in many countries where bacterial conjunctivitis appears in annual epidemics.

The Health Organisation of the League of Nations collected information on the disease. In 1935 it published a summary of the information available at that time on its geographical distribution, etiology, treatment and prophylaxis. Since then there have been great changes—much migration and movement of workers and armies—and by the time WHO came into being a new assessment of the position was needed.

Accordingly, a joint OIHP/WHO Study Group was convened in Paris in 1948. Among its conclusions the Group "noted that trachoma was present ... in nearly every country of the world; that it showed a high endemicity in several countries in Asia and in North Africa and that it was also endemic in countries of eastern Europe and in several of the American Republics. It was practically non-existent in Australasia". Following the recommendations of the Group, the Organization in 1949 requested all governments to send information and published a résumé of the replies received. Although useful in confirming the public-health importance of trachoma and its world-wide distribution, the data collected lacked uniformity, and made clear the need for an epidemiological approach to the study of trachoma and the associated bacterial conjunctivitis, and for the adequate standardization of suitable methods.

In 1951 the Organization set up the WHO Expert Advisory Panel on Trachoma and thus was able to obtain the collaboration of specialists in most of the affected areas in the preparation of a long-term programme.

A meeting of the Expert Committee on Trachoma was held in Geneva in 1952. Its report gave recommendations for standardizing the classification of the symptomatology and clinical stages of trachoma and associated

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1 Off. Rec. Wld Hlth Org. 19, 27
conjunctivitis. It expressed the opinion that it was possible to cure most cases of trachoma and the associated bacterial conjunctivitis by chemotherapy and antibiotic therapy. This Expert Committee provided the scientific basis for international assistance to countries and recommended methods suitable for mass treatment. This assistance was started on a limited scale with three chief purposes: to test the efficacy of the therapy recommended by the Expert Committee for local clinical forms of trachoma and conjunctivitis; to test whether it could be used for mass treatment; and to find the most suitable methods for adapting it to local conditions (for example, the use of schoolteachers or of schoolchildren of higher grades for carrying out mass treatment in schools). The organization of these pilot projects, the first two of which were in Taiwan and Morocco, was preceded by visits of WHO consultants, who helped local specialists to assess local epidemiological conditions so that adequate plans might be made and, later, helped to assess the results.

These pilot projects proved that the treatment schedule recommended by the WHO Expert Committee was effective in countries other than those where it was originally developed; and that it could be used in the mass treatment of large communities such as schools, with clinical results comparable with those obtained in individual treatment. They also demonstrated that it was possible, without loss of therapeutic efficacy, to reduce the number of daily applications of the antibiotic originally recommended by the Expert Committee. This means that simpler and cheaper treatment schedules can be developed, so that the possibilities of using antibiotic treatment for mass therapy have been increased.

In the pilot project in Morocco it was planned to give to the whole population of the affected areas an intermittent prophylactic treatment consisting of two daily applications, for three consecutive days each month, of a 1% aureomycin or terramycin ointment, repeating this treatment in each of the six months of the epidemic season. The results obtained in preventing and treating the epidemic of the bacterial conjunctivitis chiefly due to the Koch-Weeks bacillus and the effect on the underlying trachoma are being carefully studied with the assistance of WHO experts.

The decision, on the recommendation of the UNICEF/WHO Joint Committee on Health Policy, to include trachoma in the joint work of the two organizations, made it possible to start pilot projects in Egypt, Tunisia and Yugoslavia. The initial results obtained from the methods of treatment
recommended by the Expert Committee were satisfactory even when only two daily applications of 1% aureomycin or terramycin ointment had been given for the prescribed period of two months (plus an additional month in some cases and possibly oral administration of sulfa drugs). Favourable results were also obtained by the intermittent treatment, both in preventing and controlling the seasonal epidemics of bacterial conjunctivitis, and in the treatment of the underlying trachoma.

Assistance was extended between 1952 and 1955 to Spain and Indonesia. Under a system of exchange, trachomatologists from Iran and Japan have visited areas of endemicity and pilot projects in Egypt, Morocco and Tunisia, and workers from France and Italy have taken part in the associated group discussions; and a specialist from Tunisia visited most of the Japanese centres engaged on trachoma study or control.

A meeting of the WHO Expert Committee on Trachoma, which was convened in September 1955, reviewed the work done. The International Organization against Trachoma (a non-governmental organization grouping national societies of specialists from all over the world), which had been brought into official relationship with WHO, helped in the preparatory work for the meeting.

The report contains a new definition of trachoma and a list of all other clinical forms of recognized non-trachomatous follicular conjunctivitis with the criteria for their diagnosis.

The report also contains a review of the present state of laboratory research on trachoma and statements on regional differences in the epidemiological and clinical aspects of trachoma; and proposals for standardizing the methods of epidemiological surveys and the relevant techniques. There is also a statement on "response to treatment" as the Committee accepted the evidence that clinical symptoms may not disappear until a long time after the completion of an efficient treatment. It suggested that follow-up examinations should be made not less than three months after the end of treatment. It accepted the evidence that the number of daily applications may be reduced to two; it therefore recommended that scientifically controlled experiments should continue on the possibility of further reduction of the treatment schedules.

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The Committee recognized that satisfactory results had been obtained by the use of antibiotics other than those originally recommended and thought that further work on a large scale should be undertaken to test certain newer antibiotics (chloramphenicol, erythromycin, synthetic tetracyclines, magnamycin, etc), either alone or combined with sulfa drugs. Recent evidence that repository drugs were effective against trachoma was considered to justify further experiment with such preparations. It recommended that reduction of any associated bacterial conjunctivitis should be part of all trachoma control projects, and that trachoma control campaigns should be integrated in the normal public-health services.

Initial results in the campaigns are satisfactory and promising. Wherever mass treatment has been adequately applied it has protected the population against the development of a great number of cases of blindness and other serious disabling sequelae. New projects are being planned. Inter-country or inter-regional conferences and training courses are contemplated.

Much national work has already started in countries other than those where the projects have been carried out: important epidemiological surveys have been made in Western Australia, where the existence of high incidence of trachoma has been detected in areas hitherto considered unaffected, and in South Africa, Fiji and Samoa; and national campaigns for control have begun in Ethiopia (Eritrea) and in Libya. The work in these countries and the growing consciousness of the problems relating to communicable eye-diseases in many others, such as Burma, Iran, Lebanon, Saudi Arabia, Syria, Thailand, Turkey and Yemen, are already an appreciable result of the work carried out by WHO with the assistance of UNICEF.

**Typhoid**

The control of typhoid fever and other enteric infections by hygienic measures that require heavy expenditure on environmental sanitation is inevitably a slow process. Some governments have therefore turned to vaccination as an interim method of control. When the Government of Yugoslavia decided on this solution it appreciated the need for more reliable information as to what vaccine should be used, how its potency should be tested, and what results might be expected. Accordingly the Government consulted WHO
on how this information might be obtained. The result of the discussions was the decision to carry out the first strictly controlled field trial of typhoid vaccines, some fifty years after they were first brought into use. The report of these trials has been published in the Bulletin of WHO. ¹

The field trial showed that of the two vaccines used one, a heat-killed phenol-preserved vaccine, gave some protection, but the degree of protection was not great and it appeared to be rather greater in children and adolescents than in adults. The other, an alcohol-killed and alcohol-preserved vaccine, could not be shown to give any protection. The two vaccines were also tested in a number of different laboratories by several current methods of assaying typhoid vaccines. In most tests the two vaccines showed no significant difference—indeed in some the alcohol vaccine appeared to be the better—and no clear correlation could therefore be demonstrated between the laboratory and field results.

The present position is that it is known that typhoid vaccines can be prepared which will give some protection against typhoid fever, but the best method of preparation is not known; nor is it known what type of laboratory test will predict which of two given vaccines will be the most effective prophylactic agent in man. Further studies are necessary and are being planned.

The importance of typhoid has been reflected in international work. Many programmes described in other parts of this volume, including those on environmental sanitation, are assisting countries in dealing with the disease.

¹ Bull. Wld Hlth Org. 1957, 16, 897