The earlier history of international quarantine is outlined in Parts I and II. The present chapter deals with the period since the opening of the First World Health Assembly in 1948.

At that time quarantine practice and procedure varied considerably from one country to another and the general situation was confused. The International Sanitary Conventions then in force had been drawn up at different times, each with a specific objective in view. None completely replaced its predecessors, since different countries were adherent to different conventions or groups of conventions. Furthermore, since the adoption of the conventions, conditions had changed; hence they did not take account of the new methods available for the control of several of the diseases they covered, nor were they framed to deal adequately with the greatly increased volume and speed of international traffic.\(^1\)

It fell to the World Health Assembly to replace this multiplicity of conventions by a single code based on modern epidemiological principles, and to provide an international instrument which could be adapted to changing conditions without the delays imposed by the formalities, at each modification, of signature and ratification. Provision for such an instrument existed in the Constitution, which, in Article 21, states that the World Health Assembly shall have the authority to adopt regulations concerning sanitary and quarantine requirements and, in Article 22, that regulations so adopted shall come into force for all Member States after due notice has been given of their adoption by the Health Assembly, except for such Members as may notify the Director-General of rejection or reservations within the period stated in the notice.

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\(^1\) This increase is reflected in figures published by the United Nations (Statistical Yearbook) and by the International Civil Aviation Organization. These show that goods loaded and unloaded in external trade increased from 731 million metric tons in 1946 to 1639 million metric tons in 1955, and passengers carried on 127 international scheduled airlines increased from 3,893,638 in 1948 to 14,669,003 in 1955.
This means that no positive action is required of a Member State that wishes to become a party to the Regulations; but that a Member that does not wish to accept them is not bound by them if it gives notice within the prescribed time.

THE INTERNATIONAL SANITARY REGULATIONS

Preliminary studies had already been undertaken during the years 1946-48 on the possibility of drawing up a single set of regulations to replace the sanitary conventions. A series of expert groups convened jointly by WHO and the Office International d'Hygiène Publique provided the necessary technical advice. An Expert Committee on International Epidemiology and Quarantine was set up by the First World Health Assembly and entrusted with the task of revising the conventions and combining them into a single body of regulations covering the needs of all travellers. In 1950 a draft of the International Sanitary Regulations prepared by the Expert Committee was sent to all Member States for comment. The draft was revised in the light of comments received, again sent to governments and then considered by a special committee, set up by the Third World Health Assembly, which met for five weeks in April and May 1951, just before the Fourth World Health Assembly. That Assembly continued the committee as its Committee on International Sanitary Regulations; the Regulations were further considered and the final text was adopted by the Fourth World Health Assembly, as WHO Regulations No. 2, on 25 May 1951.

The Health Assembly was given control over the acceptance of reservations to the Regulations in order to ensure as far as possible that reservations which a country might consider necessary in its special circumstances were accepted as reasonable by other Member States. A reservation, therefore, is valid under the Regulations only if it is accepted by the Health Assembly. The Health Assembly does not withhold its acceptance without solid grounds, but it has the duty to object to a reservation when it considers that it would substantially detract from the purpose of the Regulations. If a reservation is not accepted by the Health Assembly, the Regulations do not come into force for the State concerned until the reservation is withdrawn, and that State remains bound by the previous sanitary conventions to which it has acceded. Only twenty-one States submitted reservations and the total number of reservations was seventy-three. These were examined by the Fifth World Health Assembly and thirty-eight of the seventy-three were rejected. Most of the
rejected reservations have now been withdrawn and the States concerned are therefore bound by the Regulations.

The International Sanitary Regulations cover all forms of international transport—ships, aircraft, trains and road vehicles. They deal with the sanitary conditions to be maintained and measures to be taken against diseases at seaports and airports open to international traffic, including measures on arrival and departure, sanitary documents and sanitary charges.

The general provisions concerning sanitary measures and procedure begin with a reminder that the sanitary measures permitted by the Regulations “are the maximum measures applicable to international traffic which a State may require for the protection of its territory against the quarantinable diseases.” The same principle—a minimum of interference with traffic and of inconvenience to passengers—is expressed in the stipulation that sanitary measures and health formalities “shall be initiated forthwith, completed without delay and applied without discrimination.”

There are special provisions relating to each of the quarantinable diseases (plague, cholera, yellow fever, smallpox, louse-borne typhus and louse-borne relapsing fever). These indicate the conditions under which vaccination may be required as a condition of entry into a country; conditions entailing the disinsecting of passengers, their isolation or surveillance; measures to be taken in the case of “suspect” or “infected” ships or aircraft, etc.

Models of the sanitary documents which States may require are given as appendices to the Regulations; these documents—certificates of vaccination, the deratting or deratting exemption certificate, and the health declarations for ships and aircraft—have to conform to the models prescribed.

The Regulations, as they were first adopted, followed the example of the former international sanitary conventions and included provisions relating to the Mecca Pilgrimage.

In 1956 some 625,000 persons from thirty countries were gathered in one place for Arafat day—the first day of the Pilgrimage. More than once in the nineteenth century the introduction of a pestilential disease into an un-immunized gathering of this size had led to catastrophic spread of diseases to other continents, and it was to meet such dangers that an international sanitary convention for the Pilgrimage had been drawn up at the 1892 International Sanitary Conference in Venice, to give effect to conclusions reached at previous conferences in 1866 and 1874.

Even in 1951, when the International Sanitary Regulations were adopted, it was considered that the Mecca Pilgrimage still needed special international sanitary controls: but this was explicitly provisional and the special
provisions were deleted by the Ninth World Health Assembly after quarantine experts had reported that the sanitary arrangements provided by the Government of Saudi Arabia at Jeddah and other places visited by pilgrims now provided satisfactory safeguards. Additional Regulations that were adopted at the same time require adequate standards of accommodation and hygiene on ships and aircraft carrying persons taking part in periodic mass congregations. The countries from which persons go to such mass congregations screen and detain or immunize them before they set out.

In 1957, for the first time in sixty-five years, the Mecca Pilgrimage was not subject to special international legislation. During that Pilgrimage, smallpox was present in Saudi Arabia, but most of the pilgrims were well protected by vaccination and only a few of those returning were found to have smallpox. These were discovered in the course of routine examination of passengers on pilgrim ships and did not give rise to secondary cases.

The effective working of international quarantine requires complete, reliable and up-to-date information on the appearance, presence, and termination of quarantinable diseases in each State and territory. The International Sanitary Regulations therefore require national health administrations to notify WHO of the appearance of quarantinable disease in their territory, by telegram, or in some cases by air mail, and to send supplementary reports if the disease continues to be present. The responsibility for distributing this information quickly to all health administrations is placed on the Organization. The information received is collated by the four WHO quarantine and information services at Geneva, Singapore, Washington, D.C., and Alexandria. Urgent information is distributed to the whole world by a series of radio bulletins: daily from Geneva (on eight wave-lengths in English and on four in French); from Singapore and from Alexandria at less frequent intervals; and daily over a wide network in the Indian Ocean and Western Pacific areas. The information given in the radio bulletins is confirmed in weekly publications sent by air mail to health administrations from Geneva, Singapore, Washington and Alexandria; these publications contain other information on the application of the Regulations. Map 2 shows the network of epidemiological radio-telegraphic communications.

The WHO publication for these purposes is the Weekly Epidemiological Record, which was originated by the League of Nations and is now in its thirty-third year of continuous issue. It contains, as well as the notifications of quarantinable diseases, information about the application of international sanitary legislation, and notes on the incidence of non-quarantinable diseases such as influenza and poliomyelitis whenever their prevalence becomes
MAP 2. NETWORK OF EPIDEMIOLOGICAL RADIO-TELEGRAPHIC COMMUNICATIONS
internationally important. Supplements to the Record give summaries of information relevant to the Regulations, such as lists of the quarantine measures imposed, and vaccination certificates required, by all countries, or tariffs of sanitary charges in force.

Disputes about the application of the International Sanitary Regulations are referred in the first place to the Director-General, who is authorized to settle them if he can and, if not, to refer them for decision to the Committee on International Quarantine. So far no disputes have arisen that have required formal reference to the Committee.

The Committee on International Quarantine has also the duty of reviewing annually the application of the International Sanitary Regulations and of recommending amendments as necessary or additional regulations on diseases not covered by the Regulations. In this way the Regulations can be kept up to date, to take account of advances in medical science or changes in the international distribution of disease.

The Regulations came into force on 1 October 1952. As has been said, they were a new form of international instrument, they changed procedures that had been in use for a century or more, they did away with some measures that had previously been considered necessary for quarantine protection, and national legislation in almost all countries had to be reviewed or revised. There were naturally, in the circumstances, difficulties in the first year of their application—not so much in the application of the technical provisions for the individual diseases as in regard to the interpretation of definitions, the notifications required and sanitary documents. This meant much correspondence with WHO Headquarters, discussions in the Committee on International Quarantine and, in some cases, action by the Health Assembly. Bills of health and sanitary charges have given rise to many questions, because national practice in some countries does not yet conform to the Regulations. Bills of health were necessary when a ship normally brought the first news of health conditions in the port it came from; they are now completely out of date but they represent a tradition that is slow of dying. It has also taken some time to get uniform certificates of vaccination and to secure their general acceptance.

The provisions concerning yellow fever have presented certain difficulties. There were differences of opinion in the meetings of the Committee on International Quarantine concerning the extent of the threat that the endemic and enzootic areas of the Americas and Africa represented to receptive countries, especially those in Asia. However, after patient negotiation, the Regulations were modified by the Eighth World Health Assembly; the following
Health Assembly reviewed and accepted reservations that some governments had made to the modified articles, and the amendments came into force on 1 October 1956.

Apart from such controversies, less serious than might have been expected from the scale of the new provisions, the Regulations have come into action remarkably readily and well.

QUARANTINABLE DISEASES

Advances in the control of the quarantinable diseases during the last ten years are mentioned in the following paragraphs.

Cholera

In the nineteenth century and in the first quarter of the twentieth, cholera has spread several times in pandemics from the areas where it is endemic into Europe, North Africa and North America, and eastward into China and the Philippines. For more than thirty years, however, Europe, America, Australia, and Africa (except Egypt) have been completely free from the disease.

Since the Second World War cholera has only once spread beyond Asia; and even in Asia its appearance outside its endemic sources has been infrequent. Since the war these exceptional outbreaks of cholera have occurred in Japan (1946), Egypt and Syria (1947) and Cambodia and Viet Nam (1947-52), and there have been significant outbreaks in Burma, India, China, Pakistan and Thailand; in the period 1948-52, 98 per cent. of the total recorded deaths from cholera were in India and Pakistan. The endemic foci proper are considered to be the deltaic region of the Ganges and Brahmaputra, together with some less important foci in the same part of the world.

The prevalence of cholera has in recent years so decreased that it is a problem only in its endemic foci in India and Pakistan and in the immediate vicinity; even in this area there has been a marked improvement. In the five years 1950-54 a total of about 385,000 deaths from cholera were reported in India and Pakistan, as against 824,000 in the preceding five years.

Since the Second World War the spread of cholera by international travel has been practically non-existent. During the last ten years only seven ships have arrived in Asian ports with cholera cases on board, and none of those cases produced new infections.
MAP 3. NOTIFICATIONS OF CASES OF CHOLERA, 1948 AND 1957

1948

1957

CHOLERA
1948 and 1957

Cases:

- 1
- 2-25

Rates per 100,000 population:

- ≤4
- 6-10
- 12-25
- 27-40
- 45-90
- 100-140
Map 3 shows the numbers of cases of cholera in 1948 and 1957 notified to WHO.

The marked decline in the amount of cholera in the world is largely due to the general improvement of sanitary conditions, on land and at sea. Much research has been done on cholera. The Indian Council of Medical Research, for example, has a large programme of research on its diagnosis and epidemiology, with special attention to the question of its possible reservoirs between epidemics. Some of this work has been assisted by a grant from WHO. Unfortunately, in spite of the enormous amount of study which has been undertaken, much is still not known about Vibrio cholerae, its transformation, variations and mutations, and how it is maintained between outbreaks.

WHO organized several study groups in collaboration with the OIHP and convened an expert committee to review cholera problems. Lines were suggested for further research, mainly on the causes of endemicity, and on practical methods of cholera control in the field, including environmental sanitation. Work on new standard and reference preparations of cholera vaccine has been co-ordinated between specialized serum institutes. A monograph reviewing the whole problem of cholera is in preparation.

**Plague**

Plague was responsible for one of the most disastrous of the known pandemics, the Black Death, which disorganized human society in the fourteenth century. It is not yet wholly clear, in spite of close research, why plague had disappeared from Europe by the middle of the nineteenth century. In the second half of that century and the early years of the twentieth there was another pandemic, which is believed to have started in the uplands of South-East Asia and which spread by maritime traffic from Chinese ports to many parts of the world.

During the last ten years there has been a decline in incidence in most of the areas in which plague was known in 1947, and plague transmitted from rodents has become rare in urban areas; but many wild rodent foci are still active in Asia, Africa and America. Map 4 shows the numbers of cases of human plague in the years 1948 and 1957 of which WHO was notified.

In more detail, the position in recent years was as follows.

Plague has been frequent in China both in coastal areas and in the interior, and rat-caused plague has been entrenched in parts of South China, as well as in the north-west of the country. There have been perennial
MAP 4. NOTIFICATIONS OF CASES OF HUMAN PLAGUE, 1948 AND 1957

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Data for continental China not available for 1957.
outbreaks of the same type in Yunnan. Burma, Cambodia, Indonesia, India, Thailand and Viet Nam all have areas of endemic human plague which have produced significant outbreaks each year. In India particularly, plague was a major cause of human mortality at the beginning of the century but has steadily decreased in recent years. The average yearly number of deaths since 1919 has been, in round figures:

<table>
<thead>
<tr>
<th>Year</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1919-28</td>
<td>170,000</td>
</tr>
<tr>
<td>1929-38</td>
<td>42,000</td>
</tr>
<tr>
<td>1939-48</td>
<td>21,800</td>
</tr>
<tr>
<td>1949-53</td>
<td>4,600</td>
</tr>
<tr>
<td>1954-56</td>
<td>less than 200</td>
</tr>
</tbody>
</table>

This reduction is paralleled in other Asian countries, but it does not necessarily imply a corresponding reduction in the enzootic rodent sources of plague. Human plague is now considered to be a relatively minor expression of the more complex and comprehensive rodent plague, on several aspects of which more knowledge is urgently required.

There is another plague focus in western Asia which occasionally gives rise to outbreaks in man; small numbers of cases have in recent years been reported from Syria, Lebanon and Israel, and in 1952 new foci were reported in Iranian Kurdistan and in Yemen.

Human plague has appeared several times in North Africa in this century but, except for a few cases in Algeria, not since 1950. In West Africa there have been few cases since 1948; rather more in Central Africa—though the incidence there has decreased considerably since 1954; in South Africa plague in recent years has been confined to isolated rural incidents. In South Africa thorough ecological and epidemiological investigation has been made of wild rodent plague, to which these isolated incidents were due; this has greatly improved control and has helped scientific studies of the relation between rodent and human plague.

No cases of human plague have been reported in Europe since 1949.

In North America there has been no evidence of human plague due to commensal rodents in the last thirty years but infection in wild rodents covers fifteen of the western states of the United States of America and is known in Alberta and Saskatchewan in Canada. In the United States there have been in recent years occasional human cases from this source.

In South America a large number of seaports and some other towns experienced plague early in the century and there is evidence that there are true enzootic foci in some countries. The incidence of human plague is now
greatly reduced but cases have in recent years been reported from Bolivia, Ecuador, Peru and Venezuela. Only a few seaports at present report evidence of plague infection and only one case has been observed on board ship.

In general, therefore, the disease in its human form has very significantly declined, particularly in Asia, where its effects used to be devastating. The decline may be attributed in part to general sanitary and environmental improvement, better transport, more efficient health services, and the use of new insecticides and rodenticides. Plague is essentially an animal infection which occasionally “spills over” to man, and in this sense it remains a difficult problem.

As in the case of the other diseases, the necessary technical guidance in the preparation of the provisions on plague in the International Sanitary Regulations was given by an expert group convened jointly by WHO and OIHP.

A comprehensive monograph on plague was published by the Organization in 1954.1

Typhus

Louse-borne typhus used to be the inevitable companion of war and other social disorganization. But in the Second World War, though there were some important outbreaks, typhus never got out of hand. This was not because the infective micro-organism was less virulent or because conditions were initially unfavourable to the louse, but because it was controlled by the more efficient sanitary measures enforced by armies and civil authorities; by antilouse dusting techniques, which became more effective when DDT came into use, and by the degree of protection given by antityphus vaccination.

Typhus has practically disappeared from Europe; the incidence in Africa is falling, except in Ethiopia where many cases were reported in the years 1951-56; in Central and South America some countries were until 1953 still reporting significant numbers of cases; and in the Pacific region the only serious recent outbreak was in Korea, as a result of the war.

Since the Second World War no outbreak of typhus is known to have arisen from international traffic. In peace-time, and even in war, no country that has good sanitary standards and can provide the simple and inexpensive organization and apparatus required for dealing with the louse need fear the importation of typhus.

Relapsing Fever

Louse-borne relapsing fever is perhaps the least well-known of the quarantinable diseases. Its incidence fell off rapidly after the Second World War; it disappeared from Europe in 1949, and in recent years it appears to have been confined to a few foci. But because sporadic cases persist in some areas of Africa and Asia and because it can become epidemic if the conditions are favourable, it was included in the International Sanitary Regulations in 1951. An epidemic with over 4250 cases was reported in Cambodia in 1950 and there were over 2700 cases in Korea in 1951. Some 2600 cases were noted in Ethiopia in 1956 and there were sporadic cases in a number of other African and Asian countries.

Smallpox

Smallpox has been known throughout history, in all regions, climates and peoples. Vaccination has changed the course of the disease in many countries but it still persists in others. WHO has made three general studies of the recent incidence of smallpox: the first covered the eight years 1940-47, the second brought the record up to 1950 or 1951; and the third covered the fifteen years 1936-50. In the review of the second study it was said:

Asia must therefore be regarded as the continent from which the greater proportion of importations to other countries arise. There are many large land areas where the disease is endemic and epidemics are of frequent occurrence. Although several countries in this continent have proved that they are able, under existing circumstances, to maintain themselves free from the disease, the majority of the land area is infected with smallpox.

Map 5 shows the numbers of cases of smallpox in the years 1948 to 1957 notified to WHO.

In the five years 1951-55 some 890 000 cases were reported by 96 countries or territories, whose aggregate population was about 1 550 000 000. About 58 per cent. of all cases were reported from India and Pakistan, which have 28 per cent. of the total population. Twenty-three per cent. of the cases were notified from other Asian countries, which have 21 per cent. of the total population. In those countries of Asia, therefore, about half the world's population (not counting China and the USSR) provided more than four-fifths of the cases reported.

In 1957, about 136 000 cases (of both the severe and the mild type) were officially reported in the world (as compared with 85 000 in 1956 and with an annual average of 178 000 in the five years 1951-55). By 1956, Europe, USSR,
North and Central America and Australasia were practically free from the disease; in Africa, Egypt, Morocco, Libya and, in Asia, North Borneo, Malaya, Sarawak, Singapore, Syria and Turkey, were apparently also free. In Africa in 1957 some 32,000 cases were notified, including about 12,500 in French West Africa, 9000 in Nigeria and 5000 in Sierra Leone. In South America, about 3500 cases were notified, and in Asia 97,000 cases, of which 90,000 were in India and Pakistan and 2400 in Iraq and Iran. Asia is therefore the chief "exporter" of smallpox, which is often endemic in seaport and airport towns. In the years 1949-57 about 120 ships, mostly local, with smallpox on board arrived at 56 ports; 49 of these ships came from India or Pakistan, six from other Asian ports and one from South America.

Smallpox is still the disease responsible for most reports of infected ships, but the returns do not distinguish the mild and severe types and it is probable that a number of the cases reported as smallpox are not of the severe type; and indeed chickenpox and other skin eruptions are still occasionally reported as smallpox. But some cases secondary to imported cases or due to imported contaminated goods were reported in the years 1951-57 in countries which had been free from smallpox for two or more consecutive years:

1951—Netherlands, 52 cases
1952—France, 75
1954—France, 15; Netherlands, 40
1955—Bahrain, 1; Belgium, 3; France, 85
1956—Bahrain, 68; Kuwait, 31; Lebanon, 101; Muscat and Oman, 26; Qatar, 6;
Trucial Oman, 3
1957—Aden, 65; Ceylon, 21; Italy, 8; Lebanon, 108; Turkey, 128; United Kingdom, 4

The importance of smallpox is much decreased now that the severe type is confined to certain endemic areas of the globe; but the endemic foci still persist. Success in the control of smallpox in those areas still requires first, an adequate health organization to carry out and maintain a regular vaccination service and, secondly, a vaccine which does not deteriorate too rapidly to be useful in warm countries where communications are slow. In such countries it was almost impossible to ensure that the usual vaccine was still active when it was used, especially in rural areas. Failure to eradicate the infection in rural areas largely vitiates vaccination programmes in urban areas because the infection is continually reintroduced. It was evident therefore that there was an urgent need for a vaccine which would retain its potency when exposed to the conditions described in the absence of refrigeration.

Dried smallpox vaccines with increased resistance to high ambient temperatures have been in use in some countries for many years, but the results
have not always come up to expectation. Experience showed that drying did not always increase the heat stability of the vaccine and the conditions for the preparation of a consistently heat-stable vaccine were not well defined.

In 1952 WHO initiated a series of studies designed to clarify the situation. The first step was to test under controlled conditions the heat resistance of three dried vaccines in current use and of two experimental vaccines. The vaccines were incubated at 45°, 37°, and 21° C for weeks or months and their potencies measured at regular intervals. The results showed that one of the three vaccines in current use was of low potency and little if at all more resistant to heat than glycerinated lymph. The two other current vaccines were somewhat more heat-resistant than calf lymph but resisted a temperature of 37° C for only a week or two. On the other hand, the two experimental vaccines remained potent at this temperature for months.

Further studies of the vaccine, which are nearing completion, are being made to determine whether a vaccine that has partially deteriorated gives as good protection as a fully potent vaccine. The assumption of an all-or-none immune response to vaccination has often been questioned but never satisfactorily confirmed or disproved.

But a stable vaccine will not by itself solve the problem of smallpox, though it will make a solution easier. The real solution depends on the organization and administration of vaccination programmes on sound epidemiological and public-health principles. In several regions WHO has given assistance in this, and wide programmes of control, started with WHO's advice and assistance, are already showing promising results in some countries.

Yellow Fever

An important point in the epidemiology of yellow fever is that it is found in tropical Africa and America, but is absent from Asia where conditions seem favourable for it and where potential vectors are present. Yellow fever has occasionally invaded Europe and North America, but never Asia. The reason for this is unknown and the possibility that yellow fever might spread to Asia is one of the chief considerations in present international quarantine practice.

Map 6 shows the numbers of cases of jungle and urban yellow fever in the years 1948 to 1957 notified to WHO.

The importance of yellow fever has much diminished in the twentieth century, knowledge of its etiology and epidemiology having led to its effective
All cases in the Region of the Americas, with the exception of Trinidad, were of jungle yellow fever.
control over large areas where it was once a peril. For many years no case of yellow fever has been reported which could be traced to international travel by sea or air.

The control and investigation of yellow fever have been continuous in the Region of the Americas during the past ten years. Programmes in this area have been unique because of the problem faced and because of the type of international collaboration that has developed to cope with it.

Urban yellow fever is best controlled by eradicating the *Aëdes aegypti* mosquito which transmits the disease. Notable progress has been made in the hemisphere-wide *A. aegypti* eradication campaign that was begun in 1947 under the aegis of PASB. It is encouraging that only three cases of *A. aegypti*-transmitted yellow fever are known to have occurred in the decade—in spite of widespread outbreaks of jungle yellow fever in Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Panama, Peru, Trinidad and Venezuela.

To protect people against jungle yellow fever, reliance has to be placed on vaccine. PASB collaborated with two laboratories that manufacture vaccine: the Oswaldo Cruz Institute in Rio de Janeiro, Brazil, and the Carlos Finlay Institute in Bogotá, Colombia. Both of these government laboratories distribute the vaccine free of charge to other American governments on request.

Notwithstanding all the millions that have been vaccinated in the Americas, yellow-fever virus still attacks and kills unvaccinated people in certain areas. Extensive control of *A. aegypti* has been carried out, and the mosquito has been eradicated from the great majority of the ports, airports and cities. Human cases of jungle yellow fever, where another vector is involved, still occur each year in seven or eight countries. The administrative problem of protecting isolated rural populations has not yet been solved.

The progress of the jungle yellow fever wave in Central America has been followed since the autumn of 1948 through seven countries, from Panama to British Honduras. During the entire period no urban yellow fever has occurred nor has any movement of the infection in human cases from one country to another been observed. For over a quarter of a century no transmission of yellow-fever virus by international passenger traffic has been found. With the progress which has been made in eradication of *A. aegypti*, yellow fever is known to have come to a port only once in the last twenty-five years and has almost disappeared as a problem of maritime transport.

In the African Region also the problem is unsolved, for the virus is known to exist over large areas of jungle. The picture is complicated by the
widespread prevalence of arthropod-borne viruses which have antigenic relationship with yellow-fever virus and which may possibly be of epidemiological importance. Many of these viruses are also prevalent in the Eastern Mediterranean, South-East Asia and Western Pacific Regions where yellow-fever virus does not exist although conditions for its propagation seem to be ideal. Recent advances in laboratory techniques have given hope of progress in understanding the epidemiology of this group of viruses and WHO is assisting a long-term programme of co-ordinated research on the subject, much work on which has already been undertaken in certain research institutes in Africa and the Americas.
International co-operation in health statistics has a history as long and as eventful as that of the Sanitary Conventions. As has been mentioned earlier, the first International Statistical Congress was held in Brussels in 1853. William Farr and d’Espine were requested to present proposals for a medical nomenclature and did so at the second international congress held in 1855. A compromise list adopted by the congress served as the basis for the International List of Causes of Death, the preparation of which was entrusted to the International Statistical Institute in 1891. The idea of decennial revisions came from the American Public Health Association at its Ottawa session in 1898 and such revisions were subsequently made in Paris in 1900, 1910 and 1920.

When the League of Nations came into being, it co-operated with the International Statistical Institute in the further development of the International Lists; this led to the fourth (1929) and fifth (1938) revisions.

One of the first actions of the World Health Organization’s Interim Commission was to set up an Expert Committee for the Preparation of the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death which took as a basis for its work a classification prepared by the United States Committee on Joint Causes of Death. The International Conference for the Sixth Revision of the International Lists of Diseases and Causes of Death, convened in Paris in April 1948 by the French Government, with the assistance of WHO, resulted in the International Statistical Classification of Diseases, Injuries and Causes of Death, which was formally adopted by the First World Health Assembly in July of that year, together with WHO Regulations No. 1. These Regulations had historical importance, not only because they provided a guide to Member States in compiling mortality and
morbidity statistics by cause, age and sex and for various areas of the national territory, but also because they constituted a new departure in international law by laying obligations on States without signature and ratification of a formal treaty.

An important feature of the Regulations is the requirement that countries should adopt a form of medical certificate of cause of death that will clearly indicate the underlying cause of death; it is also specified that, as far as possible, medical certification of cause of death shall be the responsibility of the attending physician, and that the confidential nature of the certificate shall be protected during administrative procedures.

The recommendations of the Sixth Revision Conference were published by WHO, in English, French and Spanish, in the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*. This ensured a greater degree of uniformity in the individual categories than had hitherto been achieved. As the text of previous revisions had been published in French only, many countries had independently made their own translations.

An auxiliary publication issued by WHO in connexion with the Classification was the *Index Alphabeticus*, to assist countries using Latin medical terminology.

In 1951 the WHO Centre for Classification of Diseases was established at the General Register Office, London, to help in dealing with problems arising from the interpretation and application of the Classification. Using the experience gained in dealing with problems of certification and classification, the Centre was in a position to play an important role in the preparation of the Seventh Revision Conference which took place in Paris in 1955. It has also issued a number of publications to guide statisticians in the use of the International Lists.

The revised Classification resulting from this conference was adopted by the Ninth World Health Assembly, together with amendments to WHO Regulations No. 1. These amendments overcame certain difficulties which had arisen in the attempts to apply the previous Classification: they made it easier for the compilation of mortality statistics to be undertaken in suitable registration areas, and further provided for greater freedom in the choice of morbidity tabulation lists.

An important contribution of WHO to the international comparability of statistics were the definitions, made in 1950, of “live birth” and “foetal
death” as these had significance for rates of birth and stillbirth, and infant and general mortality rates. These definitions, as well as the WHO rules for certification of death, were embodied in the United Nations recommendations for the improvement of vital statistics and particularly in their *Principles for a Vital Statistics System.*

As the very nature of vital and health statistics did not permit of a line of demarcation being drawn between them—mortality data belonging to both—apportionment of responsibilities between the United Nations and WHO was made on the basis of expediency and the respective technical qualifications and interests of both organizations, the United Nations dealing with the collection of population and vital data of general and demographic significance, and WHO dealing with those aspects of vital statistics involving medical knowledge (certification of causes) and possessing a health significance (causes of death). This applied not only to the collection and publication of data by both organizations but also to studies by their respective commissions and committees and to teaching in the regional seminars and training courses for statistical personnel which they organized. In practice, collaboration between the services concerned went even further than the formal agreements provided.

The importance of encouraging the improvement of country health statistics led to special attention being given to the work of training, particularly from 1952 onwards. A senior consultant visited a large number of countries and in association with the respective regional offices gave advice on the institution or improvement of local statistical systems. The majority of the regional offices now have an adviser for the purpose of expanding this important work, which is basic to all development and planning in local health and medical organizations. The progress in co-ordinating country work in this field has been especially noteworthy in the Region of the Americas. Several reports on mortality and morbidity data from the countries have been prepared by the Regional Office.

Contributions from practically all national health administrations have made it possible for WHO to publish in its monthly *Epidemiological and Vital Statistics Report* current data on communicable diseases and demographic trends. In addition, and with further contributions from the United Nations and national statistical offices, WHO has issued *Annual Epidemiological and Vital Statistics* containing corrected and more complete data, together with
statistics of causes of death from a number of countries whose figures in this respect are more particularly reliable.

Both these periodicals are a continuation of similar ones issued by the League of Nations. Material for study covering an uninterrupted period of some thirty-five years is therefore available.

It is fully realized, of course, that notifications of communicable diseases for those countries which have an abundance of physicians are more complete than those in which medical men are few, but even there the data clearly show seasonal variations and epidemic outbreaks. On the other hand, the comparatively small coverage of the mortality data published indicates the need to expand vital registration and certification of causes of death throughout the world.

The WHO Expert Committee on Health Statistics and the Conference for the Seventh Revision of the International Lists of Diseases and Causes of Death have recommended improved methods for the compilation of mortality statistics. They have stressed the need for developing methods capable of furnishing health administrations with useful information on the health of their people in those areas where the standard methods of death registration and certification cannot be applied for lack of the necessary physicians and administrative machinery. In consequence WHO, by the use of consultants, statistical training centres, and courses organized jointly with the United Nations, has made efforts to facilitate the use of standard methods of health statistics and at the same time, at regional seminars, has tried to develop, on an experimental basis, the application of substitute methods, making use of lay and semi-skilled medical personnel for the collection of data.

Morbidity statistics, apart from certain hospital statistics based on the International Lists of Diseases and Causes of Death, are still far from reaching the degree of uniformity which mortality statistics have attained.

As early as 1949, the Expert Committee on Health Statistics stressed the need for improving the uniformity of morbidity statistics. In 1950 a special sub-committee proposed uniform rules for compiling hospital statistics. The Committee concluded that the International Statistical Classification would generally serve the need of hospitals better than any other classification. It felt that selected countries should be encouraged to compile hospital morbidity statistics routinely, but that routine compilation of all such statistics in all hospitals and countries was neither necessary nor desirable. It recommended
a form of individual report and principles for collection of data. It called for the study of the problems associated with statistics of mental and tuberculosis hospitals, of obstetrics, operations and anaesthetics, and of multiple admissions.

In 1951 a conference discussed the other forms of morbidity statistics, and emphasized the need for international agreement on the definitions of a series of terms commonly used to describe and measure morbidity. It entrusted the experimental application of these terms to the National Committees on Vital and Health Statistics, set up in a number of countries as the result of the recommendation of the 1948 Revision Conference.

These committees, which were intended to improve national and international co-ordination between services in charge of vital registration and health statistics, have fulfilled their purpose in this respect, as was apparent at the conference of their representatives held in London in 1953. The report of this conference served as a guide for the studies which have been carried out in various countries. Such studies had progressed sufficiently for the WHO Expert Committee on Health Statistics, meeting in 1956, to recommend for international adoption, in compiling morbidity statistics, that units be clearly stated as either persons affected, or illnesses (relevant diagnoses), or spells of illness. The Committee also recommended the experimental use of a series of definitions of measurement of morbidity as a first step towards their international adoption.

The Committee also considered other forms of morbidity statistics, and particularly sickness surveys, which can be of considerable value to health administrations if carried out on a proper sampling basis. The Committee further discussed the merits of analysis of general practitioners' records and social security statistics.

Communicable Diseases

International co-operation in the study of the epidemiology of communicable diseases is more advanced than in that of the epidemiology of other conditions. Early measures to prevent the spread of diseases over national boundaries stimulated research into their epidemiology. The discovery of the causative organisms and much of the manner in which they are spread has led

to the better control of these diseases and even to the eradication of some of
them in certain circumstances. Nevertheless, many problems connected with
their international epidemiology still await solution.

The international epidemiology of the quarantinable diseases is dealt with
in Chapter 18. In recent years, international epidemiological work has extended
to many other communicable diseases, including malaria, tuberculosis, tra­
choma, leprosy, the common infectious diseases of childhood, infectious
hepatitis, cerebro-spinal meningitis, and diarrhoeal diseases.

Much work has also been done on the epidemiology of influenza and
poliomyelitis. For these two diseases and for salmonella and shigella infec­
tions, the work was assisted by the establishment of international centres for
the identification of the strains concerned.

Other chapters deal with the epidemiology of several of these conditions.

Epidemiological and Statistical Study of Other Conditions

The modern view that epidemiology is relevant not only to communicable
disease but to all factors affecting the health of a community has led, parti­
cularly in the last few years, to the Organization's being concerned with studies
dealing, inter alia, with the epidemiology of mental diseases, nutritional diseases,
chronic circulatory conditions, accidents, respiratory conditions and dental
diseases. The recommendations of expert committees and other groups on
omenclature, definitions, classifications, survey and sampling methods, have
been put to use in these studies. Attention has also been given to the possibility
of extending the epidemiological method by the use of radioisotopes. The
Organization has moreover attempted to provide material for study by local
services and institutions, by publishing the available data in its routine statis­
tical publications, and has encouraged the preparation of studies for publication
in the WHO Bulletin.

Particularly since 1953, epidemiological research has been made a part
of many programmes of WHO advisory services to governments. Even when
research is not the declared objective of such a programme, opportunities for
collecting epidemiological data are taken wherever possible. The need for
such work to be included in all the programmes WHO assists has been evidenced
by the number of requests made to the Organization in recent years for informa-
tion on the international aspects of many diseases and other conditions affecting public health. The tendency to look to the Organization as a source of medical "intelligence" has grown during the last ten years. The requirements of local institutions and services, universities and research laboratories for data on which to base programmes for national and regional development have increased, particularly since the passing of the "emergency" phase of the first few years. To meet these requests the Organization, since 1953, has strengthened its epidemiological and health statistical services, which are being developed in the expectation that in due course they will be one of the main international channels for the transmission of epidemiological and statistical information.

An interesting example of such a service is the help which the Organization was asked to give to a group, convened by the United Nations with the participation of some of the specialized agencies, concerned with the description of social development or defect as a guide to the establishment of rational international programmes of assistance. For this purpose the group desired some means of comparing different levels or standards of living that would make it possible to form a better judgement as to what action was required to raise them and to assess how far such action had been successful. Great difficulty was met in attempts to give meaning to such terms as "levels" or "standards" of living. A United Nations committee of experts found it impossible for the time being to prescribe any single index by which a level of living could be defined, but suggested that the best way to approach the problem would be to look for relevant factors that could be clearly defined and could be measured. The relevant factors—health, food, education, conditions of work, employment, etc., were called "components", and the means of measuring the components were called "indicators". WHO was asked to advise on indicators for health and set up a study group, which reported in 1955. This group classified possible health indicators as follows:

1. Health status of the individual or group;
2. Environmental conditions;
3. Health activities.

It considered that inherent difficulties prevented any recommendation for the direct measurement of social well-being per se, but it suggested the search for indicators by sample surveys of families. In 1956, the WHO Expert Committee on Health Statistics endorsed a previous opinion that the expectation
of life at birth, at one year, or at any other age, was theoretically the best indicator but that it was available for only a small number of countries. It therefore adopted a suggestion that a proportional mortality ratio (that is, the percentage of total deaths represented by deaths at the age of fifty and over) be experimentally taken as a comprehensive health indicator.

Recently the Organization has often been asked to provide consultants to advise countries on health statistics and epidemiology in connexion with the planning of their health programmes, and the number of persons in national services seeking more advanced training through fellowships has been increasing rapidly. The statisticians recently appointed to many countries, as well as those associated with the WHO regional offices, have done much to foster a wider acceptance of statistical work, and numbers of technical projects assisted by WHO are now benefiting. In 1957 the Organization decided to examine its policies and consider future programmes, and it called upon a group representing several branches of epidemiology to undertake this task.

**International Study of Cancer**

Cancer research is being conducted on an impressive scale, especially in North America and in parts of Europe. As such local investigation meets most of the immediate needs for laboratory, clinical and field research, international programmes have been restricted to certain specific subjects. International research work on cancer has therefore been mainly concerned in the last ten years in the co-ordination of local statistical studies. The Organization has continued the study, initiated by the League of Nations, on cancer of the uterine cervix. It has followed the lead given by the League in assisting research workers in different countries to agree on such matters as definitions, nomenclatures and classifications: such standardization, and common techniques of diagnosis and treatment, are necessary in the study of, for example, the geographical variations in the types and forms of cancer. In 1951 a WHO Sub-Committee on the Registration of Cases of Cancer discussed the general principles which should govern the statistical classification of neoplasms, and agreed that such classification should distinguish the anatomical site, the histological type, and the degree of malignancy. A modified classification for malignant neoplasms was prepared, and was ultimately
included in the seventh revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death. The help of the National Committees on Vital and Health Statistics and of other agencies has been enlisted in promoting the adoption of the definitions and classifications recommended.

Another development during the ten years which has received much attention from the WHO sub-committees concerned with cancer statistics has been the introduction of cancer registries in countries where the medical and statistical services are sufficiently developed to make them a practical possibility. The assessment of the results of the different treatments of cancer—surgical, radiological, and other—has also received attention. The lack of adequate epidemiological and statistical knowledge of the course of neoplasms under different conditions has made many earlier deductions from clinical records of little value. As early as 1950 the Sub-Committee on the Registration of Cases of Cancer suggested definitions, rules and procedures for compiling statistics on the results of treatment and for computing survival and recovery rates.

Data from the returns received from countries, supplemented by those obtained from certain investigations undertaken by the Organization, have been classified and made available in tables published in the Annual Epidemiological and Vital Statistics and in some issues of the monthly Epidemiological and Vital Statistics Report. Studies published have included: cancer mortality in Europe during the twentieth century; mortality from malignant neoplasms of the respiratory system; mortality from Hodgkin's disease and leukaemia; and mortality due to cancer of the breast and female genital organs.

In 1955 a group of experts advised the Organization on its work connected with cancer research. The group confirmed the view that it was of prime importance that countries should adopt and apply uniform definitions, nomenclatures and criteria of diagnosis. In this connexion the group also made a proposal, on which action is being taken, for the establishment of international pathological reference centres. Difficulties still arise in the pathological diagnosis of neoplasms and in comparing the diagnoses made in different countries. The group therefore considered that it would be useful if the Organization would make standard pathological specimens available to interested local laboratories and specialized workers. There are differences in type and prevalence of neoplasms in different parts of the world which are not yet understood but which may be related to local epidemiological
circumstances; if such relations could be determined, they might explain some of the causative and correlative factors of cancer and the group considered that every assistance should be given to workers on such problems.

UNESCO undertakes international programmes of research into physical, chemical and biological phenomena of cell growth; to avoid overlapping and to co-ordinate the work of the two organizations, it has been accepted that WHO shall have the primary responsibility in the research related to health and medicine, without prejudice to the right of UNESCO to concern itself with the pure sciences.

Non-governmental organizations, in particular the International Union against Cancer, have co-operated in this branch of the Organization’s work. The Union has been attempting to extend the studies, referred to earlier, of geographical variations in types of cancer. WHO has also kept in touch with the work of the International Congress of Radiology on the results of treatments of cancer.

**Special Studies**

During the ten years of its activities, WHO has collected a great deal of information on those diseases on which it concentrated its efforts, such as tuberculosis, yaws, malaria, bilharziasis, etc., which, as already mentioned, are dealt with in other parts of this book. In addition, from the mass of mortality and morbidity data collected by the Organization, statistics have been compiled and presented in the *Epidemiological and Vital Statistics Report*, to provide a statistical basis for the work of expert committees and study groups of the Organization. Such studies have dealt with both communicable diseases and other conditions.

The general acceptance of the infant mortality rate as a useful indication of health conditions prompted its early examination in international studies. In 1948, such a study showed that there had been a disturbing increase in infant mortality in several countries affected by the Second World War. On the other hand, more surprisingly, many countries which had suffered from the war showed little or no change from the usual rate. Similar studies made in 1950, 1951 and 1952 showed that in most European countries limits of reduction of the more easily preventable infant deaths were being reached,
at rates of thirty deaths or less per thousand live births. Similar conditions during the same period were recorded in Australia, Canada, New Zealand, and the United States of America.

In recent years it has been possible to use available data to issue tables in the monthly and annual publications showing death rates in selected countries, mostly in Europe, from such causes as tuberculosis, cancer, maternal morbidity, certain communicable diseases, arteriosclerosis, and accidents. In 1952, a study was made of the decline of mortality as a factor in the recent growth of various populations in the world.

Finally, it should be noted that the scope of the Organization's work in international epidemiology and health statistics also extends to many of the activities described in other chapters of this volume. These subjects are increasingly recognized as essential components in the planning and execution of international programmes and also in the associated research. Many of these programmes must depend for their full development on suitable technical advice on the principles and techniques of epidemiology and statistics.
CHAPTER 20

Atomic Energy in relation to Health

The distribution of radioisotopes was discussed by the Interim Commission at its fifth session in 1948. However, it may be said that WHO’s programme in connexion with the peaceful use of atomic energy originated from a letter sent to the Director-General by the Government of Austria in September 1953. This letter called attention to the discussion by the International Commission on Radiological Protection, at Copenhagen earlier in that year, of the recommendations as to protection against radiation that had been drawn up by the Sixth International Congress of Radiology, held in London in 1950, and it mentioned the several aspects of the subject that had been considered by the International Commission on Radiological Units and Measurements. (More will be said about these two international commissions later in this chapter.) The Government of Austria suggested that the Executive Board and the Health Assembly should consider the completion of those recommendations and their codification as international regulations.

The Director-General referred these suggestions to the Executive Board at its thirteenth session, in January 1954, but advised the Board that the authority of the Organization to adopt regulations was limited to the subjects listed in Article 21 of the Constitution, which did not include protection against radiation, and that it therefore would not be possible to adopt the suggestions in the form in which they had been proposed by the Government of Austria. The Board considered other ways of dealing with the problem and finally asked the Director-General to study the subject further in consultation with the international and non-governmental organizations concerned and to report to a future session of the Board.

Accordingly certain Member States and the appropriate international organizations were consulted in order to clarify and set out the types of work in this field to which WHO might usefully contribute. In more direct relation
to the suggestion of the Government of Austria, there were collected from Member States the laws or regulations they had made for the protection of health in persons exposed to risks from ionizing radiation.\(^1\) Steps were also taken to get in touch with outside consultants who could best advise the Organization on the planning of this new side of its work. On the other hand, there was being prepared the draft of a second general programme of work, for the years 1957 to 1960. This gave the opportunity to present to the Board and the Health Assembly a suggestion for the formal and effective inclusion of the new subject in the general programme of the Organization.

In December 1954 the Director-General invited to Headquarters a group of four consultants, of whom two were the heads of the medico-biological departments in national atomic energy commissions, another a distinguished radio-biologist, and the fourth a physicist with a special knowledge of the biological aspects of radiation. This group advised on the present and future possibilities for health uses of atomic energy and enabled the Director-General to send to the Secretary-General of the United Nations, in connexion with the preparation of the International Conference on Atomic Energy, and in time for the first meeting of the Advisory Committee (see below) in January 1955, a preliminary note on what WHO’s programmes on those questions might be. An officer was appointed to the headquarters staff in 1955, to advise the Director-General and to help in drawing up a programme of work in atomic energy, and later a second post was authorized.

In December 1954 the General Assembly of the United Nations decided, \textit{inter alia}, that an international technical conference of governments should be held under the auspices of the United Nations “to explore means of developing the peaceful uses of atomic energy”. The General Assembly set up an Advisory Committee to prepare the conference, to which the interested specialized agencies (including WHO) were invited.

The International Conference on the Peaceful Uses of Atomic Energy was held at Geneva in August 1955. WHO, and other specialized agencies, had been consulted on the preparations for the Conference, and practically all its suggestions for the part of the agenda concerned with biological and medical problems had been adopted. WHO presented two papers to the Conference: one on the general problems of protection against radiation from the public-

\(^1\) “Ionizing radiation” covers both what is usually called “atomic radiation” and x-rays.
health point of view, and the other on education and training in health and medical aspects of atomic energy. In both papers, more explicitly in the second, it was suggested that the current research and training programmes of WHO did not differ in kind from those that would be required in the new field and could readily be adapted and extended to meet the probable needs. The information collected by the Organization about national laws and regulations on radiation protection was not formally presented to the Conference but was made available to delegates who asked for it, as many did.

The discussions at this conference gave support to the general principles sketched in the provisional notes on WHO programmes that had been sent to the Secretary-General. These principles were further developed soon after the Conference and were approved by the Executive Board at its seventeenth session and by the Ninth World Health Assembly. This programme has changed little since that time, and it can be set out under five main heads, as follows:

(1) training for three distinct categories of worker: specialists for protective work in atomic energy laboratories or plants (normally either physicians or "health physicists"); public-health administrators, who would be particularly interested in such questions as the disposal of radioactive waste and the siting of reactors; and medical users of radioisotopes;

(2) collection and distribution of information on the medical problems of atomic energy and on the medical uses of radioisotopes;

(3) study of the health problems involved in the control of the location of reactors and in the disposal of radioactive waste from factories, laboratories and hospitals;

(4) co-operation with the competent technical bodies on the standardization of radiation units, on codes of practice such as the recommendations of the International Commission on Radiological Protection; and on pharmaceutical specifications of methods of preparing radioisotopes for medical use;

(5) co-ordination of research on the health aspects of radiation.

Work in pursuance of this programme was soon under way. Co-operation with technical bodies and the work of study groups and expert committees that formed part of the programme are mentioned below. In November 1955 WHO, in collaboration with the Government of Sweden and the Atomic Energy Commission of the United States of America, sponsored the first
international training course for health physicists ever to be held. The second course was held in Belgium, in October 1957, in collaboration with the Government of Belgium and the Atomic Energy Commission of the United States of America again. Both courses covered such questions as the general principles of health physics, supervision at reactors and radio-chemical laboratories, measuring and monitoring radiations, precautions in factories, laboratory design and methods of disposal of waste. These courses were attended by participants from a number of countries in Europe and by some from the Eastern Mediterranean Region. At the end of 1956 the French Government organized an advanced course on radiation protection for public-health officers and industrial medical officers; WHO awarded a number of fellowships and helped to provide lecturers for this course.

Experience in other fields of education suggests that a most effective method of training medical men in the more advanced study of radiation biology and radiation protection will be to provide fellowships of about a year for study in one of the countries where work on radiation protection has been well developed; the fellow on return to his own country would then undertake teaching as required, probably combined with research or government work. About the same period of study will also be necessary for full training in the therapeutic use of radioisotopes. Shorter courses of the kind mentioned above are, however, very useful for the initial training of health physicists and public-health medical officers. Such questions were further considered by the Study Group on Radiological Units and Radiological Protection, which is mentioned in a later paragraph.

At the seventeenth session of the Executive Board the International Commission on Radiological Protection (ICRP) and the International Commission on Radiological Units and Measurements (ICRU) were admitted into official relationship with WHO. A formal channel of communication was thus opened with these bodies, whose members are appointed by the International Congress of Radiology. They are non-governmental organizations of individuals, chosen as experts in relevant specialities, without regard to nationality. The ICRP was formally constituted in 1928 and has now five international sub-committees which deal with various aspects of radiation protection. The ICRU was established in 1925 and is concerned with the development of standard units to measure ionizing radiation and for specification of radiation treatments.
In April 1956 the two commissions held at Geneva a joint conference to consider and revise their recommendations, which was attended by an observer from WHO. They invited WHO to take part in a joint informal seminar and they gave advice on the agenda and helped in the selection of members for the WHO Study Group on Radiological Units and Radiological Protection, which met later in the same month.

The Study Group considered the general work of WHO on protection against radiation; and in its report it recommended that WHO should continue and broaden its consultative services to governments on radiological protection and the disposal of radioactive waste. It suggested how WHO could help in establishing, in collaboration with ICRU and UNESCO, international standardization of x-ray and radioisotope dosage so as to ensure international comparability of radiation dosage. The Study Group considered that an attempt should be made to give medical students some idea of the effect that the development of atomic energy has had on the medical sciences and suggested appropriate modifications in medical education. It considered also the training of public-health administrators and of personnel in atomic energy installations, and how the teachers required to give such training could be provided in countries new to atomic energy. Its report, which was communicated to the Executive Board at its nineteenth session in January 1957, has been found to be of considerable use to the regional organizations of WHO, as well as to Headquarters, for it gives guidance on the types of training required, the necessary duration of courses and fellowships, the selection of persons for training and how they can best be employed when they have been trained.

Another study group was convened in Copenhagen in August 1956 in pursuance of the consideration by the Executive Board at its seventeenth session of a proposal by the Government of Denmark to the effect that the new responsibilities of WHO could not be fully met if due account were not taken of the effect of radiation on human genetics. The Study Group considered natural and man-made sources of ionizing radiation, the recording of radiation exposure in individuals and populations, and the training of experts and the education of the general public in the principles of genetics; but the chief theme of the report was fairly detailed recommendations for further types of research into the effect of radiation on human heredity. This report also was presented to the Executive Board at its nineteenth session,
and has since been published. The report was also submitted to the United Nations Scientific Committee on the Effects of Atomic Radiation which is mentioned towards the end of this chapter. This committee closely considered the report at its meeting in March 1957; the rapporteur of the WHO Study Group attended the meeting and took part in the discussion. The report aroused much interest and it may be expected that, when the United Nations Scientific Committee presents its own report to the General Assembly of the United Nations in 1958, the conclusions of the Study Group and the information contained in the papers contributed by its members will materially assist the work of the United Nations on this aspect of the peaceful uses of atomic energy.

This meeting of the United Nations Scientific Committee was followed by a study group of the ICRP and ICRU, at which WHO was represented by an observer. The group considered methods for the reliable measurement of radiation doses received by different parts of the body (particularly the gonads) from the medical use of ionizing radiation. It considered also whether any practical system could be set up for keeping a record of the cumulative dosage received by individuals.

An Expert Advisory Panel on Radiation has been established, and in 1957, as part of WHO's general programme for extending knowledge of radiation as it relates to health, two expert committees were held, one to discuss graduate training in atomic energy for public-health officers, and the other to consider the introduction of radiation medicine into the undergraduate medical curriculum. The World Federation for Mental Health had asked WHO to give full consideration to the important mental and social problems connected with the increasing use of atomic energy, and a study group was convened for this purpose towards the end of the year.

Some other examples of WHO's work on atomic energy are given in the paragraphs that follow:

The Ninth World Health Assembly in May 1956 asked the Director-General to warn all Member States that the planning and execution of any project for the peaceful use of atomic energy should be done in close contact with the public-health authorities.

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1 Effect of Radiation on Human Heredity: Study Group convened by WHO together with Papers presented by Various Members of the Group, Geneva, 1957
A valuable paper on the disposal of radioactive waste, which surveyed the problem in some detail, was presented at the Fifth European Seminar for Sanitary Engineers, held at Helsinki in July 1956. This paper, since published, is believed to be the first review of the subject in which the reader unacquainted with atomic energy is taken from the basic concepts of radiation biology to the fundamentals of radioactive waste disposal, as required by the health worker.

WHO is taking part in two projects endorsed by the United Nations Scientific Committee on the Effects of Atomic Radiation. In co-operation with UNESCO, the International Commission on Radiological Units and Measurements, and a well-known national standardizing organization, it is working out arrangements under which a government may obtain on loan a portable calibrated instrument for checking standard instruments for x-ray measurement against the corresponding standard of an advanced and reliable laboratory in another country. This will promote the international comparability of x-ray dosage, the need for which is referred to above in connexion with the Study Group on Radiological Units and Radiological Protection. The other project is an inquiry in connexion with the work of the United Nations Scientific Committee, and in which UNESCO and FAO are also concerned, on some of the problems involved in the disposal of radioactive waste in the oceans. These problems include the probable distribution of the waste by ocean currents and the probable concentration in marine organisms of the different radioisotopes concerned.

It will be apparent from what has been said that, since many international bodies are working at the same time on different aspects of atomic energy, it is essential that proper machinery should be established for the co-ordination of their work. This co-ordination must extend also to an important new agency which came formally into being at the end of the ten years under review.

The original resolution of the General Assembly in December 1954 had recalled the initiative taken by the President of the United States of America in December 1953 in suggesting the establishment of an International Atomic Energy Agency, had supported the proposal and had suggested that, when the Agency was established, it should enter into an appropriate agreement with the United Nations. The Executive Board, in January 1954, and the Eighth

1 Bull. Wild Hlth Org. 1956, 14, 1057-1060
World Health Assembly, in May 1955, had asked the Director-General to keep in touch with such developments, since WHO, and other specialized agencies, were very anxious that their constitutional responsibilities should be taken fully into account in the statute of the new agency, in order to avoid overlapping and to secure full and effective co-operation. This desire has been substantially met and the statute of the new agency, in part explicitly and in part by agreement, provides for collaboration and consultation with the specialized agencies as well as with the United Nations.

Within the United Nations organizations, co-ordination of their work was already the function of the Administrative Committee on Co-ordination (ACC) and this committee has set up a sub-committee which specializes in the co-ordination of international work on atomic energy. There is also the United Nations Scientific Committee on the Effects of Atomic Radiation, already mentioned, whose function is to receive and assemble information on observed levels of radiation and on the effects of radiation on man and his environment. The Advisory Committee that was set up to prepare the first International Conference on the Peaceful Uses of Atomic Energy was continued by the General Assembly and was given more general advisory powers. It is hoped that these provisions against overlapping will prove to be adequate and will ensure effective collaboration.
CHAPTER 21

Environmental Sanitation

In the draft annotated agenda which it prepared for the First World Health Assembly the Interim Commission drew attention to the importance of environmental sanitation to all types of health work and recommended that WHO be put in a position to provide advisory services on the subject, services which, it added, would have special significance for the proposed malaria programme and the activities suggested under the headings of housing, rural hygiene and the like. The First World Health Assembly concurred in this view, but went a step further by deciding to include environmental sanitation in the “top priority” category in the Organization’s programme of work.

The reasons for this emphasis are not far to seek. In country after country evidence had accumulated to show a heavy burden of disease and death resulting from exposure to a faulty environment. True, effective preventive and remedial measures were being applied in certain countries, but these accounted for only a small part of the world’s population.

The term “environmental sanitation” has been given various interpretations in different countries and at different times. In its most restrictive sense, sanitation has been equated with the safe disposal of human excrement. In many cases, it is used to cover the handling by the community of the water supply and the disposal of sewage and refuse. But in recent years it has been increasingly used to denote the control, generally, of those elements in the environment that affect, or may affect, human health. It has been defined as an adjustment of the environment for the prevention of disease. This is a very broad concept, for there are few aspects of public health that are not related in some way to the environment. It is regarded as including, besides the matters mentioned above, such subjects as the control of insects,
rodents and other vectors of disease, the hygienic quality of food and drink, housing as it affects health, stream pollution and atmospheric pollution.

In many countries, problems of environmental sanitation were dealt with by engineers or personnel specially trained as sanitary inspectors. In a few countries, notably the United States of America, sanitary engineering was developed to deal with most aspects of environmental control. It was decided to ascertain how far this system would be applicable to conditions in Europe, where many countries had reached, with a less specialized type of organization, a high level of efficiency as regards not only sanitation in its narrower sense but also other matters such as pure milk and food supplies, control of pests, improved housing, etc. For this purpose leading engineers and health administrators from fifteen European countries attended, in 1950 at The Hague, a WHO seminar on the relation of engineering to health.

This meeting was followed in 1951 by a resolution of the Fourth World Health Assembly recommending that in all Member States provision should be made for the training and employment of adequate numbers of public-health engineers, town-planners, architects and other allied personnel, and requesting the Executive Board and the Director-General to give all possible help in the creation of training facilities. This resolution was expressly worded to make allowance for the position in countries where voluntary endeavour plays an important role in this respect. While in some European countries sanitary engineers are now employed in the health services, others have preferred to retain patterns of administration which have been built up over the years and have given good results. The sanitary engineer trained in the broader aspects of public-health work is therefore still rarely used in Europe.

The situation varies in other parts of the world. Africa, with a few exceptions, is not yet faced with many situations where international assistance is requested for comprehensive environmental sanitation programmes. The Eastern Mediterranean and South-East Asian countries in general are beginning to allot a place to sanitary engineering in their health and sanitation programmes. In Latin America nearly every country is making a vigorous start to train and employ its own engineers. In the Western Pacific the same pattern is rapidly emerging.

By 1954 it became clear that training in environmental sanitation in many countries required some impetus, and a resolution was voted by the Seventh World Health Assembly calling for further efforts to stimulate Member
Rural Sanitation

The means for achieving such basic things as a pure water supply, safe food, etc., differ in the cities and the countryside; and much of the world is rural. In such populous countries, for example, as India and Indonesia, at least four out of every five persons live either on a farm or in a primitive peasant village, and a similar situation prevails in large parts of the world.

The peasant and the members of his family are faced with a number of special conditions that affect their sanitary environment and consequently their health. He must depend to a very large extent on himself and his own resources for sanitary facilities. Piped water supplies and sewers are often impracticable; the safety of his food depends entirely on how he himself handles it, the cleanliness of his surroundings is a matter of his own efforts. He lives close to his land and animals. He cannot fall back on the services of skilled artisans, and anything he wants made he must usually make himself. He is poor in terms of money, and the opportunities for communal financing of improvements are extremely small. Any time spent on improvements to his establishment means a sacrifice in his livelihood, which may be precarious at best. He is generally conservative, and does not readily change his habits.

Rural sanitation, to be effective, requires the willing participation of the rural family. In the cities, sanitation can often be done for the people; in the rural areas, it must be done by them. This fact leads to the inevitable corollary that all rural sanitation work must be accompanied by effective health education.
In attacking the rural sanitation problem governments often have difficulty in deciding where to start. It is not unusual for a national health administration to estimate the cost per person, to multiply this amount by the rural population and arrive at a result which, even when spread over a number of years, commonly exceeds the total national health budget. WHO has been able to help with this problem by drawing on the experience of countries which have successful programmes in operation. One of the first efforts in that direction was undertaken in 1949 in Egypt where the sanitary engineer attached to the regional office made a special survey of areas in which bilharziasis was prevalent and advised on the measures to be taken for the improvement of water supplies and sewage disposal in those areas. By 1957, WHO staff that had been assigned to demonstration projects at one time or another included ninety sanitarians and sanitary engineers.

An example of WHO work is the project being carried out in the state of Kerala, India. WHO has assigned a sanitary engineer and a health inspector from two different Member States to work with and advise an Indian team of twenty-five in organizing and running a rural sanitation programme. The Indian sanitary engineer in the team had received post-graduate training in sanitation under a WHO fellowship. The project has four aims: to develop cheap and acceptable types of wells and latrines; to construct such facilities for a rural population of about 100,000; to train sanitary inspectors, health aids, well drillers and other technicians; and to carry out a programme of health education that will ensure public and individual support and co-operation. None of the labour or materials required for this project is provided free with the exception of a suitable concrete squatting slab for latrines. The householder must dig the pit, help with the labour, and build the superstructure himself. The project is part of an Indian national five-year plan, and is serving as a prototype for other projects run by the Indian states without international assistance. Although it has been in operation for only a short time, it is being well received.

Such projects have a value that is difficult to estimate. The contribution of WHO is a modest one, but the number of workers and the financial contribution of governments are large. In many projects, the contribution of local communities and individuals in terms of money, local materials and labour by far exceeds the combined support of WHO and the government.
In some cases it is possible to gauge the stimulus imparted by the contribution of the World Health Organization. In Japan, for instance, there had been an age-old conflict between the value of night-soil as a fertilizer and its dangers to health. Recognizing that this problem of public-health and agricultural economics must be faced, WHO agreed to aid in a pilot operation designed to reconcile the conflicting needs. For this purpose, WHO assisted the Japanese administration in designing, constructing and operating, first, a small pilot plant and, later, a full-scale prototype composting plant, in which refuse and human excrement are made to decompose at an accelerated rate, producing heat of fermentation which is believed effectively to sterilize all disease-carrying organisms. The operation of both the pilot plant and the full-scale prototype plant in the city of Kobe has been successful and the Japanese Ministry of Health and Welfare has already included in its proposed budget a sum equivalent to over US $1 million to subsidize similar composting plants in ten cities of Japan.

It has also been reported that in almost every country of South-East Asia some organization to deal with environmental sanitation has now been established; the training of public-health inspectors has been considerably improved. In six of the seven countries projects in environmental sanitation are receiving aid from WHO and other agencies. But the main achievement is the increased awareness of the problem and the will to solve it.

Urban Sanitation

There are certain contrasts between the health problems of cities and rural areas. Sanitation in cities tends to be directed to the prevention or control of epidemics; for in a city a single defect may endanger the health of thousands. In modern cities great epidemics of cholera and typhoid fever, borne by contaminated drinking-water, are a thing of the past. But there are still centres of population where water-borne epidemics occur, and WHO has concerned itself with their problems.

One step has been the preparation of an international standard of drinking-water quality, to the end that a water considered "safe" in Buenos Aires or London should also be considered safe in Calcutta or Bangkok. WHO first convened a series of regional meetings to bring together engineers, bacteriologists, chemists and health officers to work out appropriate standards.
A general meeting was then held in Geneva, the report of which proposes certain criteria which governments may adopt as their official standard.

Direct aid to governments in urban environmental sanitation has followed two general forms, advisory services by consultants, and demonstration projects. The following is typical of the many examples that could be cited.

In North Borneo, the Government recognized the need for modern sewer systems in seven municipal areas, including the capital, Jesselton. Sufficient funds were not available, and the local engineers, although competent in public works, lacked experience in sewer design. Assistance was asked of WHO, and a consultant was sent out with whose help a comprehensive plan was developed, including estimates of costs and materials. The Government negotiated with the United Kingdom Colonial Development authorities and secured aid in financing the scheme. Two WHO engineers were then assigned to the project for two years, to assist and train the local engineering personnel in drafting detailed construction plans and to supervise the initial installation of sewers, pumping stations and outfall lines. During this phase another municipality was added to the scheme. The work, which is now well ahead, provides an example of how, with some international aid, a national administration succeeded in speedily surmounting its difficulties.

It is not enough to build water, sewage treatment and mechanical composting plants. Without skilled operation and maintenance such installations rapidly deteriorate, and may become a liability. WHO has organized seminars for engineers, helped to run training courses for operators, and provided specialized advice and assistance in particular cases to raise the general level of operation and supervision. One such course in New Delhi brought to Indian water-plant operators the skilled instruction of two sanitary engineers from other countries.

**Guides and Manuals**

To extend advice on sanitation, WHO has made increasing use of publications. A monograph on the pasteurization of milk \(^1\) has been widely distributed. It is used as a guide in the preparation of milk hygiene laws and


*Milk pasteurization*, Geneva (World Health Organization: Monograph Series No. 14)
regulations. A WHO consultant visited a number of countries and prepared a manual bringing together knowledge on the composting of organic wastes.\(^1\) This volume has guided the use of high-rate mechanical composting in a number of countries, particularly in Asia, Latin America and Europe. By the end of 1957 two manuals on rural sanitation (excreta disposal and water supply) were in preparation. The volume *Specifications for Pesticides*\(^2\) has done much to resolve a confused situation, and is now widely used as a standard for many commonly used insect poisons and their mixtures. These specifications have aided both manufacturers and users; they have assisted in improving quality and lowering costs. Other monographs have dealt with the design and operation of septic tanks,\(^3\) and with toxic hazards in the use of pesticides.\(^4\) There has been a steady demand for these books, and the number of references to them in sanitation literature shows their wide-spread use.

**Insecticides and Pesticides**

In the use of insecticides for the control of insect vectors of disease there are problems of urgent operational significance to which an immediate answer is necessary, and others of longer range. Members of expert advisory panels have been called upon to contribute in studying and making recommendations on both these types of problem.

Typical of the first is the question of spraying equipment. Ten years ago a large-scale effort was started to control malaria by the use of residual sprays, principally with DDT. Experience showed that the hand sprayers then available could not stand up to hard continuous use for months on end. The problem of writing a specification for an efficient sprayer was put to members of the Expert Advisory Panel on Insecticides. A specification was produced, with the result that today most large malaria control programmes are using a good sturdy sprayer manufactured to standards recommended

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\(^{1}\) GOTAAS, H. B. (1956) *Composting: sanitary disposal and reclamation of organic wastes*, Geneva (World Health Organization: Monograph Series No. 31)

\(^{2}\) World Health Organization (1956) *Specifications for pesticides*, Geneva

\(^{3}\) World Health Organization: Third European Seminar for Sanitary Engineers (1953) *Design and operation of septic tanks*, Geneva (World Health Organization: Monograph Series No. 18)

\(^{4}\) BARNES, J. M. (1953) *Toxic hazards of certain pesticides to man*, Geneva (World Health Organization: Monograph Series No. 16)
by WHO. The protection of operators, methods for disinsecting aircraft and the development of resistance to insecticides have been among the problems which have received attention.

At the end of 1957 the Expert Advisory Panel on Insecticides consisted of about eighty members, including biochemists, physiologists, geneticists, biologists, field entomologists, toxicologists, engineers, chemists and quarantine officers. Ten teams of two to four panel members were at work, either by correspondence or by personal consultation, on specified problems. In most cases, this kind of work is directly related to the agenda of a forthcoming expert committee meeting, and this automatically sets a date for the completion of the work and ensures a complete and careful report.

Some questions which have been dealt with in this way are the development of standard methods, applicable throughout the world, for testing the susceptibility of insects to different insecticides; the persistence of deposits of residual insecticides on mud walls; the deterioration of water-dispersible powders under tropical storage conditions; and the bio-assay of aerosols.

The development of insect resistance, which may jeopardize a campaign against malaria and other insect-borne diseases, is receiving serious study from several public and private agencies. WHO's contribution to the coordination of research has included surveys, and the exchange of information and advice on some aspects of the problem. To ascertain what research was being conducted and to assess the potentialities for research, the Organization carried out a survey of about one hundred laboratories with some two hundred scientists working on the chemistry, biology, genetics and toxicology of resistance.

The development of resistance in the anophelines is reviewed in the chapter on malaria. A further example of the work done by WHO with regard to resistance in other insects is the world-wide survey, begun in 1953, of the susceptibility of body lice to insecticides. WHO distributed 520 kits for testing resistance, based on a method developed by the Department of Agriculture and the Armed Forces of the United States of America. By 1956, the results of 177 tests had been received from 51 countries. They showed that considerable resistance to DDT had developed in certain points in Chile, Ethiopia, French West Africa, Hong Kong, Iran, Japan, Peru, Turkey and South Africa. Similar resistance was also found in the Palestine region and it was consequently recommended that DDT should be replaced
by BHC in the 1957 dusting programme in the camps run by the United Nations Relief and Works Agency. The results of the survey were compiled and published in the WHO Bulletin.¹

The survey also indicated instances of resistance to BHC in Japan and South Africa. A consultant was sent to Africa late in 1956 and confirmed the existence of resistance to BHC at Freetown (Sierra Leone) and St Louis (Senegal).

The method of testing for resistance in body lice has now been revised and the new test kits are being distributed.

Since there is a danger that resistance may come to negate the use of BHC dusts as well as DDT dusts, preliminary work is being encouraged on the use of dusts containing organophosphorus compounds, and, as part of a co-ordinated programme, arrangements have been made for certain institutions, including the United States Department of Agriculture at Orlando and the Communicable Diseases Center at Atlanta (Georgia), United States of America, to investigate the toxic hazards to man of certain of these dusts.

WHO has contributed to the development of new pesticides and improved formulations; the development of new aerosol formulations and of methods for their use; and the study of the effects of continued exposure of man to pesticides.

The Place of Sanitation in National Development

While theoretically it is possible for any country rapidly to move at once towards a high level of sanitation, the national interest is likely to suffer from the unbalanced diversion of funds and skills from agriculture, industry, commerce, education and other branches of economic and social life which such action might involve. The advantages of a co-ordinated effort need not be stressed; in practice co-ordination is not always easy. The assistance given by WHO on a question of water resources shows the solution adopted in one such case.

In one country where the fairly high total annual rainfall is concentrated mostly during a short season, and where the dry weather is prolonged and

¹ Bull. Wld Hlth Org. 1957, 16, 9
severe, several governmental agencies are concerned with the conservation and use of water; the irrigation department, the electric power authorities, the public works department and others. Various technical difficulties hampered co-operation. The irrigation department could not permit villagers to construct a small water-treatment plant which would use an irrigation reservoir as its source; the public works department could not accept an offer of funds from the medical department for the extension of municipal water mains to a new hospital, nor could the medical department legally make such an offer. To meet this situation, the Government sought help from WHO, which sent a consultant to assist in drafting a national water policy. The policy adopted gives first emphasis to the welfare of the people; it overrides the authority of any single government agency and provides a mechanism for genuine co-operation among those concerned with water resources.

Work with Other International Agencies

To secure balanced national development and to foster fuller international collaboration, the Organization has taken every opportunity of work with other international agencies. There is space here only for a few examples. WHO has worked with UNESCO and with the Inter-American Association of Sanitary Engineers on a glossary of engineering terms designed to assist understanding of technical information by different language groups. It has also collaborated with the United Nations and its regional Economic Commissions on housing, water resource development, urbanization, the transport of dangerous goods, community development, control of stream and atmospheric pollution; with FAO and UNICEF on milk and food protection and the toxicity of pesticides; with UNESCO on the health aspects of arid zone and humid tropical zone development; and with ICAO on the hygiene and sanitation of airports. This collaboration has not been confined to conferences and discussions; it has included joint country surveys, joint expert committee meetings, the organization of training courses, joint publications, and joint participation in demonstration projects. In these activities public health has been recognized as an essential component of all programmes of agricultural, industrial, social and economic advancement.
Training

Mention has already been made of the training of sanitary engineers, and of technicians employed in urban and rural sanitation work. Special emphasis has been laid on the training of health inspectors and health or sanitary aides. In many countries these form the backbone of sanitation services, and the whole programme suffers if there are not enough well trained inspectors. WHO has received many requests for help in establishing training programmes. As early as 1947 WHO was assisting Ethiopia with a training programme for sanitary inspectors. In Liberia, starting in 1951, a health inspector from a western European country spent two years organizing and teaching a course. During this time a Liberian was sent abroad for advanced training and on his return was put in charge of the course.

By 1953 WHO was assisting with the establishment of training courses for sanitary inspectors in Brazil, Chile, Ethiopia, Liberia and Mexico. The extension to other countries was rapid and by the end of 1957 similar training was provided in Afghanistan, Egypt, India, Libya, Nepal, and Zanzibar.

Current Trends

During the past ten years the programme of environmental sanitation has been adapted to meet new demands and to resolve current difficulties. Although there still is a great need for specific projects, such as field demonstrations, a trend has been observed towards greater emphasis on training, in particular higher levels of training.

Programmes are now being designed to assist investigators, for example by seeking a clearer definition of the various problems requiring solution. Typical of these is the stimulation of research on such subjects as insect resistance and drinking-water quality. The encouragement of such work on an international scale leads to the development of national programmes, fitting into a more general pattern.

There has been a trend away from a few international meetings at a high technical level towards a large number of regional and national meetings dealing with narrower and simpler subjects. This has been a natural development. Participants in international meetings and fellows after their studies
abroad have been able, on their return home, to pass on to others the knowledge they have gained, and to start further work.

One of the great needs of environmental sanitation workers is for authoritative published material on a wide variety of subjects. Frequently what is wanted is not a highly scientific text, but a simple account of how basic principles are applied. Mention has been made of manuals and other publications already produced; others are to follow.
CHAPTER 22

**Nutrition**

Undernourishment and malnutrition are, jointly or separately, directly or indirectly, responsible for much of the world’s ill-health. In attacking this problem, WHO collaborates closely with the Food and Agriculture Organization. WHO is primarily concerned with nutrition as it affects health; the objective of FAO is to raise levels of nutrition and standards of living and to improve the efficiency of the production and distribution of all food and agricultural products.

There has been famine relief work in special cases from the earliest times and some deficiency diseases have been sporadically studied, but the science of nutrition is comparatively young and international action on it is of very recent growth. The depression of the early nineteen-thirties called attention to large problems of production, distribution and consumption.

Mention has been made, in the second chapter of this report, of the work of the League of Nations on nutrition and of the report by its Technical Commission on the physiological bases of nutrition. The League also set up a committee to consider the effect that national nutrition policies might have on health, agricultural development and international trade. This committee, possibly because there was little information from other parts of the world, was concerned mainly with malnutrition in the more developed countries.

The rationing of food in many countries during the Second World War made more immediately practical the knowledge of what was necessary for adequate nourishment and much was learnt, and was applied on a large scale, about how food production could be increased.

The vast dislocation of the war gave a vital urgency to food problems and FAO was established as a specialized agency of the United Nations as early as October 1945. Observers from the WHO Interim Commission who attended the second annual conference of FAO in the following year suggested that a joint committee on nutrition should be set up to advise both
FAO and WHO. This was the start of the exceptionally close collaboration between the two agencies, through a Joint Expert Committee, which, in relation to WHO, has the same status and functions as the other expert committees, and which has met five times in the period under review.

The United Nations Children’s Fund, as part of its work for the general welfare of children, has given often very substantial support to projects designed to improve child nutrition.

In many countries there was evidence of the large amount of ill-health caused by inadequate nutrition. It played an important part in infant mortality, in the excessive proportion of under-developed schoolchildren and adolescents, and in the poor health and low productivity of many adults. Not only more food, but better-balanced diet was necessary. Food habits in some populations led to avoidable avitaminoses like beriberi and pellagra, and therefore it was necessary to change such habits and to ensure that public-health administrators, legislators and teachers had the necessary knowledge of practical nutrition and dietetics.

In addition to providing direct technical assistance to governments in dealing with disease due to malnutrition, WHO is engaged in co-ordinating investigations into nutrition problems of world-wide importance and in the search for practical measures for their solution.

The following paragraphs describe some of the work on these subjects which WHO has undertaken in its first ten years.

**Kwashiorkor and Protein Deficiency**

Kwashiorkor is now the main nutritional disease with which the Organization is concerned. The condition is associated with an insufficient intake of protein and occurs essentially at the weaning and post-weaning periods. It may be due to a total deficiency of protein or to an imbalance of amino-acids. It is only in recent years that the nature of this condition has been widely recognized. Sometimes it was confused with pellagra and sometimes it was not recognized as a disease entity.

Surveys to establish its incidence have been carried out by WHO and FAO. The first was made in Africa in 1950 and its results were later published as a WHO monograph.\(^1\) A similar survey in Central America followed in

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1952 and another in Brazil in 1953. These, together with national surveys such as have been carried out in India, have shown that kwashiorkor, although known by different names, is a widespread nutritional disorder and a major problem in many areas.

Kwashiorkor may be due to a number of causes: low productivity of the land and the effects of general poverty; inability to produce suitable foods in the area or failure to adopt suitable methods for food processing and preserving. Or, again, custom, tradition or even ignorance may lead to failure to recognize and use existing resources.

The prevention of protein malnutrition, therefore, often requires some fundamental changes in the way of life of the people and may entail a cooperative effort on the part of the health, agriculture, economic, fisheries and education departments in the countries concerned.

WHO and FAO have stimulated interest and research into this problem in a number of different ways. One session of the Joint Expert Committee, held in West Africa in 1952, was devoted to it. This meeting was convened immediately after an Inter-African Conference on Nutrition held under the auspices of the Commission for Technical Co-operation in Africa South of the Sahara. It was arranged that members of the Expert Committee should also attend the Inter-African Conference. This resulted in a meeting of workers from a wide geographical area and undoubtedly played an important part in the recognition that kwashiorkor is fundamentally the same problem throughout the world, despite certain local variations.

These meetings were essentially concerned with the public-health aspects of the disease. There is, however, a great deal of research going on in different centres, much of it devoted to discovering ways of feeding children satisfactorily without using the animal protein-rich foods such as milk, eggs, etc., which are expensive and difficult to obtain. In 1955, WHO and FAO (through the financial assistance provided by the Josiah Macy Jr. Foundation) were able to bring together in Jamaica workers engaged in research into various aspects of kwashiorkor in different parts of the world. The value of this meeting has been amply demonstrated by its influence on the lines that research followed in different centres.

Where protein malnutrition is caused by the inability of the people to obtain a suitable protein-rich food, the solution must lie in finding a cheap source of such food. Considerable interest has been shown in this problem. In 1952, 1953, and 1954 WHO made grants to three research centres in East Africa, Guatemala and South India to assist them in investigating the suitability of vegetable protein from different sources for the prevention of protein
malnutrition. An exchange of workers arranged by WHO between these centres has led to valuable co-ordination in their research work in this matter. Much progress has been made and a number of protein-rich vegetable foods are now undergoing preliminary trials.

FAO and UNICEF also have had a considerable interest in this work. It seemed highly desirable both from the public-health aspect of the introduction of a new food into the community, and for ensuring the success of these ventures, to have all these programmes as closely associated as possible.

In 1955 a further grant from the Josiah Macy Jr. Foundation enabled a second conference to be held on protein in nutrition—again sponsored by the Foundation, FAO and WHO. The emphasis was on the practical methods of dealing with protein-deficiency—especially in the diet of young children. Some foodstuffs, which are not in their natural state suitable for a young child, may be made suitable by processing or combining them with other foods, but much has to be known before such preparations can be developed and careful preliminary testing is essential before their use for child-feeding on a large scale can be advocated. Agreement was reached on how the necessary trials should be conducted. This conference was attended by experts in protein nutrition, biochemists engaged in the experimental feeding of animals, scientists studying the most efficient methods of feeding stock, paediatricians and general medical nutritionists. Representatives from UNICEF were also at the Conference.

The final decision as to the safety and suitability of any food is a highly specialized matter. Therefore a small protein advisory group, drawn from members of the Expert Advisory Panel on Nutrition, was formed at the end of 1955, and has met several times since to review progress in research on various products. The meetings were attended by representatives of FAO, UNICEF and WHO. In addition to giving technical guidance, the members of the Protein Advisory Group assist individually by conducting, in their own laboratories and wards, tests of different foodstuffs, and by suggesting other institutes competent to do this.

The work being done by the international bodies on this problem aroused wide interest and the Rockefeller Foundation has recently given $250,000 to further research which will assist in the development of protein-rich foods. This money is being used as grants to various workers throughout the world,

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1 The United Kingdom Medical Research Council's Group for Research on Infantile Malnutrition, at Mulago Hospital, Kampala, Uganda, East Africa; the Institute of Nutrition of Central America and Panama, Guatemala City, Guatemala; and the Nutrition Research Laboratories, Indian Council of Medical Research, Coonoor, South India.
which are made by a committee of the National Research Council of the United States of America, with the advice of WHO and FAO.

The second main approach to the prevention and alleviation of protein malnutrition and other forms of malnutrition is to educate the people in the use of the available or newly introduced foods. This subject is discussed separately in later paragraphs.

**Endemic Goitre and Iodine Deficiency**

Endemic goitre affects the well-being of a community in many ways: cretinism, feeble-mindedness, and a lowered educational ability are associated with it. Reports have suggested a significant correlation between the incidence of deaf-mutism and that of endemic goitre. There is also an increase in the number of thyroid operations, and evidence that hyper-thyroidism and carcinoma of the thyroid are more frequent where endemic goitre is found.

Although the intensity of the disease has declined considerably in some countries, its incidence is still very high in many others and it is estimated that the total number of goitrous people in the world is probably not far short of two hundred million.

The statement of the Goitre Sub-Committee of the United Kingdom Medical Research Council is generally accepted—"The immediate cause of simple goitre is failure of the thyroid gland to obtain a supply of iodine sufficient to maintain its normal structure and function". And its conclusion: "Although goitrogenic factors appear to play an important part in the production of goitre in some areas, there is no reason to doubt that endemic goitre can always be prevented by providing the amount of iodine needed" has been clearly confirmed by the almost total eradication achieved in many countries.

Prevention of endemic goitre in under-developed countries has been beset with technical problems and various measures have been tried, on the whole without much success. There appeared to be a need for a study of the whole problem and this was therefore undertaken.

A number of consultants were engaged by WHO to visit countries in Europe, Asia and South America. Information was collected on the use of iodized salt, and, in areas where this measure could not be applied, on other methods of supplying iodine to populations suffering from iodine deficiency.

Where refined salt is in general use, the addition of potassium iodide to the salt is a satisfactory method of meeting the deficiency of iodine, and
has been used in countries in which endemic goitre has been controlled. Refined salt, however, is not in general use in many of the affected countries and other methods, such as the addition of iodine to drinking-water, or administration in various other forms, drops or tablets, for example, have been proposed. In most circumstances, these measures are either uneconomical or so difficult to organize that they are likely to be ineffectual in practice. Accumulated experience indicated that the best means of prevention in such countries is the consumption of a salt which has been artificially iodized. Where refined salt was not widely used, the iodization of crude salt, if this were possible, appeared to be the procedure most likely to meet with success.

The first problem to be solved was how to introduce iodine into the crude salt. The ease and practicability of iodizing salt depends largely on the methods by which the salt is produced and there was no adequate method of iodizing crude salt. The World Health Organization therefore requested the Chilean Iodine Educational Bureau of London to study procedures with a view to developing such a method, and from this study a simple processing technique has been developed which has proved entirely successful on a small scale and which can easily be developed to iodize crude salt on a very large scale.

A second difficulty which had to be overcome was the instability in crude salt of iodine in the form of iodide. The Chilean Iodine Educational Bureau has carried out many tests, and has summarized all the available work on this particular problem. The stability of iodine in the form of iodide is determined by a number of factors, and it has been found that iodates have certain advantages over iodides, the principal one being that they are stable under adverse conditions of moisture, sunlight, heat and impurities in the salt.

Two questions arose on the use of iodates for iodizing salt. The first of these was the danger of toxicity, for early pharmacological studies had suggested that iodates were very much more toxic than iodides. This aspect of the problem has been studied by the Medical Research Council in the United Kingdom and by the Food and Drugs Administration and the US Public Health Laboratories in the United States of America. Examination of the earlier work showed that the iodates had been administered by injection. When given by mouth, sodium iodate has proved to have a very low toxicity.

The second question was the availability of iodine taken by mouth in the form of iodate. From studies carried out in the United Kingdom it appears
that almost all the iodine of the iodate is available to the thyroid gland. Lastly, the effectiveness of iodates in the prevention of goitre has been adequately tried out in well-controlled field experiments in Central America by the Institute of Nutrition of Central America and Panama (INCAP). These field trials indicate that iodates are as effective as iodides.

As a result of these activities, ranging from the development of machines for iodizing salt to field experiments in control of endemic goitre, a new and effective method of preventing goitre, in the many countries where it occurs and where refined salt is not in general use, is now available.

WHO, however, has also provided direct assistance to governments for the introduction of this new technique in their countries. In 1954 two consultants—a chemical engineer on the staff of the Chilean Iodine Educational Bureau, and a physician with considerable experience in the public-health aspects of endemic goitre—visited sixteen countries in Latin America. The recommendations of these consultants were accepted by each country, most of which are now planning to provide iodized salt for their population. WHO has sent a consultant to Thailand to assist the Government in a nutrition programme which will include measures against endemic goitre.

WHO is continuing to collect and correlate information about the reduction in goitre incidence achieved by the use of iodized salt, and the results of administering iodized salt with different concentrations of iodine.

The Joint FAO/WHO Expert Committee on Nutrition in 1954 reviewed WHO’s work on this question and recommended among other things that information on all the public-health aspects of the subject should be published, and that, in various countries, surveys should be carried out to determine the incidence of goitre and also to provide a basis for evaluating the preventive measures, including the subsequent economic and social changes. A special number of the WHO Bulletin on endemic goitre was recently published.

There is a great deal still to do in the control of endemic goitre. Nevertheless, with the co-operation of various workers in the United Kingdom, the United States and Latin America, it has been possible to develop an effective means of control where none existed.

**Pellagra**

Pellagra is a nutritional disease which responds to therapy with nicotinic acid. Epidemiologically it is most frequently associated with a grossly restricted variety of food intake and with a predominance of maize in the diet. Indeed,
when certain other cereals such as wheat or rice provide an appreciable percentage of the calory intake, pellagra is rarely encountered, even though maize is regularly eaten.

Fundamentally, therefore, the eradication of pellagra is dependent on an alteration of the diet pattern, and in many areas this means a change in agricultural policy. WHO has given assistance with surveys in Basutoland, Egypt and Yugoslavia. A demonstration programme in Yugoslavia has indicated that the technique of enriching maize products with niacin in small mills is an effective and acceptable control measure. In Basutoland a WHO team is helping with the Government’s programme for the eradication of pellagra, the chief nutritional disease in the country.

**Diet Habits and Education**

An important means for the prevention and alleviation of malnutrition is education of the people in the use of the available or newly introduced foods. This is, of course, associated with the Organization’s other work for health education of the public and for maternal and child health. Perhaps the most effective channel for nutrition education is through the maternal and child health centres.

In planning action for the prevention of nutritional disease, it has been recognized that more than a technical approach is required. It is well known that to change food habits is difficult. Beliefs about food are part of the whole fabric of life of a people and if education in nutrition is to have any success, a great deal has to be known about the people themselves. Not only do food customs play an important part in deciding the diet; economic considerations may also be of great importance.

Recent advances in the knowledge of how people learn and what induces them to change their long-established habits, have outlined an approach to the problem of nutrition education. Instruction is largely ineffective unless there is a strong desire to learn, and people do not readily change their ways unless they recognize the advocated change as a means to an end which they themselves desire. Routine nutritional advice based on scientific principles alone is not enough. A field study recently conducted by the Nutrition Research Laboratories, Coonoor, South India, with the assistance of WHO, has shown that the diets of infants and children in villages served by health centres, whether old-established or new, did not differ appreciably from the age-old traditional pattern.
Two studies have been made by WHO of the food practices in Guatemala and Indonesia, of the influences that govern them, and of other social and cultural factors associated with protein malnutrition and other forms of malnutrition in children. Information was sought on such things as: attitudes towards mortality in children; the relationships between family instability and sickness—especially malnutrition; the influence on nutritional status of adoption and of the different treatment of male and female children; and clan structure and social mobility in their relation to food and patterns of consumption.

These studies have provided much information on the causes of malnutrition in these countries, and have indicated that the problem of child malnutrition has many aspects other than the purely technical which must be taken into consideration in planned prevention programmes. A survey of infant feeding practices and nutritional diseases in the tropics and the subtropics was carried out by a consultant in 1953. His report (since published by WHO) reviews methods of improving the diet of infants in those areas and points to the need for nutrition education to modify the ideas and improve the practices of the people.

To improve nutrition education techniques in the South-East Asia and Western Pacific Regions a joint FAO/WHO Seminar on Nutrition Education and Health Education was held in the Philippines in 1955. Other such seminars are planned in other regions.

One reason why the treatment and prevention of nutritional diseases, particularly in children, is often inadequate, is the poor training in this subject received by most doctors and nurses. In the more highly developed countries nutritional disease is rare and therefore does not warrant a great deal of attention in student training. In other countries the curricula have often been based largely on those of the more highly developed countries and there has therefore been no opportunity for the student to become thoroughly acquainted with the problem.

WHO and FAO, together with different host governments, have conducted five courses in nutrition, each lasting two to three months and designed to meet the needs of a variety of workers on nutrition; physicians, agriculturists, biochemists, social workers, etc. have attended. These courses have been held in Egypt, India, France (two courses: one in 1952, the other in 1955 for French-speaking nutrition workers in Africa) and in Uganda. In nursing training schools this subject now has an important place in the curriculum.

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Nutritional Assessment

Apart from emergency action to deal with patent famine, the first step towards improving the nutrition of a population must be a survey to find the kinds of defect in the diet and what proportion or what classes of the population suffer as a consequence, and to what extent. Such a survey is complicated, for it must cover not only the kind and amount of physical malnutrition and the deficiencies of the usual diets, but also social, traditional or religious habits or attitudes of mind that can affect the diet of the population as a whole or of particular classes.

The Joint FAO/WHO Expert Committee on Nutrition, at its meeting in 1949, made some recommendations, and the subject was considered in more detail by the Committee which met in 1951 and included in its report a "Guide to Nutrition Workers on the Assessment of Nutritional Status". This guide in the first place reminds nutrition workers that the methods to be used in a survey will depend on the circumstances of the country in which it is made; a low standard of nutrition in an under-developed country can be estimated, sufficiently for immediate practical purposes, by methods simpler than are necessary to estimate minor defects of nutrition in well-developed countries where the general standards of health and nutrition are reasonably good. It then suggests what use can be made of information that is already collected in government departments and other institutions and needs only to be collated and interpreted; in particular, the mortality and morbidity rates of infants and young children. It contains notes on how the growth of infants and children may be studied, the use of weight-for-age figures or, in countries where children’s ages are not recorded, the weight-for-height ratio. On the difficult question of clinical assessment, it deals in some detail with the signs that are relevant to nutritional status and how they should be sought and recognized, with suitable warnings on symptoms that may sometimes have other causes. There are also notes on laboratory tests and their uses and limitations. In its summary, the Guide says:

In general, for large-scale surveys of the state of nutrition, the basic method is careful clinic appraisal combined with dietary surveys. Simple laboratory tests may, under certain circumstances, usefully supplement these basic methods. In the last resort, however, the assessment of nutritional status depends on the demonstration that bodily structure and functions are improved by better feeding.

The Guide had a large circulation and has been widely used in teaching. It does not deal in detail with dietary surveys, on which a study was issued by FAO in 1949.¹

A related subject was considered by the FAO/WHO Joint Expert Committee on Nutrition which met in 1954 and included in its report a section on anthropometry applied to nutrition.²

Other Effects of Malnutrition

In the last few years it has been possible to direct attention towards other nutritional problems which are of considerable public-health significance in certain parts of the world.

Anaemia

Anaemia is the cause of much sickness and many deaths in some countries. It is also the cause of economic loss, for simple agriculture and other productive occupations still require prolonged hard physical work and the anaemic individual is incapable of such effort.

There may be other than nutritional causes for such anaemias. In some areas, heavy parasitism may play a part but a nutritional element is usually present and it is necessary to establish the relative importance of the different causative factors in different countries and even in different communities within the same country. On the whole very little has been done anywhere in developing properly planned preventive programmes against the nutritional anaemias.

Two preliminary surveys of this problem have been carried out, in India and Mauritius, by a WHO consultant. The survey in Mauritius was followed by the assignment by WHO of two experts—a haematologist and a nutritionist—to investigate the problem in detail and devise techniques for preventing what is one of the commonest causes of ill health in that country. The Organization is collecting material on the public-health aspects of anaemia in preparation for a study group which will meet in 1958 to explore this problem and direct the work of WHO on this subject.

¹ Food and Agriculture Organization of the United Nations (1949), Dietary surveys: Their technique and interpretation, Washington, D.C. (FAO Nutritional Studies, No. 4)
**Beriberi**

A nutritional disease which now appears to be causing much mortality in some countries is beriberi. The recent increase is due to the introduction of large numbers of small power-driven mills and the consumption of highly milled rice where previously rice could only be hand-milled. The communities affected are scattered throughout the rice fields in the large rice-producing countries. In the adult the commonest manifestation of the disease is a neuropathy, very often mild. But an imbalance of diet that produces only the minimal signs of the disease in the adult will cause death in the infant.

Particular attention is being paid to beriberi in the nutrition programme in Burma for which WHO has provided assistance since 1954. In Thailand the project already mentioned under endemic goitre is designed to define the exact public-health significance of the problem as a preliminary stage in a preventive programme against the two diseases. FAO is co-operating in both these programmes.

**Eye Diseases**

The Joint Expert Committee has also recommended that WHO should study nutritional diseases of the eye. By far the most important of these is avitaminosis A and this appears to be most frequent in parts of South-East Asia. Surprisingly enough it is most prevalent in the tropical rain belt where the precursor of vitamin A—carotene—is most plentiful. In Central Java between one and three per cent. of pre-school children are said to suffer from an acute deficiency resulting not only in much blindness, but also in a high mortality. This is a very densely populated area so that the total number of children affected is great.

Investigations into this disease were carried out by a WHO consultant in 1952, 1953 and 1954 in the course of a general survey of nutritional disease in Indonesia. A very frequent association was found between avitaminosis A and other disease conditions, particularly protein malnutrition, even where the consumption of green leaf vegetables, and therefore the intake of carotene, appeared to be by no means negligible. WHO consultants visited Indonesia in 1957 to help to plan a programme of investigation to be carried out with WHO assistance.

Reference has been made above to the part that parasitism may play in the causation of anaemia but parasitism is probably also of considerable importance in precipitating and in enhancing the severity of other nutritional
diseases. An attempt to investigate its relative importance compared with the diet as a cause of ill health in a poor population is now beginning in Northern Rhodesia.

Degenerative Heart Diseases

As can be seen from this account of the work done, WHO has concentrated on problems of under-nutrition and dietary deficiency disease. But at the meeting of the Joint FAO/WHO Expert Committee, in 1954, a recommendation was made that consideration should be given to other relationships between diet and health, especially in the more highly developed countries and in certain segments of the population in many other countries. The Committee suggested for particular study the problem of degenerative heart diseases, including coronary heart disease, angina pectoris and myocardial degeneration, since there is evidence that habitual diet plays an important part in the development of these conditions.

A study group convened in 1955 reviewed what was known of the etiology of atherosclerosis and ischaemic heart disease and recommended lines of research which might help to establish a clearer picture of the factors responsible. It has been possible to follow up some of these recommendations. Reference is made in the section on chronic degenerative diseases (in Chapter 24) to a meeting sponsored jointly by the National Heart Institute of the United States of America and WHO to inquire into the possibility of adopting an international classification of the degrees of severity of atheromatous process in morbid material. Another recommendation concerned the collection of data on deaths from ischaemic heart disease in different countries. This is being followed up by WHO and United Nations statistical services.

Regional Problems, and Work with International Agencies

Nutritional problems in different parts of the world may be very different. While it is true that protein malnutrition appears to be general in poorer countries throughout the world, other disease conditions are largely confined to certain regions. Beriberi for example is only found on a large scale in South and East Asia; pellagra has a limited distribution throughout the world and this is also true ofavitaminosis A and endemic goitre. There are therefore special problems in certain regions. FAO and WHO have sponsored regional nutritional conferences to which governments have sent delegations to discuss
their problems. These conferences have been of value both to the countries and to the international agencies, for through them there has been a two-way flow of information and much of the work on nutrition in the regions has originated from them. There have been four such conferences in south and east Asia and four also in Latin America. In Africa the Commission for Technical Co-operation in Africa South of the Sahara (CCTA) has organized three conferences of the same kind, in which FAO and WHO have taken part.

An important task undertaken by the Organization is to assist the United Nations Relief and Works Agency (UNRWA) in carrying out continual assessments of the nutritional status of the Palestine refugees. Limited rations are supplied but a high proportion of these large populations have some facilities for supplementing them. These facilities, however, differ considerably in different areas and at different times, and there is therefore a need for careful periodic checks on the health of the people. A number of visits have been paid to UNRWA and extensive clinical examinations have been made.

Lastly, reference should be made to the work of the Institute of Nutrition of Central America and Panama (INCAP), the Director of which is also the PASB/WHO regional adviser in nutrition. The history of the Institute dates from 1946, when representatives of Central American countries and Panama met with the PASB and the Kellogg Foundation to found a unique, co-operative venture to study the nutrition problems of the area, to work out ways in which they might be solved and to assist in the application of these solutions.

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

The particularly close co-operation with FAO has already been mentioned, and UNICEF has made large contributions to the better feeding of undernourished children in many countries: WHO's relations with these two organizations need not be elaborated here.

The nutrition of a people both affects and is affected by its economic status and the Economic and Social Council and several of the regional Economic Commissions are therefore concerned with nutrition. In particular, in connexion with the Economic and Social Council's programme of long-
range activities for children, FAO and WHO have co-operated in surveys made in some countries on the needs of children, and programmes for the improvement of nutrition find a natural place in the Expanded Programme of Technical Assistance for Economic Development.

One of the functions of UNESCO is the co-ordination of scientific work throughout the world and FAO and WHO, in their scientific work on nutrition, maintain contact with UNESCO's Department of Natural Sciences.
Mental Health

It is very difficult to assess the amount of mental illness, partly because there is little statistical information and partly because much minor mental illness is often not recognized. But in some countries with well-developed mental health services the proportion of beds occupied by mental patients of one kind or another reaches almost fifty per cent. of the total hospital accommodation. It has been suggested that, to provide fully satisfactory treatment for all cases of psychiatric disorder, one psychiatrist would be needed for every 20,000 of the population. In practice this standard is probably not reached by any country and most fall very far below it.

WHO is the first international governmental organization to have undertaken the encouragement of work in mental health. In this field, it inherited no particular traditions. It has had to evolve methods appropriate to international work in a comparatively new specialty in which few workers were available for long-term assignments and where the language barrier presents a greater hindrance than in some other subjects. Great use has therefore been made of short-term consultants, in meetings and seminars and in direct assistance to governments for surveys and the planning of services. In this way it has been possible to make available a high standard of professional advice.

Prevention

Since it would be vain to attempt forthwith to provide psychiatric treatment for all, the international programme for mental health has so far been concentrated on the preventive or protective application of psychiatric knowledge. For the prevention of physical illness and the protection of physical health there are in many countries well-organized public-health services, but
the similar care of mental health is normally left to the initiative of a few persons already over-burdened with therapeutic work.

The Expert Committee on Mental Health which met in 1949 therefore considered that “the most important single long-term principle for the future work of WHO in the fostering of mental health is the encouragement of the incorporation into public-health work of the responsibility for promoting the mental as well as the physical health of the community”.

This recommendation and the methods by which the Committee suggested that it should be applied in practice were considered in more detail by a later Expert Committee on Mental Health, which met in 1950. This committee discussed how ideas derived from clinical experience in psychiatry should be applied in public-health practice: it considered that some of the most important opportunities for improving the mental health of a community lay with workers in the public-health services. The first part of the Committee’s report gave examples of ways in which various aspects of public-health practice could provide opportunities for the application of mental hygiene and mentioned particularly maternity services, the infant and the pre-school child, problems of the separation of the pre-school child from the mother, school health, the handicapped child, communicable diseases, the care of the aged and, of course, health education of the public.

Public-health workers can assist in protecting mental health by applying mental health principles in the bringing-up of children, by improving systems of medical care so that undesirable emotional complications in the patient and his family may be prevented, and by detecting cases of mental disturbance and providing for their early treatment. It is believed that preventive work with children and early treatment of minor psychological disorders are likely to reduce psychiatric illness in later years and WHO has given special attention to the problems of childhood and youth. To appreciate those problems a good understanding of the normal pattern of child development is necessary and a Study Group on the Psychobiological Development of the Child, in a series of meetings, carried out a general examination of current trends in research in the different specialties.

A very important factor in a child’s healthy mental development is satisfactory emotional relations in its early years, especially with its mother. A WHO specialist reviewed the current literature on the psychiatric aspect of this question and discussed it with specialists in many countries. The results
of this study were published in English, French and Spanish in a WHO monograph *Maternal Care and Mental Health*,\(^1\) which has been widely distributed and translated into several other languages, including Finnish, Hebrew, Serbo-Croat and Swedish. This work gave rise also to a series of studies, sponsored by the International Children's Centre in Paris and assisted by WHO, on the results of depriving children of maternal care.

A particular type of such deprivation, the removal of children to hospital, has been shown in a number of studies to have a much greater detrimental effect than had been realized. A study group on the child in hospital, which met in 1954, has recommended that a sick child should be cared for at home whenever it was medically feasible and that, if treatment in hospital was essential, the child should be carefully prepared mentally and helped in ways that the group suggested to adjust itself to hospital life. A sound film called *A Two-Year-Old goes to Hospital* was made with the assistance of WHO for use in briefing and teaching paediatricians, paediatric nurses and other child-health workers and has also been shown widely to specialized groups.

Regional seminars have been held to bring recently acquired knowledge to the attention of national health departments and of other interested groups in different countries and to enable its application to be discussed between international experts and workers familiar with the particular local conditions. The WHO Seminar on Mental Health in Childhood, held in Australia in 1953, may serve as an example of many similar meetings. Participants from twelve countries in different stages of development in the Western Pacific and South-East Asia Regions compared their various methods of child-rearing with those described by WHO lecturers and discussed the application of some aspects of mental health work in programmes for the welfare, health and education of children. As in the case of other seminars, consultants later visited the countries concerned to provide direct assistance and advice for the further development of work discussed.

**Treatment**

If preventive and protective mental health work has been given the first place in WHO's programme, therapeutic psychiatry has also received attention.

\(^1\) Bowlby, J. (1952) *Maternal care and mental health*, 2nd ed., Geneva (World Health Organization: Monograph Series No. 2)
Since mental health services are being organized for the first time in a number of countries, a re-examination of the purpose and place of psychiatric hospitals was undertaken and the possibility considered of expanding their frequently somewhat limited functions to provide for the needs of the community as a whole.

An expert committee appointed for this purpose in 1952 concluded that the first requirement in any country was a mental hospital with sufficient beds to provide custody and care for dangerous patients. As more qualified staff became available, the next step should be to develop community psychiatric services outside the hospital. The preventive services and early treatment thus provided would reduce the number of patients admitted and the length of their stay. As outpatient services developed, the number of beds should be increased so that the hospital would receive patients at an earlier stage, for active treatment rather than mere custody.

In 1956 another expert committee examined further the possibility of developing both the preventive and the therapeutic functions of the psychiatric hospital so that it might become the centre of a comprehensive mental health service. The committee suggested that the central structure might be a relatively small unit for active treatment, with out-patient facilities and perhaps mobile units which could both give treatment and act as "clearing-houses". The central unit might be independent, possibly with a "day hospital" or "night hospital" attached, or might be part of a general hospital; a long-stay unit for chronic cases would probably be necessary. In some places it might be possible to link this service with the basic health services of the country.

If a country is to have a properly organized psychiatric service, its mental health legislation must be based on modern psychiatric knowledge; but such legislation is found in few countries. In 1953, information was collected from governments and members of the Expert Advisory Panel, and a comparative survey of legislation in more than forty countries was prepared and published in the International Digest of Health Legislation. Legislation affecting psychiatric treatment was discussed, in 1954, by an expert committee which drew attention to some of the main weaknesses of the current laws, which often emphasize legal considerations at the expense of medical ones. It suggested

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1 Int. Dig. Hlth Leg., 1955, 6, 1-100
that future legislation should be concerned rather with the development of mental health services than with the control and retention in hospital of the unwilling patient.

Such studies are appropriate at this stage, for a number of countries are providing these services for the first time and others are preparing to revise their existing provisions. To assist such countries, WHO, at the request of governments, has provided experts to survey psychiatric conditions and to advise how the services should be developed. Each year since 1949 about five countries have been helped in this way. A brief review of one such project follows.

A consultant sent to the Hashemite Kingdom of Jordan in 1952 recommended that the first step in developing the psychiatric service should be the recruitment of a specialist to reorganize the mental hospital, and to train a successor; fellowships should be awarded for training other staff in preparation for future expansion. A psychiatrist was assigned in 1954 for a term of three years, and helped to modernize the hospital and improve treatment. A farm colony for chronic cases was organized so that the hospital could give more attention to acute cases. In 1954 WHO provided an architect to draw up plans for extensions to the hospital, to be built partly by the patients themselves. Training courses have been organized for mental nurses, for general nurses, and for prison officials, and psychiatric services for the community are being developed. An out-patient clinic has been started at the hospital.

Education and Training

In mental health, as in other health work, education and training are of the first importance; both specialized education for medical staff, and education of the public and of influential professional workers. A wider understanding of mental health principles and problems can do a great deal for the mental health of a community. Indeed, the 1952 Expert Committee mentioned above suggested that public education in mental health should be one of the first duties of the psychiatric staff of a mental hospital.

Individual and group techniques of health education have been examined. Recommendations for the mental health education of medical and hospital workers have been discussed at some of the seminars and study groups. It
is of particular importance that such workers should be taught to consider the patient as a “whole person”, and not merely as a “case”.

At a WHO working conference for public-health nurses held in the Netherlands in 1950, a third of the agenda was devoted to mental health because the public-health nurse is probably the professional worker who has the best opportunities for preventive work in mental health. Psychiatric nursing itself, both in the mental hospital and in community health work, was discussed by an expert committee in 1955. It recommended that training for psychiatric nursing should be raised to a professional standard; it suggested the subjects that should feature in a basic minimal curriculum (principles of human behaviour, concepts of mental illness, principles and practice of psychiatric nursing) and reviewed the training methods that would provide psychiatric nurses with the necessary skills and experience.

As already mentioned earlier in this chapter, seminars have been organized for the exchange of information with those in key positions; consultants have advised governments on the provision of training institutions, on the use of fellowships for training personnel, and on the development of psychiatric services generally. For example, since 1956 a WHO team has been helping with the development of training and research at the All-India Institute of Mental Health in Bangalore, where, as a first stage, part of the mental hospital was organized as a teaching hospital and diploma courses started. Assistance has also been given to Japan with the expansion of the Japanese National Institute of Mental Hygiene.

A great deal of mental health education has been provided by fellowships and many of the fellows on their return have acted as teachers. Three Sudanese nurses, for instance, were trained in psychiatric nursing for periods of two months in each of three years. Each year these nurses have returned to train their fellow nurses in the principles they have studied.

Research

For all this work research is needed on the factors that determine personality and on the etiology, prevention and treatment of personality disorders. WHO has attempted to stimulate, foster and co-ordinate such research.

The Study Group on the Psychobiological Development of the Child, the studies on the effects of maternal deprivation, and the study group on the
child in hospital have already been mentioned and there have been studies in connexion with the care of homeless children.

Research on the effects of rapid changes of culture pattern on mental health and the means of preventing and mitigating such effects has been carried out in connexion with technical change. Mental health problems arising from technical change are likely to take on increasing significance not only in communities where industrialization has just begun to develop, but also in countries which are already highly developed economically but where automation and the peaceful uses of atomic energy are being expanded. Such problems have been considered in recent years in an attempt to find means of preventing or attenuating undesirable mental effects in the community.

Further research is needed on the extent to which the incidence of psycho-somatic affections is influenced by social, economic and cultural factors and by individual characteristics and personality structure. A contribution to work on this subject was the study by a WHO consultant, with considerable knowledge of African psychology and psychiatry, who collated the relevant literature and discussed the question with other experts. The results of the study were published as a WHO monograph with the title The African Mind in Health and Disease. As part of the wider field of research into the epidemiology of mental disorders, WHO has in the first stage concentrated on an analysis of the common avoidable errors of method in investigating and reporting prevalence and incidence of mental disorders. This study has been carried out by several consultants working in collaboration.

A group was convened in 1957 to study the findings of recent research on schizophrenia and to suggest what help WHO can give. Schizophrenia is one of the most serious of mental health problems and the recent work considered by the group has thrown new light on it.

A further important problem for research is the relationship between psychological disorders or states, on the one hand, and infective processes, nutritional deficiencies and biochemical disturbances on the other. The monograph just mentioned dealt with this question in relation to the African and led to a study of the psychological and electrophysiological aspects of kwashiorkor. A research unit already working in South Africa received

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financial assistance and technical advice from WHO to carry out this research and reports on the studies have appeared in the WHO Bulletin.

Since 1955 information has been collected on the use of certain drugs—particularly chlorpromazine and reserpine—which have recently come to the fore as valuable adjuncts in the treatment of psychiatric disorders. A study group met in 1957 to review present knowledge on the ataraxic and hallucinogenic drugs in the light of public-health practice.

Special Questions

Attention has also been paid to mental health aspects of some special problems, such as the psychiatric aspects of alcoholism and drug addiction, crime, occupational problems and the rehabilitation of the physically handicapped.

Alcoholism is a mental health problem of great importance, and public-health services could contribute much to its prevention and treatment. One of the groups of experts convened by WHO has said: "The extent of alcoholism is consistently underestimated by health administrations in most countries. In many countries adult males in need of treatment for alcoholism outnumber those in need of treatment for tuberculosis by several hundred per cent." The problem has been discussed at a number of meetings of experts which have drawn up definitions of alcoholism, indicated the stages of its development and made suggestions on treatment and rehabilitation. WHO seminars have been held in Europe and in South America. In 1954 a WHO consultant visited four of the South American countries in order to give advice on the further development of projects which had been started as a result of the seminar. Advice has also been given to several countries, at the request of their governments, on problems of alcohol. A film on alcoholism—an animated cartoon in colour, entitled To Your Health—was issued in 1956. It received awards at the Edinburgh Festival and from the International Union for Health Education of the Public, and its success has suggested that this method of giving objective information on important public-health problems may have further possibilities.

Until recently the work of WHO on drug addiction has dealt mainly with pharmacological questions (see Chapter 31). In 1956, a group of
psychiatrists and pharmacologists studied methods of treating drug addicts. The group emphasized that drug addicts are patients and should not be considered as criminals, and that, therefore, the treatment of drug addicts is essentially a medical problem.

Mental health experts have also been provided by WHO to participate in meetings on the rehabilitation of the physically disabled.

**Work with Other International Agencies**

If it is not possible for a child to grow up in his own natural family, adoption can give him the next best thing—a substitute family that can provide him with continuous affection, and to which he feels that he belongs, from as early an age as possible. A meeting was convened jointly by the United Nations and WHO in 1953 to discuss the questions involved in adoption. The report of the joint meeting called attention to the points that should be kept in mind in order that the procedure of adoption should involve the minimum mental stress for the adopted child and that the new home should be the most effective substitute for his natural family.

Many mentally subnormal adolescents and adults whose care in childhood has been neglected require special kinds of attention which it is not easy to provide. How this can best be done was discussed by WHO, the United Nations, ILO and UNESCO, whose representatives agreed that it was better, as far as possible, to expand existing services to meet the needs of such persons than to set up separate services for their special care.

In 1951, WHO and UNICEF jointly arranged a meeting in Paris of experts to discuss Mental Health in the Nursery School. The report of the meeting was published by UNESCO to help nursery-school teachers to understand the psychological side of their work and its importance for the future mental health of the children.

Child guidance has been discussed at several seminars and several students awarded fellowships in mental health have selected this subject for study; several countries have been helped to set up or improve child guidance clinics.

If what is now known about preventive treatment of the mental health problems of childhood and youth is properly applied, it should help to reduce the amount and importance of juvenile delinquency. Most of WHO's work
on this question has been in connexion with the United Nations programme on the prevention of crime and the treatment of offenders. As a contribution to that programme, a WHO consultant made a study (published in 1951) of the etiology, prevention and treatment of juvenile delinquency, in the course of which he visited some sixty institutions in Europe and the United States of America and conferred with more than 150 specialists in juvenile delinquency. WHO consultants have also discussed the psychiatric aspects of the problem at seminars and congresses organized by the United Nations.

The World Federation for Mental Health was among the first non-governmental organizations admitted to official relationship with WHO by the Executive Board at its second session in 1948. It has provided a valuable link with professional organizations in many countries and its working relations with WHO have been close and effective. It has helped in the collection of information on several questions of interest to WHO, such as individual and group psychotherapy in prisons, the rehabilitation of psychiatric patients, child guidance services and training, student mental hygiene, and mental health work in public-health services. WHO and the Federation collaborated in 1952 in a seminar, or summer school, at Chichester in England, on mental health and child development.

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1 Bovet, L. (1951) Psychiatric aspects of juvenile delinquency, Geneva (World Health Organization: Monograph Series, No. 1)
CHAPTER 24

Health Services and Medical Care

At an early stage in the work of the Organization the concept of strengthening national health services, which is implied in the Constitution, came to govern the preparation and execution of its programmes; not only of the projects concerned with public health and medical administration as such, but in all fields where the Organization has responded to requests from governments for assistance. It is a concept which experience, both inside and outside the Organization, has demonstrated to be in the best interests of efficient local administration, good public health and medical care.

In ten years, the work of the Organization in helping governments to improve their medical and health services—both national and local—has expanded considerably, and is now, directly or indirectly, one of its chief advisory activities. One of its most valuable aspects is the large-scale training of personnel of every kind by fellowships, strengthening of national medical educational institutions, and other educational techniques. These are described in greater detail in Chapter 27.

The last ten years have shown that in most countries there are at least some elements of a national health administration, in the form of either a ministry or a central department. In many cases there is a full-time medical chief, with or without public-health training, in charge of professional and technical staff. In some countries, the authority of the professional head of the health administration is defined in medical legislation. In others, he acts only under authority delegated by the minister. The trend is to employ medical men with post-graduate public-health training as health administrators.

National health systems vary considerably in the position they have within government administration and there are also marked differences in their responsibilities and work. In some countries, health insurance and hospitals are separate from the preventive health services. There is a similar variety in
the relations of the national health administration with the local health services. There are countries where the national health administration provides all health services. In others, the national health administration has only a broad authority for co-operation with provincial or local administrations. In many countries, private and voluntary systems organized by various groups have an extremely important place. The co-ordination of these various types of service is essential.

An Expert Committee on Public-Health Administration was convened by the Organization in 1951. Its report has provided guidance both to the Organization in the development of its international aid and to national administrations in the elaboration and administration of their public-health services. The Committee reviewed the available world information on the organization of health services and drew attention to certain conditions that existed, some of which are mentioned here.

First, authorities and functions of national, provincial and local administrations were often not clearly defined; the Committee's report contains suggestions on the distribution of responsibilities and services to be performed. Secondly, in many countries some public-health functions were administered by other authorities such as departments of labour, education or agriculture, and were often not suitably co-ordinated with the central health ministry. Thirdly, the Committee considered that the hospitals of local areas should be more used as community health centres and therefore needed to develop a preventive outlook. Fourthly, it emphasized the dependence of good health services, central and local, upon properly trained and experienced medical administrators. It found that such people, as well as auxiliary health workers, were too few in most regions. It agreed that the shortage of trained technical personnel was a major problem for the health administration of almost every country; and stressed that periodic assessment should be made by health administrations, to appraise needs, determine priorities and to plan for the future. It also emphasized the importance of popular participation in health work.

Although the Committee found that the degree of decentralizing local health services varied widely, it considered that the desirable minimum functions of local health departments were: vital statistics, sanitation, communicable disease control, hygiene of housing, maternal and child health, and

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health education; and it recognized that certain other services, such as accident prevention, laboratory services, school health, hospitals, were included in local programmes in some countries.

Medical attention and health services can be provided more easily for the concentrated population of towns than for rural populations. Countries where rural conditions predominate have the most need to initiate and organize health services. The Health Organisation of the League of Nations had already given attention to the problems of rural health services. Towards the end of 1953, an expert committee was convened by WHO to consider the methodology of planning an integrated health programme for rural areas.\(^1\) It recognized that a health service is only one aspect of local planning for the welfare of a community, and that the requirements of agriculture, education, social betterment, economic stability, and many other services, are of equal importance. These general needs of a local community demand a balanced programme and not a series of separate unrelated projects.

The Committee specially considered what was the smallest unit that could operate economically and efficiently, and what should be the relationship between such a unit and the more complex and specialized services provided at the intermediate and higher levels of health administration. It suggested that the staff of a minimum unit should consist of a physician, some five to ten nurses, several sanitarians and a number of auxiliary workers. Their functions should include prevention and the provision of medical care, and they should help the local community to obtain other services that they do not themselves provide. The Committee did not propose any uniform and rigid plan for adoption by all countries, and considered that such a plan was obviously impracticable in the widely varying political and administrative circumstances to be found in all regions.

In the relationship of the rural health unit to higher levels of administration, the Committee emphasized the importance of two-way co-operation, particularly in planning and investigation, and set out in some detail how this could be ensured. It refrained from any recommendations as to the area or population most suitable for rural health units, and considered that those points were less important than the provision of basic services and their co-ordination with those supplied by other authorities. It warned against

\(^1\) *Wld Hlth Org. tech. Rep. Ser.* 1951, 83
making the training of auxiliary personnel too narrowly vocational and, to avoid this, recommended frequent consultation between the education authorities and the employing services. It also drew attention to the importance of recognizing that civic administration is a science of management for the best use and application of available knowledge and resources, and public-health administration is a science whose purpose is to utilize modern scientific and medical knowledge to the full for the benefit of the population as a whole.

As in other fields, the Organization has met demands for assistance in public health by arranging for senior consultants to work with national administrations. Such advisers have assisted the development of public-health services at various national levels. In several instances, teams sent to countries have, in co-operation with their national counterparts, developed training areas to serve as prototypes. Such teams have usually consisted of a public-health administrator, public-health nurses, sanitarians, and occasionally health educators and paediatricians.

The way in which public-health work has been modified in the several regions, in the ten years, is described in Chapter 11, but some short illustrations may be given here. In the Region of the Americas development has been rapid, until there are now in the Region nineteen projects in public-health administration, most of them for the development of public-health services and often using a single-purpose service as the basis on which to build a comprehensive health service for the community. There are fifty-seven international health advisers in sixteen countries; they serve the Ministries of Health. In this region most of such assistance has been given to long-range planning.

In South-East Asia, the attention given in the first place to campaigns for the control of communicable diseases, and then to the provision of rural health services to consolidate the results of those campaigns, made clear the need for central health administrations that could support, guide and control those services. More recently, therefore, emphasis has been placed on strengthening national health services, through the provision of public-health advisers and consultants, and fellowships for training in various branches of public-health administration. There are now in the Region thirteen projects in this subject, which range from help in reorganizing the central health department to assistance in training public-health staff of various kinds.

Because rural health problems have been dominant in most of the regions, requests for assistance in organizing rural health services have been increasing;
and such services have been started in many countries. In many instances they have evolved from projects originally undertaken to deal with a particular disease—yaws, tuberculosis or malaria. Health education, maternal and child health and rural sanitation are added to the functions of the original health centres or mobile clinics, which in this way become the basis of general rural health and medical services. The success of the original special campaigns has created a popular demand in many countries which has led to their expansion into comprehensive health services. For example, a WHO-assisted malaria demonstration project was started in the Chiengmai area in Thailand in 1949. After some years a rural health unit was established in the area to give special attention to maternal and child health, nursing and environmental sanitation, and to provide training for different types of health personnel. The project has since been developed into a rural health service which will later be extended to the rest of Thailand.

There has been frequent co-operation with services provided by UNICEF and other international organizations, by the Colombo Plan, and by non-governmental organizations such as the Rockefeller and Ford Foundations. In recent years, the scope of some such projects has been extended and they have become part of projects for community development in which several international and national authorities have combined to provide guidance and assistance in general programmes of agriculture, education, housing, rural reconstruction and health.

The association of WHO with the United Nations and other specialized agencies in community development began in 1952 with a joint study of principles and methods, in an inter-agency group of the Administrative Committee on Co-ordination. It was this group which produced the definition of community development as "the processes by which the efforts of the people themselves are united with those of governmental authorities to improve economic, social and cultural conditions of communities".

This group confirmed the principles which have governed WHO's work since its inception: "the participation of the people themselves in efforts to improve their level of living, with as much reliance as possible on their own initiative; and the provision of technical and other services in ways which encourage initiative, self-help and mutual help, and make these more effective".

A recent example of a combined internationally assisted programme is to be found in India, where WHO and UNICEF have co-operated with the
government health authorities in combining maternal and child health services with community development programmes in two hundred and fifty of the “national extension blocks” of the large National Community Development Programme. This programme, comprehensive in conception and execution, covers agriculture, health, housing, education, social welfare and transport. Its health aspects are designed to strengthen rural health services by providing primary health units, improving rural hospitals and developing public-health laboratories. In other regions WHO-assisted projects that have been associated with community development have been concerned with nutrition and control of deficiency diseases, environmental sanitation, maternal and child health, and communicable disease control.

In such activities it has come to be accepted that the objects of community development are frequently attained rather by strengthening existing administrative and technical services than by initiating entirely new programmes.

By the agreement between WHO and the United Nations, WHO has an obligation to co-operate with the Trusteeship Council. WHO, in 1949 and 1951, assisted in preparing a form for obtaining uniform information on health conditions in trust territories, and has continuously provided the Council with observations on health conditions and their improvement in trust territories. WHO also provided, for the United Nations Committee on Information from Non-Self-Governing Territories, reports on medical research, epidemic diseases, and public health. In 1955 it contributed reports on communicable diseases, environmental sanitation and nutrition, which were incorporated in the United Nations report on the social conditions in the territories. Detailed information was also given on the internationally assisted projects operating in trust and non-self-governing territories; WHO, during the period, assisted in seventy-four such projects covering various health and medical subjects.

**Medical Care**

In the ten years, the Organization provided assistance to strengthen hospital services and improve their co-ordination with other facilities for the care of the sick, in clinics or by domiciliary service. Information was collected, especially in the years 1953-56, from many countries on their arrangements for providing medical care and the relationships between these and the country's
public-health services. This material was presented to an Expert Committee on Organization of Medical Care which met in 1956 to consider the role of hospitals in programmes of community health protection.

In its recommendations, the Committee first defined the place that a hospital should occupy in a programme of comprehensive health care for a community. It considered that the general hospital should not be an isolated institution but part of a general social and medical organization, intended to provide for the complete care of the sick in both curative and preventive services. It emphasized that the traditional curative function of the hospital was the most important, but that preventive activity should also be developed. The hospital should be used for the training of health personnel and for research. Hospitals should accept responsibility for the rehabilitation of their patients, in all cases in which residual handicaps are to be expected, as early as possible after the acute phase has been cured. In preventive work, hospitals could assist in the prevention of disease and sickness disability in many ways: by providing services in maternal and child health, by immunizing against communicable disease, by detecting chronic disease, by health education, and by co-ordinating its laboratory services with the work of public-health laboratories.

The Committee strongly recommended extramural work by the hospital organization because it would help the integration of curative and preventive medicine, and also recommended the organization of a system of regional hospitals which would make it possible to provide for each region the facilities suited to its local circumstances, supplemented, as required, by a network of intermediate and local hospitals and health centres. General practitioners should co-operate fully in the work of the hospital system. The Committee further recommended that the system should provide consultant services, professional meetings, and refresher in-service courses, and that the general practitioner should be encouraged to take part in them all. The hospital should offer a good variety of post-graduate training.

The Committee was reluctant to recommend any ratio of beds to population in view of the great variety of local geographical, demographical, social and economic conditions. It considered that an out-patient department of good size should form part of every general hospital and that those departments and the health centres in the area should provide a comprehensive health service

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for people at a distance from a hospital. General practitioners, it considered, should be encouraged to work in close technical relation with the hospital, and their private clinics might in suitable circumstances act partly as health centres for the neighbouring population. The out-patient department should aim at providing full ambulatory health care of the highest quality. For the administration of the hospital, it emphasized that a medical director or superintendent was preferable to a layman.

Since many countries in most regions have difficulties in providing hospital services for populations that are predominantly rural, the Organization made an early study of this problem and later published a monograph, *The Rural Hospital.* This monograph has been a guide in the planning and organizing of small rural hospitals, particularly so that they may combine both curative and preventive functions.

Field activities have included assistance for the special hospital surveys in Ceylon in 1951, Egypt in 1952 and Turkey in 1954, and for the analysis of information collected by the Institute of Hospital Administration in Tokyo. In Turkey, in 1953 and 1954, a more comprehensive advisory programme was undertaken in which a team composed of an architect, an engineer and a medical expert visited the country to advise on its programme for providing hospitals in connexion with workers’ insurance. International consultants have also been sent to Cambodia, Colombia, Costa Rica, Finland, Hong Kong, Liberia, Luxembourg, the Philippines, Samoa, Sarawak, Surinam and Viet Nam, to assist their hospital programmes. The improvement of hospitals in several areas has called attention to the need for better hospital statistics, and advice on hospital records was given to Peru, Singapore and Malaya.

The desire for assistance in improving and extending country hospital services was reflected in the number of fellowships—over a hundred—requested in the subject of hospital administration during the ten years. Many countries have been assisted in the training of hospital administrators by a number of international courses held in Egypt, Malaya, Peru, and Turkey in recent years. There have also been several conferences and meetings at which regional groups have made recommendations on hospital problems.

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In the ten years covered by this report many countries have been faced with problems of hospital reconstruction or organization, on which they have sought advice. In recent years, interest in such hospital programmes has been mainly directed to the extension of hospital services into rural communities by out-patient services and health centres. Hospitals have been increasingly accepted as carrying a responsibility for providing the local populations with both curative and preventive services. The expert advice available to WHO, through the reports of its committees, has been useful as a guide to country administrations responsible for this development.

It has been borne in mind in the advice given to countries that the hospital, especially the rural and district hospital, must be directly related to the general practitioner and nursing services on which the population as a whole must primarily depend. No rigid plan for providing medical care in the widely varying national systems has been attempted. It is recognized that the financing and administration of such services by country authorities, whether central, provincial or local, is necessarily determined by the general features of each country.

**Medical Rehabilitation**

As might be expected, during the last ten years there have been many requests for guidance on the rehabilitation of persons suffering from consequences of disease, defect or accident. The increase of injuries from accidents has made rehabilitation a public-health problem, particularly in those countries in which industrialization and urbanization are increasing, and in those countries in which the increasing proportion of the older age-groups has meant that more of the population are, in varying degrees, disabled by chronic rheumatic, neuro-muscular and bone and joint disorders.

Many organizations have been interested in the problem of rehabilitation and in 1950 this led to the formation of a Technical Working Party on the Rehabilitation of the Physically Handicapped. It was sponsored by the Administrative Committee on Co-ordination, and UNICEF, ILO, UNESCO and WHO have taken part in it. Its first tasks were to define the responsibility of each of the international organizations and to act as a clearing-house for co-ordinating their work. It reported on several technical problems of the
rehabilitation of people with eye, ear or orthopaedic handicaps, and issued a statement entitled “A Co-ordinated International Programme for the Rehabilitation of the Handicapped”, which has given guidance to international and national authorities.

In this statement it is recognized, first, that the planning of international action for rehabilitation should take into account the very different standards of life in different parts of the world and the different standards of the basic services on which such a programme must be founded; and secondly that attention should be paid to the rights and potentialities of disabled persons, who should not be regarded as objects of charity, and that, for this, education of public opinion may be important. The statement sets out various items of the complete and comprehensive rehabilitation service to which all national efforts should be directed; but it adds that the establishment of sound basic health, education, social welfare and employment services is necessary as a foundation for services for the handicapped, which must form an integral part of these services and not an extraneous service for a particular class of the community. In countries which have yet to develop these basic services, preventive public-health work should have a high priority, so that disabilities may be prevented or reduced to a minimum. In countries which desire to start a rehabilitation service, the establishment of a pilot rehabilitation centre for demonstrations and training is recommended. The team approach by the different disciplines involved is considered essential for satisfactory results.

In its own field, WHO has been called upon to give technical assistance in medical rehabilitation. One of the commonest requests was for an expert to undertake a general survey of the situation in the country and to prepare a general programme of work. Assistance on a larger scale was given to India in 1950. A team was sent, comprising an orthopaedic surgeon, a nurse and a physiotherapist, to help particularly with the rehabilitation problems that had followed the poliomyelitis epidemic of the previous year. WHO has also sent consultants to many countries in Europe which have found rehabilitation of growing importance. In the years following the Second World War the large numbers of handicapped children presented a particular problem to those countries. In co-operation with UNICEF, WHO has been associated in the establishment of many centres for physiotherapy, occupational therapy, orthopaedics and prosthetics, to deal with the special problems of handicapped
children. The collaboration of UNICEF has enabled many of these centres to be well equipped. WHO has assisted a number of countries, notably Austria, Greece, Haiti, Italy, Japan, Lebanon and Yugoslavia, to establish or expand rehabilitation centres and departments. This assistance has usually been given by sending orthopaedic surgeons, medical rehabilitation specialists and physiotherapists, to co-operate with their national counterparts for one or two years. This arrangement has been particularly designed to train local personnel in the techniques of modern medical rehabilitation.

In many countries one of the main obstacles to rehabilitation programmes has been the shortage of technical personnel. WHO was frequently called upon to assist in the establishment of physiotherapy schools—in India, Israel and Pakistan, for example. Fellowships were also granted by WHO to enable people from many countries to obtain advanced training in the specialities of medical rehabilitation, such as orthopaedics, physical medicine and physical therapy. WHO also co-operated with the United Nations and ILO in organizing a group-training course in the Scandinavian countries in 1952, which was attended by physicians, surgeons, physiotherapists, social workers, vocational therapists, teachers, labour inspectors, and others.

Increasing industrialization and urbanization of many countries have created a need for prosthetic services for persons crippled by accidents, and in 1954 international guidance was sought on the special problem of the rehabilitation of those who had suffered loss of limbs. WHO, in co-operation with the United Nations, the International Society for the Welfare of Cripples, and the World Veterans Federation, arranged a Conference on Prosthetics. It recommended that consultants should be provided to advise countries on the organization of their prosthetics services and that fellowships should be awarded for training in this special field.

The report of the Conference, published by WHO, laid down basic principles for training personnel in the medical and surgical handling of cases and for the standardization of artificial limbs, and has been helpful in other ways to many responsible persons and administrations. WHO also co-operated with the United Nations, ILO, and the important non-governmental groups concerned, in organizing seminars in various parts of the world, to make known these advances in modern rehabilitation methods.

A demonstration and training scheme for rehabilitation near Tel-Aviv was organized by the Government of Israel with assistance from UNICEF and WHO. The picture shows a stage in the rehabilitation of a child victim of poliomyelitis.

A project of paediatric training in India, assisted by WHO, includes demonstration of exercise as an essential element in the rehabilitation of crippled children.
A mother receives guidance in proper infant feeding at a supplementary feeding centre organized by the United Nations Relief and Works Agency for Palestine Refugees. Technical direction for the UNRWA health programme is provided by WHO.

Practical teaching of child nursing:
Egypt
Two student health visitors, as part of their training, accompany a public health nurse to a Burmese home.

MATERNAL AND CHILD HEALTH

Sight testing by a school nurse in Hong Kong
ENVIRONMENTAL SANITATION

Boring a new well in Thailand

Self-help. Villagers in El Salvador carry pipes for a new water supply to a site inaccessible by trucks.
Medical Aspects of Accidents

Accidents have become a serious cause of both death and disability, especially in highly organized and industrialized communities. Such considerations early led the United Nations group of agencies to consider the possibility of international recommendations to assist countries faced with this problem. WHO has taken its part in this co-operative work and has been asked to give technical advice on such matters as the physical and mental standards for motor vehicle drivers, and to prepare a guide for medical practitioners called upon to examine applicants for motor driving permits.

It is in Europe that accidents, especially as a cause of high mortality and morbidity, have been most carefully studied. An advisory group, convened by WHO in 1956, on the prevention of accidents in childhood found that in some countries accidents—particularly traffic accidents and those resulting from the electrification and mechanization of many industrial and rural activities—were the chief cause of death in children over one year and adolescents.

The Group considered that more information was required on the medical aspects of accident causation and prevention in order that the full significance of the various factors might be determined. It therefore concerned itself particularly with the methods of collecting and analysing facts on accidents and agreed that any study should be based on clear definitions and content. The use of epidemiological techniques was held to be essential.

The Group acknowledged that many other interests, especially education, engineering and legislation, were involved in any programme for accident prevention. It appealed for the extension of organized preventive work amongst children in Europe, including not only road safety but also safety in the home and its vicinity. It called for the instruction of children in such matters as first aid, swimming, the use of the bicycle, and, especially for adolescents, organized instruction in automobile driving.

Chronic Degenerative Diseases

In many countries in which urbanization and industrialization are far advanced and where the improvement of health and of social and economic

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conditions has been reflected in a greater proportion of older persons in the population, chronic degenerative diseases have become important as causes of death and suffering, and also of economic loss, both personal and national. Of particular importance in recent years have been the rheumatic, cardiovascular and malignant neoplastic diseases. National health administrations have thus been called upon to consider the causes of such diseases and how they may be prevented and treated. Because there is still so much ignorance about their origins and course, responsible specialists have suggested that their investigation should be extended by international studies.

In 1953, therefore, WHO convened a meeting of an Expert Committee on Rheumatic Diseases. The Committee found it necessary as a preliminary to international investigation to make suggestions on such fundamental matters as nomenclature and classification, and the study of incidence and prevalence. It called for the inclusion of these subjects in medical education and for further research into causes, methods of treatment and control.¹

In 1956, another expert committee gave special attention to the prevention of rheumatic fever. The Committee made recommendations for the practical application of available knowledge;² it considered it essential that some form of efficient prophylaxis should be instituted for all persons known to have rheumatic fever or chronic rheumatic heart disease, and that recognized cases of acute haemolytic streptococcal infection should be given adequate treatment with penicillin. At the same time it gave a warning against submitting a patient to a prolonged period of prophylactic treatment before a precise diagnosis of rheumatic fever had been made; it therefore made recommendations on the use of diagnostic criteria and for the practical recognition of beta haemolytic streptococcal infection. It also gave general advice, for countries in which these conditions are a problem, on the prevention of rheumatic fever, both in those suffering excessive exposure and in cases of casual exposure. It expressed the view that the judicious use of community medical facilities should enable authorities, by the effective treatment of streptococcal infection, to prevent most occurrences of rheumatic fever due to streptococcal infection, many recurrences due to casual exposure, and occasional first attacks.

One of the consequences of the changing emphasis in international health work has been the recognition of the high mortality and morbidity caused by

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¹ *World Health Organization. Technical Report Series. 1953, 78*
the cardiovascular diseases in some regions. Also, although accurate vital statistics are not yet available, there is some evidence to suggest that in other regions these conditions are not so infrequent as has been assumed. Since so much of the etiology and pathology of these diseases is still imperfectly understood, it has not been possible to make clear recommendations on methods of treatment and control. The immediate need has been rather for further research into their causation. Various hypotheses on the causation and form of these conditions are being examined in individual centres. Those hypotheses have included, for example, the influence of heredity, of diet, especially its fat content, of physical activity or mental strain, etc. To determine how international action might assist in determining their validity, a study group was convened in 1955. It considered the problem of atherosclerosis and ischaemic heart disease. It is clear from the report of the Study Group¹ that there are still many gaps in essential knowledge of the clinical, pathological and epidemiological aspects of the disease, and that there is a need for world-wide research into its complex nature. As often happens in an international programme for the study of a disease, the Study Group found it important to recommend the standardization of clinical and pathological criteria and terminology, and called on WHO to undertake this essentially international task. In collaboration, therefore, with the National Heart Institute of the United States Public Health Service, WHO in the latter part of 1957 convened another Study Group on Classification of Atherosclerotic Lesions.

The Study Group first defined atherosclerosis and other pathological terms commonly used to describe lesions observed post mortem. It then discussed the classification and grading of atherosclerotic lesions and made a series of recommendations on uniform objective methods for making and recording observations. The Study Group also considered the geographical pathology of atherosclerosis and suggested that the apparently marked differences between different countries in mortality statistics of cardiovascular disease—and particularly of atherosclerotic and degenerative heart disease—should be carefully examined in comparative studies, which should be extended to autopsy findings where the differences are very marked. The difficulty of correlating clinical diagnosis and autopsy findings was pointed out. The importance of the world-

wide co-ordination of studies by the development of reference laboratories or centres was stressed.

**Dental Health**

The Organization's work on dental health is only a recent development. The Fourth World Health Assembly in 1951 asked the Director-General to include in his programme such dental health work as might be financially feasible. A consultant visited several countries at various stages of development to collect information, and another in 1953 studied the effect on dental health of the fluoridation of drinking-water, which was considered more closely by an expert committee in 1957. A public-health dentist was appointed in the Regional Office for the Americas in 1954 and a dental health officer was added to the headquarters staff in 1955 to develop the programme that had been suggested by a consultant group which met in Geneva in 1954.

In 1954 twenty countries in the South-East Asia, Western Pacific and Eastern Mediterranean Regions were represented at a joint seminar on dental health held at Wellington in New Zealand, which did much to interest the health administrations of the three regions in dental health work. A study of the epidemiology of periodontal disease was started in India in the summer of 1957, when WHO, the Indian Council of Medical Research and the United States Public Health Service co-operated to investigate why periodontal disease is so prevalent in India and some neighbouring countries. Short-term consultants have been provided to assist several countries in planning dental public-health services and dental education.

**Occupational Health**

The protection of the health of workers is the concern both of ILO and of WHO, and the two bodies have been in contact on this question since September 1946, shortly after the WHO Interim Commission started work. The two organizations set up a Joint Committee on Occupational Health which met for the first time in 1950. The Committee defined the scope of occupational health as "the promotion and maintenance of the highest degree of physical,
mental and social well-being of workers in all occupations; the prevention among workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological equipment and, to summarize: the adaptation of work to man and of each man to his job”.

This definition, as was pointed out at the Joint ILO/WHO Committee on Occupational Health in 1952,\(^1\) covers more than the simple prevention of occupational diseases and accidents: it includes matters in which ILO is particularly concerned, matters suitable for joint action by the two organizations, and matters within the special competence of WHO. Many analyses of the causes of disability among workers have shown that not more than five to ten per cent. of disability is due to accidents or occupational diseases, that the remaining ninety to ninety-five per cent. is due to pathological conditions not connected with the job, and that a significant percentage is due to infectious, psychological and emotional factors acting in the home environment. Sickness absenteeism, and other important questions of occupational health, cannot be adequately studied without the co-operation of the public-health services and the proper use of vital statistics. Naturally also, whatever is done to improve the health of the general population must benefit the workers who are a part of that population.

At the same time it is necessary to foster the development of special occupational health services that take account of the special needs of workers, to interest management and labour in the question, to study occupational diseases and hazards, and to promote research into problems of occupational disease. It was the view of the ILO/WHO Joint Committee which met in 1957 that governments would find that occupational health institutes would assist them in building up their programmes for occupational health, and it recommended to ILO and WHO that such institutes should be established for this purpose.\(^2\)

An institute of occupational health is, in this context, any organization in which specialists in the several aspects of occupational health act as a research and teaching team and give help and advice. Such an institute is perhaps most effective when it is affiliated to a university or a medical centre. Team work is

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essential in this subject, in which physicians, engineers, toxicologists, nurses, social workers, health educators and psychologists must act in close association; and this emphasis on teamwork has often led to co-ordination between health and labour organizations. Another important point is that occupational health should be taught to all the professional groups concerned. The physicians should have some technical knowledge of the industry, the engineers should know the fundamentals of health and the nurses should have some acquaintance with the problems of human relations in industry. Such a process will help to provide staff for developing national programmes of occupational health.

Institutes of occupational health have been established in Egypt and Turkey with assistance from WHO and ILO respectively. ILO and WHO have provided international experts to strengthen national training institutions, and have given fellowships to train the national workers who will continue the work after the international expert has left. Such assistance was given, for example, to the Department of Physiological and Industrial Hygiene of the All-India Institute of Hygiene and Public Health in Calcutta. A permanent training centre has now been set up which is being widely used in the training of Indian workers in occupational health and which may become a regional centre for training doctors, engineers, safety inspectors and nurses. Research is also being done on local problems of occupational health, such as the physiological adaptation of cotton weavers in different seasons, the lung volumes and maximal breathing capacity among Indian sedentary workers, occupational hazards in Indian mines, seasonal variations of absenteeism, and the incidence of accidents and diseases in a Calcutta factory.

To spread interest in and knowledge of the problems of occupational health, ILO and WHO have been concerned in a series of seminars, in which doctors, engineers and nurses have taken part and the faculties for which have also been drawn from several professions. So far the greatest interest in such educational work has been shown in Europe, as would be expected because of its advanced industrial development, but it is being extended to other regions and a conference on occupational health will shortly be held in India for the countries of the South-East Asia Region.

The reports of the Joint ILO/WHO Committee contained recommendations on general methods for the health protection of workers in their places of employment, notification of occupational diseases, comprehensive programmes
of health services, and the implementation of existing industrial health legislation and standards. Advisers have been sent to several governments to assist in the practical application of those recommendations and in preliminary surveys on occupational health.

**Hygiene of Seafarers**

The hygiene of seafarers also concerns both ILO and WHO and it has been discussed at meetings (in 1949 and 1954) of joint ILO/WHO committees, which considered the medical examination and the hospitalization of seamen, tuberculosis and venereal disease, medicine chests on board ship and medical advice by radio. Mention has already been made in Chapter 14 of WHO's work in connexion with the Brussels Agreement of 1924 and the control of venereal diseases in major ports.
Death rates for children, and for women in child-birth, are very sensitive indices of the health of a population. When a large number of children die before reaching school age, there is good reason to believe that this fact reflects generally insanitary conditions, lack of food, poor weaning and child-feeding practices and an unusually high prevalence of communicable diseases. The object of maternal and child health programmes is to bring to light and effectively control these factors. Conditions differ in every country; but certain elements are common enough to allow distinction of three different situations.

In certain areas there were dramatic changes in the first half of this century. Infant mortality dropped from over 100 deaths per 1000 live births to 20 or less. The decline in maternal mortality has been even more spectacular: in the United States of America, for instance, the rate in 1950 was one per thousand, as compared with six per thousand only fifteen years earlier. The reduction in infant deaths was not evenly spread over the entire first year of life, but was greater in the latter part of the year and showed very little or no decrease in the first weeks. In not a few countries almost as many children were dying in the first week as in the whole of the remainder of the first year. This situation called for increased attention to the important causes of death soon after birth, such as prematurity and obstetrical trauma. In older children communicable diseases had ceased to take a heavy toll of life so that interest began to centre on some of the remaining causes of death in this age-group, such as accidents.

Another group of countries had, by the late nineteen-forties, already achieved some success in reducing maternal and child mortality in the larger cities, and were giving more attention to expanding and strengthening their
health services. The chief task in such countries was to train a sufficient number of personnel to staff the expanded organization.

Finally, there were countries where the basic educational and health facilities were still in the earlier stages of development. Here endemic and communicable diseases were still highly prevalent. Generally insanitary conditions and extreme shortage of personnel were also the rule.

Mention should be made here of the United Nations Children’s Fund, whose primary concern is the care of children, as it has been closely associated with all the work of WHO in maternal and child health, and has given substantial help in financing many of the programmes in which WHO has assisted.

The work reviewed in this chapter comprises assistance in training personnel for maternal and child health work, assistance in the organization and administration of health services for mothers and children, and assistance with and study on certain technical problems. However, much of WHO’s other work—for example, on nutrition, mental health, and certain communicable diseases—has a direct bearing on the health of children, and is described in the chapters dealing with those subjects.

All public-health work requires an adequate number of competent personnel; and programmes of training were necessary to provide doctors, nurses, midwives and their auxiliaries. An Expert Committee on Maternity Care, which met in 1950, said in its report:

In the implementation of a programme of maternity care, expenditure for adequate training of personnel should take precedence over other expenditures if, in fact, a choice has to be made.  

WHO’s assistance in training staff has taken various forms. One method has been to assign teaching staffs to medical, nursing and midwifery schools for basic and post-graduate education. Training of nursing personnel is described in greater detail in the chapter on Nursing. Sometimes it is necessary to organize in-service training in demonstration and training centres; and many fellowships have been awarded for academic studies or study tours.

UNICEF assisted much of this work by providing equipment for training centres, schools of nursing and midwifery, teaching wards in hospitals and

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courses for traditional birth attendants, and has provided training stipends. The experience gained in field work is from time to time reviewed so that conclusions may be drawn from it to guide future plans.

Training activities of this type may be illustrated by the assistance given by WHO and UNICEF to the Department of Maternal and Child Health of the All-India Institute of Hygiene and Public Health, Calcutta, for which at various times since 1953 there have been provided a paediatric nursing instructor, a public-health nursing instructor, an administrative officer, a specialist in social medicine, a paediatrician and a health educator. Postgraduate public-health training was introduced, a child health and child guidance clinic was set up at the rural health centre at Singur and training at the centre improved, and an urban pilot health centre was started in Calcutta. Up to mid-1957 about thirty medical officers had received a ten-month course in maternal and child health, and a group of twenty-two women medical officers in charge of maternal and child health centres had taken regular courses for the certificate in maternal and child health. In 1956 a one-month seminar was held for state maternal and child health officers in India.

An Expert Committee on Midwifery Training, which met at The Hague in 1954, described the different types of personnel required and their characteristic functions and discussed at some length the various aspects of training.

In most countries, training in paediatrics has been historically a later development than training in maternal care, and in many medical schools chairs of paediatrics have not yet been established. The teaching of paediatric nursing is often limited to the institutional care of the sick child.

Information collected during surveys of paediatric education made in Europe (with the International Paediatric Association), Australia, New Zealand and Latin America served as a basis for the work of the Study Group on Paediatric Education which met in Stockholm in 1956. It discussed the objectives of paediatrics in medical education, the content of teaching in paediatrics, and the teaching methods likely to be successful under different circumstances, and also dealt with post-graduate training in paediatrics.

These various programmes have had a marked influence on the expansion and improvement of services for maternal and child health. Many new schools and field training facilities have been established, enrolment at existing
schools has increased, and special refresher courses and in-service training programmes have been organized. By 1957 fifty-four countries and territories had had assistance of this kind from WHO, from WHO and UNICEF jointly, or in projects assisted by UNICEF for which WHO gave technical approval. It is too early to judge the full effect of the training programmes, but some conclusions are beginning to appear. Staff have been provided for the expansion of services; the training programmes have helped to raise the educational standards of medical, nursing and auxiliary personnel; in many countries they have improved the social standing of auxiliary workers and have made the nursing profession more acceptable as a career for women; and the inclusion of domiciliary training in the preparation of midwives has done much to raise the standards of home confinement in several countries.

One of the recommendations of the Expert Committee on Maternal and Child Health which met in 1949 was that there should be in every national health organization an administrative division on maternal and child health, and some progress has been made towards this objective. In the great majority of countries in Central and South America and South-East Asia, and in the larger countries in the Eastern Mediterranean and Western Pacific Regions, such maternal and child health units have now been established, but their functions, and the number and qualifications of the personnel, vary widely. The Expert Committee which met in 1955 to discuss the administration of health services for mothers and children strongly supported this recommendation of the 1949 Committee and listed the responsibilities that should be undertaken by a maternal and child health unit. In few of the developing countries is such a unit as yet in a position to assume all those responsibilities. Studies of local problems affecting the health of mothers and children, standards of services, technical supervision and evaluation, are all important matters which call for larger staffs than are yet available in most of the maternal and child health divisions.

Usually the staff consists of only one medical officer, whose duties are limited to giving advice to the public-health administration and to certain administrative tasks, such as the selection and placement of personnel, the organization of training programmes, usually in co-operation with the nursing unit (if there is one), the collation of reports and various routine matters. Some of these countries have also provided medical advisers in maternal and child health for their regional and state health administrations, but in most
of them there are few qualified maternal and child health officers except in the central national health organizations.

In the first years, WHO, besides helping to train personnel, assisted many countries to organize in selected areas demonstration and training projects, to which UNICEF often contributed equipment and supplies. With their national counterparts, WHO personnel assigned to these projects aimed at demonstrating modern methods and training local staff in the necessary techniques. In Kabul (Afghanistan), for instance, WHO assisted in the establishment of a modern maternity hospital, a modern paediatric ward, a domiciliary midwifery service and several antenatal and child welfare clinics. Trained midwives gave service for the first time in the history of the country.

The most important result of those projects was that they provided large numbers of trained health workers; but some of them became the starting points of more comprehensive local health services, and others led the people to appreciate health services or introduced preventive medicine to the area. Their main weakness appears to have been that they sometimes followed too closely practices appropriate to more developed countries and that their staffs and equipment were sometimes too elaborate to be copied by the national administration.

The Expert Committee on Maternal and Child Health which met in 1955 considered that the integration of maternal and child health activities into the general public-health and medical services was of great importance if mothers and children were to be provided with a comprehensive health service adapted to meet their special needs.

In a developing country the demand for a comprehensive health service may be aroused by the introduction of almost any type of health service; but the popular and emotional appeal of a service for mothers and children makes it a particularly effective starting point.

During recent years, many maternal and child health centres have been established in rural areas which often are without essential sanitation or disease control services and with only rudimentary facilities for medical care. The work of such centres is severely limited, and the present staff cannot possibly cope with the principal health problems of mothers and children, but these centres can form a nucleus for wider services. One of the most important future tasks is to assist the governments to fill the void round such
maternal and child health centres, and to provide full health services not only for mothers and children, but for all members of the community.

**Prematurity**

An expert group met in 1950 to review some aspects of the problem of prematurity and to make a provisional assessment of the situation. It recommended the adoption by all countries, for purposes of vital statistics, of the definition of prematurity given in the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death—"a live born infant with a birth weight of 2500 grams or less". Recently it has become evident that the standard definition of prematurity is not equally applicable to all countries, because in some the average normal weight at birth is less than that which those who drafted the definition had in mind. A new definition is being considered, and the Organization is collecting information on birth weights from a number of areas in different parts of the world. Assistance was given to a number of countries, including Chile, the Philippines and Japan, for their prematurity programmes, for many of which UNICEF provided equipment.

**Perinatal Mortality**

The concept of a "perinatal" period of life is relatively new. It covers the period from the time when the foetus reaches viability, at about twenty-eight weeks of gestation, through labour and birth to the end of the first week of life. In many countries in the last fifty years there has been a progressive and marked reduction in infant mortality (death during the first year of life), particularly in the period from the second week to the end of the first year. Deaths in the earlier period, including the time of birth and the first few days, have been much less affected, and still-births have also remained at a fairly steady level. A study group on problems of the perinatal period, in which eight European countries took part, was organized in Brussels in 1953 by WHO in co-operation with the Belgian Government. After this meeting detailed studies of the causes of perinatal mortality were begun in several European countries; another meeting was organized by WHO in 1956 to co-ordinate those studies, and work on the subject continues.
School Health

There is growing interest in this side of the child health programme. An Expert Committee on School Health Services was convened in 1950, and its report provides a comprehensive statement on this subject. The recommendations of this committee have not yet been widely applied, possibly because of fundamental difficulties in countries where educational and health services are minimal and trained personnel few. Medical inspection services are bound to prove disappointing where it is not possible to follow up and correct the defects found, and in such circumstances no comprehensive programme is yet practicable. There must be a realistic approach that takes into account the principal health problems of the area and its possible resources, defining clearly the short-term and long-range objectives. Probably the teacher is the best starting point for health authorities who wish to build up a school health programme, because an informed teacher can give health education under the simplest circumstances. The inclusion of health appraisal and health education in the training of teachers is a matter of great importance.

In 1956 the Regional Committee for South-East Asia and Sub-Committee A for the Eastern Mediterranean devoted their technical discussions to the role of the teacher in health. Some meetings held in Europe on health services in schools are described later in this chapter. WHO, in collaboration with UNESCO, is stimulating a world-wide study of how education and health authorities may co-operate to improve the health education of school-teachers, and a meeting of a study group on teacher training in health has been planned for 1958.

Physically Handicapped Children

The needs of the physically handicapped child were studied in 1951 by a group of experts convened by WHO with the participation of the United Nations, ILO and UNESCO. This group recommended that services for handicapped children should not be specially provided but should be given through the general health, social, educational and vocational services of the country; and that each agency and individual worker should constantly bear in mind the child's needs and personality as a whole and the contributions of other agencies and workers to those needs.

Several countries have been assisted with programmes based on these principles. Programmes for the organization and staffing of rehabilitation services for handicapped children have received assistance from WHO and UNICEF over a number of years in Austria, Greece, Italy and Yugoslavia, to which the United Nations, ILO, UNICEF and WHO have jointly sent consultants. Similar services are being planned for Spain. Assistance with programmes for handicapped children has also been given to countries in other regions, including Israel, Lebanon, India, Indonesia and Japan.

Diarrhoeal Diseases

Vital statistics and reporting in several countries have shown that, in the world as a whole, acute diarrhoeal disease is still the greatest single cause of infant mortality.

Although the Organization has not had a special programme for the control of this complex group of diseases, it has made or encouraged investigations and has helped national control work. At the request of the Government of Finland, for example, a WHO consultant surveyed the incidence of infantile diarrhoea and co-ordinated work with UNICEF in the milk hygiene programme. The many projects of community sanitation, maternal and child health, nutrition, health education, public-health laboratory methods, insect control, and epidemiological surveys assisted by WHO have helped indirectly to decrease prevalence and to prevent high mortality in children.

The assistance given to national enterobacteric centres by the three international centres supported by WHO for work on the enteric bacteria (see Chapter 32) has been an important contribution to the study of this problem.

In recent years the American Region in particular has given high priority to the control of diarrhoeal diseases and two seminars on the subject have been held, one in Chile in 1956 and one in Mexico in 1957. They have led to a wider recognition of the importance of diarrhoeal diseases in children and to a better understanding of their epidemiology and of the main sources of infection. Several lines of action were suggested for their control, the most important of which were improvement of water supplies and better disposal of excreta. Other methods, relevant to maternal and child care, were education of nurses and mothers to recognize the early symptoms and to provide early
treatment; the better nutrition of nursing mothers and the longer continuance of breast-feeding; and the provision of suitable supplementary and weaning diets for the children. It was recommended that control of diarrhoeal disease should be part of the existing health services and not a separate administrative unit; and other problems of administration were considered in some detail.

In 1957 a study group on epidemiology dealt also with the diarrhoeal diseases and outlined a series of epidemiological surveys, to be carried out in stages.

The Institute of Nutrition of Central America and Panama has studied the relationship between malnutrition and diarrhoea and has been given a grant for this work.

Work in the Regions

The emphasis placed on different aspects of maternal and child health work varies from region to region—and, indeed, within each region—in accordance with the needs and conditions. Thus in the European Region, assistance has been given over a number of years to certain countries—Greece, Turkey and Yugoslavia—for the establishment of basic health services for mothers and children. These have been extensive programmes covering the provision of training facilities, establishment of welfare centres, the organization of services for rural areas, including, in some cases, assistance for the improvement of rural sanitation. Other programmes have been concerned with the control of the communicable diseases, including trachoma, to which children are particularly vulnerable. On the other hand more specialized services for children have been catered for and help has been given—often for training—in such subjects as the care of premature children, paediatrics, child psychiatry, child nutrition, rehabilitation (in addition to the work described earlier for the development of rehabilitation services in certain countries) and other subjects. A number of these courses, for which WHO has provided fellowships, have been organized by the International Children's Centre in Paris. There have been studies on a variety of subjects affecting the health and development of children. Many countries in the Region are concerned with school health services and a study tour was arranged in Denmark and
the Netherlands in 1953 for senior school health officers from most of the countries in the Region. The following year a conference of public-health officers, public-health and school nurses was held at Grenoble (France) (with co-operation from UNESCO) to discuss school health services suitable for countries at different stages of development. In this subject, too, fellowships for training have been provided.

In the Eastern Mediterranean Region, most of the early projects were designed to assist Member countries in organizing basic maternal and child health services: four such projects, in Lebanon, Syria and East and West Pakistan, were completed and others are still in operation. Special projects for the rehabilitation of handicapped and backward children, care of premature infants and for school health services have been undertaken. Inter-country meetings were held on child guidance, on the problems of sub-normal children and on the child in hospital. The Organization also sponsored research into the epidemiology of maternal deprivation, and an inter-regional maternal and child health seminar was held in Cairo in November 1957, to which participants came from all the countries of the Region.

When WHO began its work in South-East Asia, not one of the Member countries had an administrative authority for maternal and child health at government level. Maternal and child health work was therefore limited to services in special centres, and to delivery services, either at home or in hospital. A certain amount of preventive child care was given, but much of the work was directed to the treatment of children's illnesses.

In the first stage—up to 1953—WHO concentrated on two objectives: assistance to governments by pilot projects, and the training of personnel. Usually maternal and child health and nursing education were combined in one project. Programmes of this kind were carried out in Afghanistan, Burma, India, Indonesia and Thailand, to which UNICEF usually contributed the necessary equipment and supplies. In the next stage WHO's assistance was directed towards helping governments to extend such pilot work to cover more of the population. In India, maternal and child health and nursing education projects were established in ten of the larger states and are being developed into state-wide services. Many of these projects in the Region are continuing, and in some WHO assistance will shortly end. More attention is now being given to paediatric education. In the earlier stages of the work WHO paediatricians were provided for the medical schools of Kabul
(Afghanistan), Rangoon (Burma), and Jogjakarta (Indonesia); later, assistance was given to those at Nagpur, Lucknow, Visakhapatnam and Madras in India.

The needs of the Western Pacific Region cover a broad range; in some countries the chief dangers to the health of mothers and children have been largely brought under control and attention is being given to special problems. By contrast, in other countries health services are still in the early stages of development, and maternal and child mortality are still relatively high. In such circumstances, the most frequent and serious causes of illness and death among infants and young children are gastro-intestinal infections, and the consequent nutritional disturbances, particularly during weaning.

In general, the greatest need in most countries was for more and better-trained personnel. In many countries field projects for demonstration and training, in either general or specialized aspects of maternal and child health, were organized and administered by the governments; WHO provided international staff to work with their local counterparts and UNICEF contributed supplies and equipment. These projects have on the whole been successful in improving the quality of maternal and child health services, and in training professional and auxiliary personnel; often they have been the starting point for more comprehensive local health services. In countries where more trained health personnel and facilities were already available, work was concentrated on better integration of the existing curative and preventive services.

The Organization gave help in projects to improve the standards of midwifery personnel, either by assisting schools of midwifery, as in the Philippines, or by refresher training courses for private practising midwives, as in Taiwan. All these programmes have encouraged more adequate prenatal supervision, and co-operation between individuals and institutions responsible for maternity care services. School health services were given special consideration in Cambodia and Hong Kong, where demonstration projects, mainly for teacher training and health education, have been undertaken by the governments, assisted by staff from WHO and equipment from UNICEF. There were specialized programmes for the care of premature infants and for handicapped children in the Philippines and Japan. The seminar on mental health in childhood, held in Australia in 1957, which included participants from countries in the Western Pacific and South-East
Asia Regions, is described in Chapter 23 along with other aspects of mental health work for children.

**Work with Other Agencies**

The close working with UNICEF has already been mentioned and illustrated.


There has been close co-operation with several non-governmental organizations in official relationship with WHO, such as the International Paediatric Association (with which, as already mentioned, a study of paediatric education was made); the International Union for Child Welfare; and the International Federation of Gynecology and Obstetrics.
Many types of health service are wholly or partly ineffective unless the people for whom the service is provided understand and accept its purpose and are shown by suitable methods how they can help and how much they can do for themselves. For this reason, health education of the public has become a necessary part of nearly all WHO’s assistance to Member States. In the words of the first report of the WHO Expert Committee on Health Education of the Public:

"The aim of health education is to help people achieve health by their own actions and efforts. It begins therefore with the interest of people in improving their conditions of living and aims at developing a sense of responsibility for their own health betterment as individuals, and as members of families, communities, or governments."

Health education may be indirect or direct. The indirect method is addressed to governments, health departments, educators and health workers of all kinds. The direct method finds its occasion in projects in which WHO provides a government with help and advice and in which WHO workers make direct contact with the people.

The approach to health education, and the methods used, have been widened in the last ten years. The main emphasis formerly was on propaganda which employed various media to distribute “facts on health” to the people; it has, however, been found that the most effective results are obtained when the approach is made through various health workers who are in regular direct contact with the people. More reliance is now placed on individual, family and group education, practical demonstrations, projects in which the
local population take part, and the inclusion of educational methods in various health services.

Health education must be based on a knowledge of the psychology, culture, education and economic circumstances of the people themselves. It is necessary to know their beliefs, their mental attitudes, their health practices, and the extent to which they will and can change their beliefs on matters affecting their health or their daily living.

One of the possible methods of international assistance is to include health education specialists in the staff of field projects; the first two so employed by WHO were assigned in 1949 to venereal disease projects in Egypt and India. Since that date other health educators have been members of WHO teams for field demonstration projects in maternal and child health, venereal diseases and rural health. Those projects were useful in demonstrating how, through practical health education, family and village participation could be enlisted in health programmes.

Some government authorities have decided to establish or reorganize health education services in their national health programmes and have asked for assistance. The first requests for WHO advisers in health education to work with national health departments were made in 1952 by the Governments of Honduras and Nicaragua, and, since 1952, full-time advisers have been assigned to national health ministries in Ceylon, Burma, Indonesia, Paraguay, and Haiti. In 1957 a health education adviser was sent to assist the Government of Afghanistan, which has developed a five-year plan for health education, with help from the Regional Office for South-East Asia. The Organization has given advice on planning health education services in several countries that are being assisted by bilateral agencies: they include India, Liberia, the Philippines, Thailand, and a number of countries in Central and South America.

Consultants have been provided to assist several countries in Europe to make preliminary surveys and to organize either general services of health education or education on special problems such as environmental sanitation, trachoma, or maternal and child health. As part of country programmes, committees on health education of the public have been, or are being, set up to advise and assist national and provincial health administrations. Assistance on similar lines has been given in several countries of Latin America. In the Western Pacific Region, the principal line of action has been to
emphasize health education in many of the WHO-assisted field projects, seminars and training programmes. A good example is a health education study being made in connexion with the bilharziasis project on Leyte in the Philippines. The main object was to find what practical measures could be used to ensure the co-operation of the local population in this project. A preliminary study has been completed on some of the beliefs, customs and living habits, and other relevant questions. A Philippine health educator has been assigned to the project staff in Leyte to assist in the continuation of the study and in organizing training conferences of the project personnel, agricultural and other workers concerned.

In South-East Asia, particularly since 1953, the improvement of health education has been recognized as one of the chief priorities of the regional programme and much has been done in the countries of the Region to promote health education by training key workers in health, education, and community development, and by the demonstration of field techniques.

In the plans that are being made to start or reorganize health education in national public-health programmes, a distinct change of emphasis can now be seen, and a trend towards a wider view of health education. While, ten years ago, many countries were still engaged in some form of hygiene propaganda, the technical health education services in national central health departments are now considered as having such functions as: co-operation with other sections of the health service to ensure that health education is included in all technical health projects and services that call for the co-operation of the public; training various categories of professional and auxiliary health workers in the principles and methods of health education; co-ordinating the health education work done by other government agencies or by voluntary organizations; helping to provide visual materials used in health education and testing these materials before they are produced in large quantities. Health education is accepted as part of the functions of all health workers who are in contact with the public and the importance of training professional and auxiliary medical and health workers in the principles, concepts and methods of health education is now recognized.

Some countries are incorporating health education training in post-graduate courses in their institutes of hygiene or schools of public health, and WHO has assisted by providing instructors in health education and by helping to organize courses of instruction—either as special courses or as part of the
general training of many different types and grades of health workers in all regions.

There is still a great need in most countries for a corps of well-trained specialists in health education, particularly for full-time service with national health departments, with institutions for training health workers or with state or provincial health departments. This type of full-time technical adviser is required to assist health administrators in the planning, organization and running of the health education aspects of national health programmes, and to assist in training health workers, school-teachers and others in contact with the public in health education. There has been a gradual increase each year in the number of fellowships for post-graduate training in health education requested by governments from WHO and from bilateral agencies: but the number trained to date is far short of the minimal requirements for a corps of health education specialists.

**Health Education in Schools**

Co-operative planning between official health and education authorities and voluntary societies is a promising method for improving health education in schools and in the training of teachers. Action on these lines has been stimulated by the technical discussions on school health education held in New Delhi during the session of the Regional Committee for South-East Asia in 1956, as well as by previous work with governments. In three countries joint national committees of health and education leaders have been formed to co-ordinate health education in schools. In India, there was in 1957 a conference of principals of training colleges for secondary-school teachers, the main purpose of which was to review a suggested revision of the syllabus for teacher training courses. WHO assisted with the health education parts of the revised syllabus.

WHO and UNICEF have provided consultants and equipment for government school-health projects and WHO has assisted in-service training courses for teachers of school health education. WHO and UNESCO have jointly prepared a guide on the preparation of teachers for health education in schools, in order to assist health and education authorities in their plans for strengthening health education in schools and in teacher training institutions.
Cultural Patterns and Methods of Health Education

One of the most serious handicaps to health education work is inadequate knowledge of the attitudes and beliefs of various peoples about health and disease, the influence of family and group sanctions, traditions and customs, patterns of social organization and so on. WHO has in some instances employed social anthropologists to obtain cultural data which would facilitate the adjustment of health programmes to the needs of the population. Seminars and conferences have also emphasized the need to know the beliefs and customs of people whom it is proposed to educate, and social psychologists and anthropologists have helped in the planning of most such meetings. Social scientists are employed by some national health administrations and institutions.

Since 1953, regional conferences or seminars on health education have been held in five of the six WHO regions—Africa, the Americas, South-East Asia, Europe and the Western Pacific. The discussions covered the needs and resources for health education in different countries, ways by which health education services could be strengthened and combined with health and training programmes; and the types of assistance that could be provided by international agencies. The regional seminar held in the Philippines in 1955 was concerned primarily with health education on nutrition and was organized jointly by FAO and WHO. A second conference in Europe, in 1957, concentrated on the training of health workers in health education; it emphasized the importance of co-ordinating between professions the training facilities and programmes provided. Because health education should be a concern of all workers who are in close contact with the people, care has been taken that there should be at such conferences and seminars a wide representation of different types of health worker: they have included national and provincial medical officers of health, professors of preventive medicine and public health, nurses, health education specialists, school physicians, supervisors of teacher training, social psychologists, anthropologists, adult educationists and publicists. These regional seminars and conferences have been followed by national conferences and seminars on health education in many countries, particularly in Europe and the South-East Asia and Western Pacific Regions, to spread among national health workers interest and knowledge about the matters discussed in the regional conferences.
WHO has helped to plan and has taken part in a number of these national conferences on health education, and discussions on health education have formed part of regional and inter-regional technical seminars and conferences on other health questions.

Health education of the public or school health education has been the theme of the technical discussions at several of the regional committee meetings (the Americas in 1954, South-East Asia and the Eastern Mediterranean—Sub-Committee A—in 1956, and South-East Asia again in 1957) and the Health Assembly decided that health education of the public should be the subject for the technical discussions at the Twelfth World Health Assembly in 1959.

It will be apparent from what is said earlier that at this stage the chief concern of most persons engaged in health education of the public is to find efficient methods of conveying new ideas to people of different cultures and customs. The conferences and seminars that have been mentioned were largely designed to share and spread the information that had been acquired in different countries and by different types of study. An Expert Committee on Health Education of the Public met in December 1953 to review the main problems. It recognized that there could be no standard pattern for a “health education programme” that would work everywhere, but suggested principles by which to arrive at the programme that would work best in given circumstances. It defined the purpose and scope of health education; outlined the way in which people learn and the place of the educator in health programmes; stated the broad principles on which a programme should be planned and how its effectiveness should be tested. It also made some general recommendations on training for health education.

People will learn if the new ideas put before them are related to things in which they are interested, things that they consider important, and if that relation is expressed in accordance with their habits of thought and in terms of their particular environment. Scientific accuracy of presentation alone will often be irrelevant and vain. If habits of thought and action are to be changed by education, it is necessary first to understand the original habits. The educator must take into account the information and beliefs that people already have about health and the causes of illness; they may not square with modern scientific thought, but they should be built on and not rejected out of hand. The good educator will accept people for what they are,
respect their personality and work with them in a friendly spirit, free from patronage.

The report of the Expert Committee has been widely distributed and permission has been given for its translation into several languages, most recently into Japanese and Chinese. In the United States of America it was specially reviewed at a national meeting convened by a leading health organization and was brought to the notice of their staffs by state and local health agencies and societies throughout the country.

In 1957 an expert committee on training of personnel in health education of the public met in Geneva and discussed how health education can be most effectively given by professional and auxiliary health workers. It reviewed the main types of knowledge and skills desirable in health education work. It advocated the training in health education methods of physicians, nurses, midwives and sanitation workers and laid down guiding principles for health education courses which would form part of the general basic education, advanced training and in-service training of such personnel.

Co-operation with Other Agencies

Since 1949 WHO has co-operated with the United Nations, UNESCO, and the other specialized agencies, and with governments, on the health aspects of several country projects and of training programmes in health education.

Two WHO health educationists, for example, were assigned to the initial fundamental education experiments in Haiti and Ceylon, and consultants were provided for the preliminary study of fundamental education in Egypt and Iraq in 1950 under the auspices of UNESCO.

WHO specialists in public health and health education have served on the teaching staffs of the UNESCO-sponsored Arab States Fundamental Education Centre in Egypt, and of the Regional Centre of Fundamental Education for Latin America at Patzcuaro in Mexico. During 1955 and 1956, WHO took part in the inter-agency review, carried out jointly by the United Nations, UNESCO, FAO, ILO and WHO, of the objectives and accomplishments of the regional fundamental education centre programmes in Mexico and Egypt, which led to some important administrative and technical adjustments.
In 1956 and 1957, WHO co-operated with UNESCO in two special short courses, held in Mexico and Egypt, for technicians of various kinds, on the preparation and production of economical visual aids and other teaching material.

WHO, in collaboration with UNESCO, has prepared two annotated bibliographies of health education references and publications, which have been widely distributed.

Co-operation with International Non-governmental Organizations

The first international non-governmental organization founded specifically for promoting voluntary and professional interest in health education, the International Union for Health Education of the Public, was admitted into official relations with WHO in 1955. Since then it has sponsored three important international conferences on health education, in Paris and Rome; and in 1957 it set up a committee on studies and research in health education and a committee on professional training in health education.
The solution of many health problems requires sufficient numbers of well-trained people, competent to apply the scientific and technical advances of our time for the general benefit. Such persons are scarce: every country suffers from some shortage of health workers—doctors, nurses, midwives, sanitary engineers, laboratory or other technicians, etc. Only very exceptionally is there a surplus in one or other category who may be available for employment outside their own countries. To import foreign personnel, when possible, is in any case only a stop-gap measure and, while a certain number of foreign-trained experts will be required by many countries for a long time to come, the only real solution to the shortage of skilled personnel is the development of national training facilities.

In almost all its varied activities the World Health Organization has found that in the end it has had to help governments to overcome the personnel shortage which was hampering the execution of health programmes, and gradually the training of greater numbers of people for particular types of health work has become one of the Organization's main preoccupations.

There is no easy way to solve this manpower problem. Considerable human and material resources are required for training programmes, and they cannot be produced in short order. It takes many years to train health workers of professional status and they must first have had an adequate preliminary education. Moreover, with the continuing trend towards specialization, it is necessary (in addition to the general training of doctors and nurses) to train public-health doctors, paediatricians, bacteriologists, nurse midwives, public-health nurses, etc. Of all the resources necessary for the provision of training, well-qualified teachers are the scarcest, and a great deal of the World Health Organization's effort has been directed towards assisting the creation or extension of national cadres of teachers.
The experience that leads to better methods in education and training is found in the educational institutions where teaching is given and in which new techniques can be developed by trial and error. The World Health Organization is not an educational institution in this sense. The value, however, of an agency such as WHO in professional and technical education is that it has access to the experience and knowledge of all countries and has facilities for promoting their diffusion and exchange. It can also enlist the co-operation of leaders in health and medicine to help countries to reach their goals. The World Health Organization cannot and does not aspire to assume any of the functions of teaching and research institutions but it can and does assist them by its unique structure, standing and potentialities.

All the work of WHO in professional and technical education and training pursues one of three objectives, or combinations of them.

First of the objectives is to help countries to deal with their shortage of health and medical personnel. Here the differences from country to country are so considerable that no generally valid pattern is possible. There are, for instance, countries with no medical schools at all and where none can be established until the educational and other standards improve. Except for the few doctors that can be imported or trained abroad, these countries must depend for a long time to come on the services of auxiliaries and will have to make plans for their training. In some countries the necessary conditions for medical schools exist and the Organization has been asked to help in establishing them. In others there are medical schools that need assistance to raise their standards and increase their output. Sometimes undergraduate training is adequate but there are no facilities for post-graduate education or for research. WHO has been called upon to assist countries at all these stages of development.

The second principal objective is arranging for countries to obtain technical skill and knowledge that they now lack. If new ideas or methods could be effectively introduced merely by training one or two receptive individuals in a country the problem would be relatively simple; but established tradition and inertia often bar the way of progress. It therefore becomes necessary to influence deep-rooted attitudes, which is more difficult than imparting knowledge or skills. Except for what can be learned by self-tuition or from publications, there are only two ways of bringing new knowledge to a country: either somebody goes abroad to learn, or somebody from abroad comes to teach. WHO's fellowships programme is an instance of the first method; the provision of teaching and demonstration teams exemplifies the second. The major purpose in each case is to produce instructors and teachers. For the second
method, it is important that the team should be so composed, and its pro-
gramme so chosen, as to provide the psychological impetus necessary to
overcome normal resistance to change of mental attitude.

Finally, the third principal objective is to collect, compile and analyse
information or views for the use of the world at large. The compilation of
the World Directory of Medical Schools and the comprehensive study of
paediatric education are examples.

Some Aspects of the Training of Physicians and Auxiliaries

Training of Physicians

The training of physicians occupies a prominent place in the programme
of the Organization. In this century there has been a great and rapid increase
in the body of scientific knowledge; at the same time technological and social
progress have altered many features of the society in which medicine is prac-
tised. Changing medicine in a changing world has to be taught by new
methods; hence the many experiments that are being made with revised curricula. The World Health Organization is closely following trends in
different countries, exchanging information, and helping governments to select
the methods that best suit their particular conditions.

Many medical ideas have only limited applicability in certain parts of
the world; but there is one which is considered to be of universal significance:
the need for greater emphasis on prevention and for more attention to environ-
mental and social conditions and their bearing on health and disease. The
promotion of preventive medicine has become an essential part of the educa-
tion and training work of the Organization at all levels, undergraduate and
post-graduate.

Another important feature of the Organization's work in medical educa-
tion is to promote training in the basic medical sciences. In nearly all the
less advanced countries a serious obstacle to the flow of graduates from the
medical schools is the lack of teachers for the pre-medical and pre-clinical
subjects. High priority has been given to increasing their numbers. Many
visiting professors have been sent to teach basic medical sciences and many
fellowships have been provided for basic medical studies; these disciplines
are also represented in all visiting teams of medical scientists.

Among the clinical subjects, certain specialities such as paediatrics and
anaesthesiology, for a variety of reasons, have been given particular attention.

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1 The training of nurses, sanitary engineers, and other professional personnel is dealt with
elsewhere in this volume.
Use and Training of Auxiliaries

In some countries it has been customary, and in present circumstances is probably necessary, to employ auxiliary personnel to do work which would ordinarily be entrusted only to professional health workers. It has therefore been necessary to provide institutions for training such personnel and curricula adapted to the type of work that they do. WHO has taken great interest in this question and has assisted a number of institutions by providing instructors and teaching equipment.

In most medical schools each professor has his own subject—e.g., physiology or surgery—but for training auxiliary personnel it has been found that a lesser degree of specialization, in which instructors have more than one subject, is more suitable. In this way it is easy in teaching, for instance, the rudiments of public health and hygiene, to include a certain amount of clinical and therapeutic teaching about the commoner diseases.

Auxiliary workers are most effective when under the supervision of a qualified professional worker, who will act both as a consultant and as a teacher. Their training must therefore make clear their functions and their relations with the other members of the health team. They should know their own limitations and be warned against taking on greater technical responsibilities than they are able to carry.

The presence of partly trained health workers in any community may be considered a temporary measure, until fully trained personnel in adequate numbers become available, though in some parts of the world this temporary phase may last for some time. But for various reasons, mostly social and economic, some types of auxiliary workers may continue to assist the fully trained staff even where the latter are available. For instance, the high cost of training and employing fully qualified workers may lead to the use of auxiliary personnel for simple routine functions, so as to leave the professional staff more time for the higher kinds of work.

Development of the Programme in Education and Training

The following paragraphs describe how the Organization’s work in professional and technical education and training got under way, and give a few examples of WHO projects and programmes. A great deal of relevant work

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1 The term auxiliary worker is used in United Nations organizations to designate a paid worker in a particular technical field with less than full professional qualifications in that field who assists and is supervised by a professional worker.
is also referred to in the chapters on other subjects such as nursing, environmental sanitation, and health education of the public, because, as already mentioned, training has been recognized as a part of almost all the Organization’s activities.

During the Interim Commission period and in the early days of the World Health Organization, some of the work started by UNRRA to assist war-ravaged countries was continued. It included some important training programmes. In 1947-48 a total of 427 fellowships were awarded to nationals of eleven countries that had suffered from wartime occupation (Austria, China, Czechoslovakia, Finland, Greece, Hungary, Italy, Korea, Philippines, Poland and Yugoslavia), and in two countries (China and Ethiopia), training programmes for nurses and medical auxiliaries were conducted by WHO visiting missions. The UNRRA co-operation with the American Unitarian Service Committee in sending teaching missions to certain universities was also continued; teams of professors were sent for one or two months to the medical schools of Austria in 1947, and to those of Finland, Poland and the Philippines in 1948. Teaching equipment, supplies and medical literature were provided to many medical schools which had suffered in the war.

When the conditions of the immediate post-war period were alleviated, the emergency character of the Organization’s work gradually gave way to broader and more balanced activities in all fields, including education and training. The education and training programmes initiated by the First and Second World Health Assemblies prepared the ground for the meeting of the Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel, which took place in 1950 and laid the foundations for future programme planning.

An increasing number of requests from governments for WHO’s services and the establishment of the regional organizations led to an expansion of field activities in general, including education and training. The variety of projects increased; new types of activity were added and earlier types were adapted to the new conditions. The first five international technical and scientific meetings held under WHO auspices to promote exchange of experience and information took place in 1950: the Working Conference on Public Health Nursing in Noordwijk (Netherlands), the International Symposia on Syphilis in Helsinki and Paris, and the Seminars on Infant Metabolism in Leyden and Stockholm. They established a pattern for such meetings and marked the beginning of a long series which eventually took a prominent place in many sides of WHO’s work. The first WHO-assisted international
training centre (the Anaesthesiology Centre in Copenhagen) was also established at that time. The medical teaching missions were renamed visiting teams of medical scientists and their functions extended. Teams were sent to Burma, Ceylon, Iran and Israel in 1951-52 and in later years to other countries (including Egypt, India and Indonesia). The provision of visiting professors for medical schools started with the appointment of ten professors in 1952; in the following years this service was considerably expanded.

The Organization's fellowships programme was also modified. The Second World Health Assembly put emphasis on group training and the Fourth World Health Assembly established the policy that fellowships should not be regarded as a separate programme but as necessary adjuncts to co-ordinated services to governments.

In 1951, technical discussions at the Fourth World Health Assembly dealt with problems of education and training. In 1953, the Executive Board, at its eleventh session, made an organizational study of the education and training programme. This included a review of the history and development of the programme. The Board's report recommended that to guide the programme there should be a close study, country by country, of world needs; criteria and standards should be developed; the local and national distribution of the various types of medical and health personnel should be surveyed and studied; experiments should be made to improve methods of education, and the results should be analysed and assessed. The Sixth World Health Assembly approved and commented on this study and so provided guidance for the further development of the work.

The Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel which met in 1952 examined the fundamental principles involved in the education of physicians, principles which could be applied in any part of the world and under any social and environmental conditions. The Committee made recommendations on some essentials in medical education, the role of the medical schools, and the national and international action required to promote improved standards. It emphasized the importance of orienting medical studies towards preventive medicine.

In 1955, the Expert Committee outlined the principles that should guide WHO's work in the training of auxiliary personnel. It reported on the types of auxiliaries that should be trained, the teaching institution and its staff, the selection of students, the length of training, teaching methods and the content of the curriculum. It also dealt with the utilization of auxiliary personnel,
their relation to fully qualified professional workers, and their functions, assignments and conditions of service.¹

National surveys of the manpower situation in health and medical work, surveys of particular educational institutions, regional and national studies on medical education, and national conferences on education and training problems followed. In the course of all this work the contacts of the Organization with teaching and research workers increased, and they now extend to most countries of the world.

At the end of the Organization’s first ten years of work, requests are still being received from governments for assistance in solving particular and limited problems, which may, for example, relate to one specialty or to a particular educational institution. Projects thus limited in scope are therefore still necessary. But recently countries have more often been seeking WHO assistance in their fundamental and general problems of education and training in health and medicine. To meet these requests, studies and discussions on medical education have been held in Afghanistan, Burma, Costa Rica, Egypt, Haiti, India, Indonesia, Iran, Israel, Uganda, and elsewhere. They have made clearer the need for systematic long-range planning and thus mark another shift from emergency assistance to concentration on more basic problems.

The education and training activities of WHO may be illustrated by examples grouped under four headings: studies and surveys; field projects; courses and educational meetings; and fellowships.

**Studies and Surveys**

The studies and surveys are of two kinds: either they are concerned with the personnel needs, resources and facilities of individual countries or groups of countries in order to assist them in planning training programmes, or they deal with information and education problems of international interest, for the use of the world at large.

In the first category, a number of nation-wide surveys and studies on medical education have already been mentioned. Some of them were made by individual experts, others were based on reports made by visiting teams of medical scientists and were therefore the composite views of groups of senior academic teachers. In the South-East Asia Region, for instance, surveys

of one kind or the other have been made in all but one of the Member States and enough material has been collected for an analytical study of medical education in the Region. This study consists of four parts: general considerations on the regional situation as a whole, analyses of the national situation in Burma and Indonesia, and a paper on the training aspects of India's medical man-power problem. Part I (General Considerations) was presented to the WHO Regional Committee for South-East Asia at its seventh session in 1954. On the recommendation of the Regional Committee, national conferences or less formal discussions on medical education were subsequently held in Burma, India, Indonesia and Thailand, and led government and academic authorities to introduce important reforms.

Enough material has now been compiled for a similar study of medical education in the Eastern Mediterranean Region. This is being planned.

What amounts to a summary world-wide survey of medical education has been made in connexion with the publication of the second edition of the World Directory of Medical Schools, which contains tabular information on approximately 650 medical schools of all countries, preceded by a narrative describing all the important features of undergraduate medical training in eighty-three countries.

A further study was made jointly with UNESCO and with the co-operation of over a hundred professors in eight non-clinical subjects, and resulted in the publication of inventories of teaching equipment. These give detailed suggestions for essential equipment needed in the teaching of anatomy, histology, physiology, biochemistry, pathology, bacteriology, pharmacology, preventive medicine and public health, and review some of the modern trends in the teaching of these subjects. They are useful when new departments are being established or when old ones have to be brought up to date.

The Organization has compiled and prepared for publication an annotated bibliography of undergraduate medical education, covering the period from 1946 to 1955, and containing nearly 3000 references arranged by subjects. These subjects range from the selection of students and the teaching of clinical medicine in a particular country to the use of television in the teaching of surgery.

In co-operation with the International Paediatric Association, WHO made an international survey of paediatric education in Europe, Latin America, and some countries of Asia. The survey supplemented similar studies conducted under other auspices in North America and, with the suggestions derived from it, has served as a guide in promoting the teaching of paediatrics and is also helping to improve paediatric education in all countries.
The ways of emphasizing preventive and social aspects in the teaching of medicine have received continued study throughout the ten years of the Organization. How a doctor may acquire an understanding of these aspects in his early professional education was a question raised by representatives of many countries at World Health Assemblies and subsequently discussed by various international groups. It was an important subject at the First World Conference on Medical Education, held in London in 1953, under the auspices of the World Medical Association and with the co-operation of WHO. A series of conferences for professors of preventive medicine was also organized at Nancy (France), Göteborg (Sweden), Zagreb (Yugoslavia), Viña del Mar (Chile), Tehuacán (Mexico) and Manila (Philippines). WHO also took part in a similar conference sponsored by the Rockefeller Foundation in 1955 in New Delhi.

These conferences examined how the general principles of preventive medicine could best be applied to the particular situations of countries and regions and how they could be embodied in undergraduate teaching. Their published reports contain information on the present status of instruction as well as recommendations for further improvements in the teaching of preventive medicine.

Two other methods have been used by WHO for the same purpose. The first has been applied particularly in the Region of the Americas: the teaching staff of schools of public health visited the countries from which their foreign students came, to learn more of the conditions in which they would have to work and to discuss with former students the training they had obtained. The other method was illustrated by a two-year training course held in North America for a group of prospective teachers of preventive medicine from South-East Asia. (This course was arranged in co-operation with Harvard University.) After these teachers return to their home universities it is proposed that a visiting professor should give them advice and help in establishing their departments and starting their teaching.

A correct preventive orientation in the undergraduate teaching of medicine must begin in the pre-clinical part of the curriculum, and be included in the teaching of such subjects as anatomy, physiology, biochemistry, pharmacology and pathology. Even in the teaching of clinical subjects, where it is easier to bring out the preventive aspects, adequate emphasis on prevention has been given in a few subjects only—such as paediatrics, obstetrics and internal medicine—and even there the emphasis has varied in different countries and in different schools. So far it has been found much more difficult to put the necessary emphasis on preventive aspects in teaching the pre-clinical subjects,
probably because it has hardly ever been attempted in any systematic fashion. WHO has therefore examined the possibility of such teaching. A Study Group on the Preventive Aspects in the Teaching of Physiology met in 1957, and another study group in 1958 will explore the same problem in the teaching of pathology. It is hoped that such studies will assist the preventive orientation of undergraduate instruction.

Field Projects

Most of the first-hand information needed for studies and surveys of the type described above is derived from WHO-assisted projects in many countries. Some field projects have limited objectives, such as introducing a new skill into a department of virology or radiology or assisting a medical school to establish a new department, e.g., of biochemistry or pharmacology. Others have much broader objectives, as when an educational institution is developed into a national or international training centre.

A form of assistance often requested from WHO is the provision of teaching staff to educational institutions for one, two or more years. From 1952 to 1957, eighty-six professors were appointed to forty-two schools in some twenty subjects, for a total of 1482 working months. Of these appointments fifty were in the basic sciences (anatomy, physiology, biochemistry, pharmacology and pathology), thirty-one in preventive medicine, public health, epidemiology and statistics, and twenty-three in paediatrics and child health.\(^1\) Details of the corresponding activities in nursing are given in the chapter on that subject.

The functions of WHO visiting professors are: the organization or reorganization of a department in the school, the teaching of students, the establishment of the necessary relationships within the school and with other professional or non-professional persons or bodies in the community, and, quite often, the inauguration of one or more research projects. Their paramount duty, however, is to train local staff, so that at least one person is capable of taking over the work when WHO assistance ends. WHO usually also provides a certain amount of teaching equipment and medical literature.

The establishment of a new department in a medical school is a difficult task. The administrative or legislative formalities for establishing a new Chair

\(^1\) Some of the professors held a number of appointments in various countries during the period mentioned.
are generally simple, but to set going an effective new teaching department is a long and arduous process. Some of the results achieved by a single visiting professor in an individual school have greatly exceeded original expectations. For instance, a WHO visiting professor was assigned to establish a department of pharmacology in the Seth G.S. Medical College in Bombay. As a result a pharmacology department has now been established not only in that college, but in the three other medical schools of Bombay. The funds for these other three departments came from sources outside WHO, although WHO's technical advice was freely given when requested. This shows how a project of originally limited objective may have a wider influence by the example it sets and the stimulus it gives.

Visiting professors may work with their host faculties over a period of years. In a different type of project, a group of professors spends some weeks, as a visiting team of medical scientists, with the host faculties. These visiting teams are as a rule composed of eight to fourteen professors or scientists of international standing, representing basic science and clinical subjects as well as public health and preventive medicine. They transmit the latest developments in their subjects, both by informal contact with their local counterparts and, more widely, in formal lectures or seminar-type discussions and demonstrations.

The influence of visiting teams on academic and governmental authorities, and on the general public, has often brought about improvements that might otherwise have been delayed. Visiting teams are concerned with all problems of medical education; their visits give an opportunity for conferences on medical education in which the team joins with the local authorities. In the last ten years, teams have visited thirty-seven medical schools in thirteen countries, and 132 professors from fifty-two different medical schools have taken part in them.

At times small specialized teams are used for limited purposes, like the congenital heart disease teams which have helped to establish cardiac surgery in Austria, Israel, Turkey and Yugoslavia, or the group of ophthalmologists that visited Egypt to impart new information and demonstrate recent advances in the subject.

Occasionally medical schools have been established by importing an entire teaching staff. The replacement of an entire faculty of foreign personnel by local teachers takes time. In the case of the University of Kabul in Afghanistan, for instance, the procedure followed has been to assign visiting professors to train teachers rather than students, and to supplement this training on the spot by fellowships abroad for the future teachers.
WHO sometimes assists well-established or highly advanced educational institutions: for instance, seven instructors in maternal and child health and in social medicine were provided to enable the All-India Institute of Hygiene and Public Health in Calcutta to establish a diploma course in public health. Students from other countries are now attending this course and the Institute has become a recognized international training centre. Another example is the Anaesthesiology Centre which was established under the joint auspices of the University of Copenhagen and WHO. This centre gives each year a full-year course in anaesthesiology, which is attended mainly by Danish students and by WHO fellows from European countries; but several students have come from other regions, especially the Eastern Mediterranean.

An example of WHO's assistance in the training of auxiliaries is the Gondar Health Training College, in Ethiopia, a further development of the programme started by UNRRA and the WHO Interim Commission. Here, with UNICEF and the United States International Co-operation Administration, a three-year course was inaugurated for medical auxiliaries, a two-year course for nursing-midwife auxiliaries and a one-year course for sanitation auxiliaries. All these groups are being trained on the same premises and sometimes, especially in practical work, at the same field stations.

Courses and Educational Meetings

The special conditions of international co-operation call for considerable flexibility of method. Some of the Organization's educational assistance has been given in courses by specialized leaders. Quite distinct from the courses are the educational meetings—seminars and conferences—which have become one of the main ways in which WHO carries out its international work. In such meetings all participants contribute to the exchange of experiences within the whole group, the educational conference being generally on a larger scale than the seminar. Although they are not advisory meetings as such, both the seminars and conferences give guidance to the participating countries and—through their reports—to countries not represented, and to WHO itself.

Valuable work in organizing conferences for the exchange of scientific information has been done by the Council for International Organizations of Medical Sciences (CIOMS), established in 1949 with the joint assistance of UNESCO and WHO. One of the main objectives of CIOMS is to secure a better co-ordination of international congresses and to make their techniques more efficient.
In some regions, notably in the Americas and Europe, educational meetings have gradually become one of the principal types of educational work and, with continued improvement in their techniques, provide an effective means of international co-operation. But they are fully effective only when they are followed by further action within each country represented at the meeting. Such action still needs to be more widely taken.

Most courses have been organized by, or in co-operation with, some national or international scientific and educational institution. WHO has often assisted by providing lecturers or financial support, or has sent fellows selected in co-operation with the interested countries. The data given below do not include the academic studies to which WHO sent its fellows, as these were part of the regular programme of the teaching institution and not the result of specific WHO proposals.

In 1950, WHO began to assist in organizing courses in subjects that it wished to promote but for which there were no adequate facilities, and to grant fellowships for attendance at them. To the end of 1956, 129 courses had been organized or assisted by WHO, for which 1884 fellowships were granted (29 per cent. of all fellowships). Seventy-eight of these courses were held in Europe, twenty-six in the Americas and twenty-five in other regions.

A wide range of subjects was covered in these group training programmes. Sixty-seven of them lasted about a month and were in the nature of “refresher courses”, some on general, some on very specialized subjects. There were also some thirty-eight longer courses (lasting from two to six months), such as the social paediatrics course at the International Children’s Centre, Paris, and also courses (twenty-four) covering a full academic year and leading to full professional qualifications, such as those in anaesthesiology at the University of Copenhagen and in biostatistics at Santiago (Chile). Many courses were given once to meet a particular need, but others have been repeated from year to year, to cater for a continuing demand.

WHO has also supported a number of national courses, to prepare local personnel for mass activities such as campaigns against communicable diseases or for child health programmes. The growth of this work is illustrated by the fact that in 1956, in South-East Asia alone, over 3700 nurses, midwives and nursing auxiliaries attended these courses, as compared with less than two thousand in 1953.

Up to the end of 1957, WHO had organized more than a hundred educational meetings—seminars, conferences, etc.—with participants totalling some 2500. Their subjects related to many aspects of the Organization’s work—in fact there are few technical programmes in which the educational meeting has
not been one of the methods used. It has also been usually arranged for a conference on medical education to conclude the work of each visiting team of medical scientists. This has given an opportunity to review modern trends in medical education, in general and in relation to the country visited.

**Fellowships**

One of WHO's principal methods of helping governments to train technical personnel for their health services has been to provide fellowships for advanced studies abroad. During the first ten years of the fellowship programme (1947-56), 6396 awards were made, not counting travel grants for educational meetings organized by WHO or for such purposes as the exchange of research workers.

These 6396 awards were made to fellows from 149 countries and territories for studies in 113 other countries or territories. Sixty-four per cent. of the fellowships were for studies within the region in which they were awarded. About 29 per cent. of the fellows attended courses organized or assisted by WHO, but the bulk of the fellowships were awarded for study in established academic courses or for observation of methods and organization in other countries. Sixty-one per cent. of the fellowships were financed from WHO regular funds at a cost of six million dollars for stipends, travel, tuition and book allowances. Of the remaining fellowships, 27 per cent. were financed from Technical Assistance funds and four per cent. from UNICEF. Fellowships financed by the Pan American Sanitary Bureau have not been included in this report.

This programme has entailed a great deal of work by the countries which have selected and proposed candidates, by the many countries and institutions that have provided facilities for study, and by WHO.

The fellows were usually doctors or graduates in medicine holding other diplomas (65 per cent.) but there were also graduate nurses (12 per cent.), sanitary engineers and sanitarians (6 per cent.) and other qualified health workers (17 per cent.). There were some fellowships (4 per cent.) awarded for undergraduate studies abroad, basic professional education not being available in the country of origin. Most of the fellows had substantial experience in the subject they wished to study further abroad; the average age of all fellows, including undergraduates, was 40 years. Most of the fellowships went to personnel of national and local health services, but about one tenth were granted to academic personnel such as deans, principals, professors and other
teaching staff of university faculties and schools of public health (this proportion was higher in some countries), and some to personnel of research institutions. A quarter of the fellows were women.

The subjects studied fell into three major groups: health services (59 per cent.), control of communicable diseases (28 per cent.) and medical education, clinical and basic medical sciences (13 per cent.). The major fields of study for the 6396 fellowships awarded in the years 1947 to 1956 are shown in Annex 11. The distribution of subjects of study by country of origin of the fellow is determined by the needs of the country itself, its own plans in health, and the type of projects assisted by WHO, but is also influenced by the number and type of health personnel available for advanced studies abroad.

So far as possible a full course of training in general public health is provided for personnel required for one particular field of public health, such as malaria, tuberculosis or venereal disease control, so that they may, if necessary at a later stage, be prepared for work in a generalized public-health programme. Even when their subject is not a public-health one, an effort has been made to see that any public-health and preventive aspects of it were covered by the fellowship studies. Purely clinical subjects have not been excluded from fellowship awards, especially when there is a need to encourage the subject in the fellow’s country or to train teachers in it. Attention has been paid to the need for fellowships for teachers, particularly when WHO is assisting institutions with visiting professors.

The totals and averages for the ten-year period, summarized in the preceding paragraphs, do not show how the fellowships programme has evolved. In that period there have been considerable changes in the number and type of fellowships, and in the subjects and countries of study. From the emergency assistance given on a small scale to some countries which had been cut off by the war from advances made in other countries, there has evolved a programme of almost a thousand fellowships yearly, which is now an essential part of joint planning by WHO and governments for the advancement of health.

There has been an impressive increase in the number of countries and territories receiving fellows for study purposes (see Chart 3). In the earlier years, 1947-49, WHO fellows were placed in about twenty countries; since 1954, the facilities of eighty countries and territories have been used. Part of this increase has been due to the organization of courses and of training and demonstration projects with WHO assistance. The use of training facilities in nearby countries, where conditions are more similar to those of the fellow’s own country, has also been deliberately promoted. In the early period about
40 per cent. of fellowships were granted for studies in the same region; the proportion is now almost 70 per cent.

The change in the subjects studied has been mainly an increase in the proportion of fellowships for studies in subjects that may be grouped under the general heading of health services (from 39 per cent. in 1947 to 65 per cent. in 1956); the proportion for clinical studies has shown the heaviest reduction (from 39 per cent. in 1947 to 14 per cent. in 1956).

Another noteworthy change has been the increased emphasis given to the provision of fellowships in conjunction with wider projects—in contrast with the practice in the early years of the programme, when fellowships were awarded more independently. In 1956 nearly half of the fellowships awarded (from all sources of funds) formed part of projects which provided for other types of assistance as well.

This evolution of the fellowships programme was not due to chance; it was brought about by a more systematic planning of the programme and by an improved organization for advising on study plans and for making
arrangements with the many hundreds of institutions throughout the world that receive WHO fellows.

After accepting an application for a fellowship, the Organization arranges an appropriate programme of study and assists in meeting the expense. The proposals of the candidate and his government, the advice of the WHO regional and headquarters staff, and the opinions of the receiving institutions in the country of study, all have their effect on the programme. In individual fellowships, the study programme is adjusted to the individual fellow, taking into account his background and his future assignment. In fellowships for group training (courses organized or assisted by WHO, or other courses) the needs and purposes of the group determine the programme of study and the selection of the candidates.

Experience with fellows who have attended previous individual or group training programmes is considered, so as to avoid the repetition of errors and to improve the contents of the study. In the country of study an authority is at hand to make any necessary adjustments in the individual programmes, and the organizers of the courses themselves have a similar duty. Each WHO regional office keeps in contact with fellows studying in its region, by correspondence, monthly reports and occasional visits.

Fellowships are used to provide advanced training to persons who will use it in some specified undertaking which is considered of importance to the health of their country. More important, therefore, than any educational methods such as examinations for appraising the knowledge acquired by a fellow is the measurement of the fellowship's result in terms of the use to which the fellow subsequently puts the knowledge he has acquired. For this purpose, each fellowship file, which includes a follow-up and utilization report on the fellow made two years after his return home, is reviewed by an evaluator, who, on each fellowship, prepares a note which embodies a positive or negative appraisal on about fifteen items, covering the fellow's studies, his employment and the contribution he had made to his country's health after his return.

The evaluation of 576 fellowships, awarded in the years 1947 to 1952 and followed up subsequently, shows that the immediate objective of the fellowship—the assumption of a specified task—was achieved in 540 cases (94 per cent.). Six fellows did not return home, ten were not appropriately employed after their return home, and on twenty the evidence is inconclusive. Of the 540 fellows, 210 (39 per cent.) were given, within two years of their return, more responsibility than in their former employment or in the same field of employment; another fifty-six (10 per cent.) were able to enter on a new field of work, for which they had been specially prepared during their fellowship studies.
The 540 fellows who were suitably employed made, on the average, more than three of the following contributions: 246 (46 per cent.) helped in improving existing services, 274 (51 per cent.) introduced new methods in those services, and 155 (29 per cent.) contributed to establishing new services not already available in the community or institution; 182 (34 per cent.) undertook field, clinical or laboratory research. Again, taking account of positive information only, 290 (54 per cent.) brought some of the knowledge acquired abroad to the notice of others in their countries by conferences or articles or in committees, and 404 (75 per cent.) took part in training other personnel. Apart from such contributions, almost half of the fellows (250) kept up contacts with other fellows and teachers abroad and so maintained a channel for the exchange of scientific information. Twelve, after returning home, were released for employment in an international agency.

This shows that the results of the fellowships have been in the main satisfactory, though the degree of success varied from country to country. On the whole it is exceptional to find that the fellow has not put to good use the knowledge he acquired abroad; and this view has been corroborated by some six hundred personal interviews with former fellows in eleven countries. Moreover, a directory, compiled in 1955, of persons who held fellowships in the years 1947 to 1953 shows that, with a few exceptions, those former fellows are employed in some official capacity, relevant to their fellowship studies, in which they can contribute to the health services of their countries.

The evaluation shows in some detail in what way (or ways) former fellows have contributed to the improvement of national services on their return. Fellows bring back new ideas and techniques which they pass on to others in their countries. They introduce new methods in existing services and make them more effective. They establish health services new to their countries, and they undertake research. Perhaps most important, a very high percentage of fellows are taking an active part in training programmes and thus passing on to others the benefits they have themselves received.

There is no doubt that the selection of the proper candidates is vital to the success of fellowships: it is also clear that the selection is influenced by many factors, including on the one hand technical and personal qualifications and on the other the availability of candidates and of careers in the public service that will be open to them. Their future employment also depends on many factors, ranging from government health policy, the effect of political changes, opportunity for promotion, to human frailties. In the circumstances it is almost surprising to find, on the whole, how few real failures there have been.
There is always room for improvement and the systematic evaluation of fellowships helps the Organization to learn from past mistakes, especially those that have tended to recur. It will become more effective as more governments co-operate by supplying full reports on what fellows have done after their return.
It was obvious to delegates at the First World Health Assembly that, if countries were to expand and improve their health services, greater numbers of nurses were needed; and not only more, but better qualified nurses would be required to carry out the many tasks which would fall to them. The ways in which WHO could assist countries in this matter were not clearly defined at the time, but gradually there has emerged a pattern of assistance which has as its main objects that there should be enough nurses in each country to assure the nursing service required for preventive and curative work, nurses capable of assuming positions of leadership in teaching and administration, and nurses able to participate in the planning of health services.

Assistance in nursing has been requested from countries with widely differing cultural patterns and at greatly varying stages of economic and social development. They range from those which have had firmly established health services for a long time, and possess the human and material resources for providing a high standard of medical and nursing education and service, to those where modern ideas of health and social advancement are only just beginning to be accepted.

Some countries, with organized nursing education programmes, had a nucleus of qualified nurses able to take the initiative in planning for the expansion necessitated by the increasing demand for health services. But in many cases suitably trained public-health nurses, nursing teachers and administrators were almost completely lacking and assistance was needed in improving the nursing education programme so as to train sufficient numbers of such personnel. There were also countries in which, although there were a number of men and women engaged in nursing work in hospitals and dispensaries, there was not a single fully qualified nurse. Where such conditions obtained, it was impossible to establish effective programmes for the care of the sick,
the prevention of disease, or the promotion of health until professionally trained nurses and midwives and auxiliary personnel became available.

This dearth of nursing personnel was caused by various factors related to the economic, cultural and social development of the country, and these factors had to be considered in their proper perspective before programmes for the preparation of personnel could be established. A primary contributing factor was education: opportunity for secondary education was very limited in most of these countries, and education for girls was the exception rather than the rule. Another factor was the poor status of nursing as a career. Also, nursing has more often than not been considered women’s work; and it is affected by the place which women occupy in their particular society. These problems are still present in some areas, but gradually changes are taking place.

At first nurses were requested from WHO only as members of the specialized teams concerned with such subjects as malaria, tuberculosis, venereal diseases or maternal and child health. Gradually, however, governments, realizing that only by building up national schools could sufficient numbers of nurses and midwives be secured, began to ask for nurses and nurse-midwives to help in expanding and strengthening schools of nursing and midwifery or in establishing new ones. In response to such requests international teams, the nucleus of which was a senior nurse educator, a midwifery tutor and a public-health nurse, were sent to work with national nursing staff in selected schools.

Where qualified teachers are few, the needs of the nursing service overwhelming, and social and economic factors unfavourable, the chief reason for having a nursing school is inevitably to meet the service needs of the hospital. In such cases the curriculum is frequently taken from another country whose needs and problems are quite different. Emphasis is usually on lectures, lessons are learnt by rote for examinations, and there is almost no integration of theory and practice. These are the problems which are gradually being overcome by changes in the curriculum, based on a careful analysis of the tasks for which the country requires its nurses.

Three main modifications in the curricula of nursing schools are taking place: the first is the introduction into the basic curriculum of teaching in public health, with adequate field practice and some training in the mental health aspects of nursing. Countries with few health workers and great needs
Clean face and hands: at a rural school in Ceylon

Flies are dangerous. Teaching with a flannelgraph, in Brazil
PROFESSIONAL EDUCATION AND TRAINING

FAO/WHO Seminar on Zoonoses: Vienna, 1952
The Coonoor working conference on rabies, 1952

Medical education in Fiji

A member of a visiting team of medical scientists demonstrates an operation: Egypt
THE LIBRARY
AND
PUBLICATIONS

A corner of the Library at
WHO Headquarters, Geneva

Some WHO publications
have to combine the preventive and curative aspects and train nurses who can not only care for the sick but also teach persons entrusted to their care how to maintain health and prevent illness: to consider the "sick nurse" as someone quite apart from the "public-health nurse" is unrealistic. The second is the more general inclusion of maternity nursing in the basic programme: in order to give family nursing care of the type implied above, nurses must be able to give that care to the mother before, during and after childbirth, and to the newborn child. The third is the introduction of some theory and practice to prepare the nurse for certain teaching and administrative functions. In countries with a great shortage of professional personnel the new graduate will almost certainly find herself in charge of a ward, or a health centre, with responsibility for teaching and supervising students and auxiliaries. She must have some training to prepare her for this.

Along with these changes has come an increasing recognition that nursing education and nursing service are interdependent: if a student is to become a good nurse, she must learn in surroundings where good nursing care is being given. It is natural, therefore, that international teams, although requested specifically for schools of nursing, should be called upon to assist in improving the nursing service given in wards, clinics and in the home.

The changes introduced in one school of nursing in the two years following the assignment of two tutors to plan and work with national nursing staff will illustrate what has been said above. When the project started, the school had one full-time tutor (with some responsibilities for nursing service) and one part-time tutor. The school had no written policy and no master plan for class instruction or rota for students working in the clinical services. Students were admitted at irregular intervals and class work was concentrated in the period before examinations. The amount of time allotted to each subject varied according to the medical staff available for teaching and the service needs of the hospital.

At the end of the two years the school had posts, established and filled, for four full-time tutors and one part-time. The objectives of the school and its administrative policies had been outlined, discussed and accepted in principle. Fixed times, twice a year, had been established for the admission of students. A master plan for the entire programme had been prepared, indicating the formal classes to be held throughout the three-year course and the rotation of the students through the clinical services. New subjects, based on a study
of the functions of the graduate, had been added to the curriculum. The national tutors had gained experience from their day-to-day work with the international team and, by fellowship study abroad, had become better prepared for their responsibilities.

During the two years the real objective of the school changed from that of merely providing service for the hospital to that of training nurses adequately to give proper nursing care to the patients. A staff education programme was also introduced, which contributed to the general improvement of both nursing education and nursing services. The greatest demand was for refresher courses in ward administration.

Assistance of this nature, varying in detail according to the needs of the school and the country, has been given to sixty-nine schools of nursing and midwifery in forty-eight countries.

Most requests for assistance have come from countries where schools of nursing already existed. Three countries, however, have received help in planning and developing their first professional school for nurses. The fact that they had no qualified nurses raised several problems: there were no professional counterparts with whom the WHO personnel could work; assistance had to be planned for a much longer period; and the international team had to assume administrative as well as advisory responsibilities. Moreover, the educational level of possible recruits to the profession tended to be lower. As one example of this type of assistance, the project carried out in Cambodia is described in some detail.

In response to a request in 1951 for assistance from WHO in nursing and midwifery education, four nurse educators were sent to Cambodia. A careful study was first made of existing nursing services, education and legislation, of the educational background of the nursing personnel, and of the human and material resources. This provided an assessment of what was required to meet the immediate, and later the future needs of a rapidly developing country.

A plan to provide four categories of nursing personnel was drawn up and received the approval of the Government. The aim was to establish programmes to prepare on the one hand professional nurses and nurse-midwives who would be the future teachers and leaders, and, on the other, a larger number of auxiliary nurses and midwives to work under the supervision of the professionally trained staff.
The existing programme was a two-year one with a very limited curriculum and no provision for the teaching of nursing by nurses. The educational background of the students was poor, and nursing was considered a menial occupation. A programme of professional standard was not an immediate possibility, for candidates of an adequate level of education were not available, clinical facilities needed to be improved, and teaching staff for both service areas and the school had to be trained. The first phase therefore concentrated on helping existing personnel to increase their knowledge and skills and thus improve the quality of nursing service. Many of these nurses demonstrated ability for leadership and have been appointed to positions of responsibility and authority in teaching, administration and supervision in the clinical divisions of the hospital, in the health centre, and in the midwifery programme.

The second phase, started in December 1954, was a basic nursing education programme, carried out as a demonstration project. This experiment proved to the authorities that emphasis on nursing arts was indeed required, since the work carried out by students in the demonstration ward was far superior to that in the other parts of the hospital. The demonstration project served also as a course in teaching for the Cambodian counterparts of the WHO team, who emerged as teachers with initiative and enthusiasm for their work.

The next phase of the programme could then begin. In it the WHO staff and their counterparts undertook the teaching in nursing for the entire student body. It was now possible to revise the curriculum to a higher standard and develop the clinical work. The training programme for nursing auxiliaries remains a two-year course, but statutes have been prepared for a professional nurses' class. Applications for training are now received from girls with higher educational qualifications and the next step in the project will be the establishment of a professional school of nursing.

Two Cambodian nurses have been sent abroad on a special programme of study to supplement the practical experience they have already gained in their own country. On their return they will assume positions of responsibility in the development of nursing in Cambodia.

The need for assistance in training midwives has been as great as in the case of nurses. In many countries—precisely those with the highest birthrates—most births take place in the home, and the only assistance available
has been that of an unqualified midwife or an untrained birth attendant. Much the same situation existed in schools of midwifery as in schools of nursing, and the emphasis was almost entirely on deliveries in institutions, which was natural, since the number of trained midwives was too small for even that service. The obvious need was to train midwives for domiciliary work and, at the same time, to make them more aware of their opportunities for health teaching and prepare them for that function—frequently the midwife is the only health worker in the community.

A description of the work in Afghanistan will illustrate the type of assistance given in midwifery. In that country women do not as a rule work or live away from home, and in general the education of girls has been far behind that of boys: consequently, few women were available for either nursing or midwifery. Before 1952 there was a course for midwives, but the qualifications for admission had to be adapted to the educational standards, and midwifery as an occupation was not socially favoured. And, although most mothers gave birth at home, the service provided was limited to the hospital. The Government requested assistance in improving midwifery training, as a part of improvement of maternal and child care in the country. A course of instruction which included experience in domiciliary midwifery was planned to meet the needs of the country. Influential families sent their daughters to take this course and to demonstrate by their example that midwifery is a profession which any girl may be proud to practise. The training programme has continued and now a domiciliary midwifery service has been established, and its expansion is planned. Special adjustments have been necessary—for example, in making home visits two midwives must go together and there must be a trusted male servant accompanying them. But the number of mothers able to have safe care during labour at home and to receive health teaching is gradually increasing.

One great need has been for more facilities for preparing nurses and midwives for public-health work and for teaching and administrative positions. Such facilities should preferably be provided in the home country or in one where conditions are similar, so that what is learnt may have more meaning and methods can be more easily adapted as necessary. Advanced study abroad will be required, but more post-basic education and experience at home beforehand can add greatly to the value of study in a country with another language and with quite different customs, facilities and needs.
Burma, India, Indonesia, Malaya and Thailand now have regular courses in public-health nursing, established with WHO assistance. Burma, Japan, Mexico, Thailand and Turkey have received help in training nursing instructors, and India, Indonesia and Japan in establishing their first courses for midwifery tutors.

The programme in Japan illustrates an interesting trend in post-basic education. In response to a request from the Government, a nursing educator was appointed to work with the Japanese members of the faculty of the Institute of Public Health in Tokyo in developing a programme to train teachers for schools of nursing, public-health nursing, and midwifery. The strength of this programme has been that teachers and supervisors for all fields of nursing and midwifery have been trained in one institution, with a common core of subjects in the curriculum. Some subjects have been studied alongside other members of the health team—doctors, nutritionists and health educators—and this, by increasing each member’s knowledge of the role of the others, has further enhanced the value of the training given. There are also administrative advantages in such a programme, since it is economical of faculty and physical facilities.

For traditional and economic reasons, the majority of schools of nursing in most countries will be “hospital schools” for years to come. However, as increasing numbers of men and women have access to higher education, universities will establish teaching programmes for nurses as they now provide them for doctors, lawyers and dentists. Before 1955 there were only six countries in the world where young women could receive basic preparation for nursing in a recognized university programme. Two other countries have now introduced such programmes with WHO assistance. The Higher Institute of Nursing, at Alexandria in Egypt, has been established as a part of the University of Alexandria to be an educational centre for training leaders in nursing education and nursing service for the countries of the Region and started its first basic degree course in October 1955. The students are being trained to give both preventive and curative nursing service and to undertake some teaching and administrative responsibilities.

A first university course in basic nursing has been started in Taipei. Health services are expanding rapidly in Taiwan and new schools of nursing are being established. The purpose of the university programme is to provide opportunities for nurses to train for teaching, supervisory and
administrative positions in their own country, instead of by fellowship study abroad.

Although international assistance has largely been concerned with preparing professional workers, much attention has been paid also to the training of auxiliary nurses and midwives. In the past auxiliaries have been considered as emergency personnel to be employed until there was an adequate number of professionals; now they are recognized as permanent and essential members of the health team, in which they work under professional supervision.

Since a major responsibility of the professional nurse or midwife is the supervision of auxiliaries, she must be trained for this work. Thus in nearly every project in the fifty-one countries which have received assistance, attention has been given to the training of auxiliaries. Specific requests for help in training teachers of auxiliaries have also been received, from Guatemala for instance. In some cases assistance has been given with training programmes for auxiliaries only—as in Ethiopia and Iraq.

In 1950 the Expert Committee on Nursing recommended that well-qualified nurses should be appointed to administrative positions and given responsibility for planning the nursing service and nursing education as part of the total health programme, and assistance has been given for this purpose. In eight countries a nurse has been assigned by WHO to help to establish a division or section of nursing in the health administration, and in five of these the work has now been taken over by a nurse of the country concerned. In several countries the senior nurse of the WHO team has acted as adviser to the government on general planning for nursing in addition to her work in the specific programme of assistance.

For the protection of the public, as well as in the interests of the profession, some form of legislation is required when a cadre of professional workers is formed. WHO nurses have given much help both to governments and to professional associations in framing legislation on nursing and midwifery practice. During the past ten years legislation for nursing has been introduced for the first time in some countries, has been modified in others to suit changing conditions, and is being planned in many more. Surveys of nursing legislation and of midwifery legislation in several countries were compiled and published by WHO in 1953 and 1954 respectively.

In every society some tasks and professions are traditionally reserved for men and others for women. In most countries nursing has been in general
a profession for women; where at present most of the nurses are men, it seems to be largely because women have been expected to remain at home and have not been given opportunities for education. WHO has encouraged the training of male nurses and has welcomed requests for assistance. A male tutor was assigned to Malaya for four years to help to secure the position of male nurses and to ensure continuance of their training. WHO is helping Afghanistan to establish a school for male nurses, and male students are numerous in other schools where WHO assistance is being given.

As programmes for general nursing became established, attention was given to the need for training in specialties, principally paediatric and psychiatric nursing. Projects in Costa Rica, India and Singapore which included training in psychiatric nursing have been assisted by WHO.

A great difficulty in the early years was the almost complete lack in some countries of nursing textbooks and other teaching materials. The teaching equipment provided by UNICEF, WHO and other international agencies helped to solve the problem, but it was found necessary to produce locally teaching materials and nursing manuals in the language used in the schools of nursing; much has been achieved in this respect by the joint efforts of WHO nurses and their national counterparts. Technical reports published by WHO, which have been widely distributed, have provided current information on nursing and allied subjects.

Although in nursing and midwifery much of the assistance provided by WHO has been for training projects, the teams assigned to projects in other fields—tuberculosis, venereal diseases, malaria, and especially maternal and child health—have often included nurses. In maternal and child health projects nurses have helped in developing a health service for mothers and children as part of the public-health service, in planning and giving field training to nurses, midwives and other health personnel, and in training auxiliaries. Such assistance has been given in fifty training and health centres in twenty-eight countries. Nurses have shared in the assistance given in tuberculosis-control programmes and in the training of specialized workers in tuberculosis; to a lesser degree they have taken part in programmes for the control of venereal diseases and malaria.

An important contribution to nursing during the ten years under review has been the sponsoring of regional conferences and seminars. These have enabled nurses from many parts of the world to discuss common problems and
gain information and moral support, so that on their return to their home country they make a greater personal contribution to the improvement of the nursing service. Some nurses have in this way had their first opportunity of meeting with members of their profession from other countries. The value of these conferences has been shown by the developments in the various countries, including many national seminars, that have followed them, by the adoption of the teaching methods used in the meetings, and by the comments of individual participants.

Nurses of countries in the European Region have met to consider in detail the basic nursing curriculum required by the changing functions of the nurse. They have also considered the post-basic education required to prepare nurses for the specialized branches of nursing, for teaching and for administration. At two European seminars the role of the nurse in industry and as a member of the psychiatric team has been explored. There have been meetings of expert committees on nursing education, nursing administration, psychiatric nursing and midwifery training. The published reports of these meetings set out guiding principles to be followed in order that nursing and midwifery may make their maximum contribution to the total health programme.1

To meet the need for strengthening the administrative aspects of nursing service, the Expert Committee on Nursing in 1954 recommended the preparation of a manual on nursing service administration. The principles of administration and their application to the nursing services are outlined, and emphasis is given to the importance of good human relationships in administration. It is hoped that the use of this publication will help to strengthen the administrative aspects of nursing service and contribute to a better use of available personnel, to improved care of patients and to the enrichment of clinical teaching for students.

A "Guide for Planning Basic Nursing Education Programmes" has also been prepared. This guide attempts to identify the factors in a country which affect nursing; it indicates how the programmes of existing schools may be studied, and suggests guiding principles for planning a basic school of nursing. It will be tested in various situations and revised in the light of the experience gained in its use.

Three international non-governmental organizations in official relationship with WHO are closely concerned with the Organization's work in nursing and midwifery. The first to request this relationship—the International Council of Nurses—is the oldest international organization for professional women. With some financial help from WHO the Council has carried out four studies which have contributed to the professional development of nursing in many countries. These studies were: "An International List of Advanced Programmes in Nursing Education"; "How to Survey a School of Nursing"; "Principles and Practices of Nursing Education"; "Principles of Administration as applied to Advanced Programmes in Nursing Education".

The International Committee of Catholic Nurses, like the International Council of Nurses, co-operates actively with WHO by collecting information from its members. An example of such co-operation was the help of both organizations in the preparation of the technical discussions at the Ninth World Health Assembly, the subject of which was "Nurses: their Education and their Role in Health Programmes". The Nursing Division of the League of Red Cross Societies also took part in this work. All three organizations promoted discussion of the subject in their member associations and the reports of these discussions provided the information on which the material for the technical discussions was based.

The co-operation of the International Confederation of Midwives, admitted into official relationship in 1957, is welcomed, for the service given by the profession is a major contribution to the improvement of maternal and child health.

In 1948 the WHO nursing staff consisted of seven nurses, of whom two were members of a team assisting the Ethiopian Government in training local health personnel and five were doing similar work in China. At the end of 1957 there were 155 nurses serving in forty-four countries—approximately one-fifth of the total WHO field personnel. The value of their contribution has depended upon the real desire of governments to improve nursing services and nursing education, and not less upon the national nursing personnel.

The need for assistance will continue. Its nature in the future, as in the past, will depend on the particular needs of the requesting country. If the trends of the past decade are an indication, one of the chief needs everywhere will be for personnel for positions of leadership. Some countries will require assistance in providing facilities for the post-basic education of
nurses in teaching, administration and clinical specialities. Fellowships will accordingly be used to a greater extent for advanced study abroad.

The encouraging trend towards establishing posts at the national administrative level so that qualified nurses may take part in the planning of the nursing service and nursing education is expected to continue.

Countries in which nursing is still in the earlier stages of development will require continued assistance in basic training. The emphasis will be on preparing national personnel to assume responsibility for the conduct and improvement of the basic education programmes for nurses and midwives. The training of auxiliary workers will continue to form part of these programmes.

Concurrently, encouragement will be given to continuous staff education programmes for all groups, and especially for those in closest contact with the patient and the family.

It is expected that conferences and seminars will form an important part of the future programme. It is hoped that they will stimulate the carrying-out of studies to find methods of improving nursing education and, consequently, of giving better care to patients.
CHAPTER 29

Pharmaceutical Standards and Nomenclature

It is a national responsibility to determine what official specifications for therapeutic and other agents should be adopted and enforced, but it has long been recognized that such standards have disadvantages if they are established without reference to those of other countries. As early as 1865 the First International Pharmaceutical Congress met to discuss the possibility of formulating more generally accepted standards. Progress was slow but, as a result of international conferences held in Brussels in 1902 and 1925, an international agreement for the compilation of an international pharmacopoeia was signed at Brussels in 1929 by twenty-six countries. According to the terms of this agreement, the League of Nations was to be responsible for organizing the technical side of the work and the Belgian Government was to assist with the secretarial arrangements. The actual work of compilation was begun in 1937 by a Technical Commission of Pharmacopoeial Experts, appointed by the Health Organisation of the League of Nations. Much was accomplished during the next few years, though there was a lull during the Second World War, and in 1945 the Commission issued an interim report, which contained the following statement:

There is a desire for a uniform system of nomenclature, and it is specially urged that the same name should, in all countries, designate a drug of the same strength and composition. Differences in national standards for widely used materials constitute a source of danger to travellers . . . [and] are also a hindrance to the spread of medical and pharmaceutical knowledge. A state of affairs under which the same supply of a drug or chemical may be accepted in one country and rejected in another may lead to the retention of lower standards in manufacture, whilst the maintenance of a common high standard would tend to economy of production and would facilitate commerce between the nations.

As is described in Chapter 6, the Interim Commission of the World Health Organization appointed an Expert Committee on the Unification of
Pharmacopoeias. After the First World Health Assembly, in 1948, work began in earnest on the final compilation of the International Pharmacopoeia. This work involved, among other things, establishing chemical, physico-chemical and biological specifications for important pharmaceutical products commonly met with in international trade and widely used in many countries, and standardizing nomenclature, posology, and methods of assay. Under its new name—Expert Committee on the International Pharmacopoeia—the Committee completed the first volume of the Pharmacopoea Internationalis in 1951. This volume, which appeared simultaneously in English and French, and was shortly followed by a Spanish edition, contained specifications of physical and chemical properties, identification tests, permissible limits for impurities, and methods of assay for 199 pharmaceutical preparations, with forty-three appendices defining certain tests and methods referred to in the specifications and listing for the various preparations the usual and maximum doses for adults.

The second volume, published in 1955, in English and French, and also followed later by a Spanish edition, contained specifications for a further 210 pharmaceutical preparations and twenty-six additional appendices. A number of important pharmaceutical substances—insulin preparations, antibiotics, and new synthetic drugs—were included in this volume, as well as tables of posology for both adults and children.

Both volumes of the International Pharmacopoeia have appeared in German and Japanese translations, prepared by private firms under the supervision of members of the Expert Advisory Panel.

To ensure as wide an international participation as possible, the draft monographs and appendices for Volume II of the International Pharmacopoeia were submitted, through the governments of the various Member States, to a large number of pharmaceutical firms and experts for comments. This innovation greatly complicated the process of preparation, but was considered justifiable as a means of facilitating the general acceptance of the International Pharmacopoeia as a reference work.

The work of unification is still going on; specifications for ninety-three new pharmaceutical preparations and twelve appendices have been circulated for comment to Member States prior to publication as a supplement to the Pharmacopoea Internationalis.

The specifications contained in the Pharmacopoea Internationalis are no more than recommendations to serve as a basis for the establishment of national specifications. This has already been done in several countries, and there is encouraging progress towards a reasonable measure of uniformity. In several countries pharmacopoeia commissions and other authorities are making
increasing use of the International Pharmacopoeia when drawing up specifications for the examination of pharmaceutical preparations, imported or manufactured locally. Many of the specifications that have been published in national pharmacopoeias and in other official or semi-official works have been largely based on the specifications recommended by WHO.

*International Non-Proprietary Names for Drugs*

The need for avoiding confusion in medical and pharmaceutical terminology is obvious. Chemists have been largely successful in standardizing chemical terminology, but a very large number of new medicinal substances are introduced into the *materia medica* every year and the matter is now so complicated that no individual pharmacologist, manufacturer, physician or purchaser can readily find his way through the maze. For example, methadone hydrochloride of the *Pharmacopoea Internationalis* (6-dimethylamino-4, 4-diphenyl-3-heptanone) is known in different countries under the names of amidone, miadone, diadone, diaminon, mephenon or symoron. The existence of several non-proprietary names for each of a large number of substances, and for the scores of new ones that are added every year, complicates unreasonably the task of the physician and the pharmacist.

A number of countries made attempts to clear up this confusion, but it was evident that the problem called for international co-operation and WHO was accordingly asked to assume responsibility. In 1955, the Executive Board established a procedure for selecting and recommending non-proprietary names for drugs, and since then 482 names have been proposed, after wide consultation with producers in many countries. The basis of this procedure is that, while it is important to obtain agreement on non-proprietary names for drugs as soon as possible after the introduction of a new drug, nothing should be done to interfere with legitimate commercial interests or to infringe registered trade-marks. The system is therefore complicated. When a request is received for the establishment of an international non-proprietary name, WHO first consults members of the Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations, designated for this purpose, and the names selected are submitted to all Member States and printed in the *Chronicle of the World Health Organization* as “proposed international non-proprietary names”. Objections and comments received within a certain period after this publication are examined and, finally, when all differences have been settled, the names are included in a list of “recommended international non-
proprietary names”, which is again published in the *Chronicle* in the hope that Member States and individual manufacturers will widely accept them. In all, 219 names have so far been selected. They have been widely accepted throughout the world, and are increasingly used in the medical and pharmaceutical literature of many countries.

**Centre for Authentic Chemical Substances**

The number of substances for which international biological standards have been provided in the past, but whose potency can now be determined by physico-chemical methods, is constantly increasing. The chemical structure of substances such as oestrone, progesterone, tubocurarine and vitamin-A acetate is now well understood and it is no longer necessary to assess their potency against a biological standard. However, it is often desirable to check the purity and potency of these products against some standard, and to meet this need a Centre for Authentic Chemical Substances was established in 1955, under the auspices of WHO, at the Apotekens Kontrollaboratorium in Stockholm. The task of the Centre is to collect, assay, store and distribute a number of pure chemicals required for reference purposes by national and other laboratories or by manufacturing firms. Eight substances are now available; they can be obtained free of charge by non-profit-making laboratories and institutes, and on payment of a nominal charge by commercial firms. The Centre will remain for some time on an experimental basis: few additions will be made to the substances already available, and they will be limited to substances used in the laboratory control of medicaments and for pure research.

**Examination of Pharmaceutical Preparations**

At the present time, many new therapeutic and prophylactic substances are being produced and put on the market every year. The process is accelerating, the lapse of time between discovery and general use being sometimes no more than a few months. Health administrations are well aware of the importance of the problem and during the past few years WHO has received an increasing number of requests for technical information. In response to these requests a study group was convened in 1956 to study principles which could be of help to national health departments and other authorities dealing with the approval of new pharmaceutical remedies. The study group noted
that a number of other organizations had shown an interest in this problem during recent years, particularly the Pan American Sanitary Organization, the Pan American Medical Federation, the International Pharmaceutical Federation, the Pharmaceutical Products Sub-committee of the Western European Union, and the Pharmaceutical Union of the Arab League. The study group indicated ways and means of establishing a system for the centralization, examination and distribution of information concerning the properties of new pharmaceutical preparations. It was considered that this could best be done through the preparation of information sheets for distribution to governments, laboratories for the control of drugs, and specialists. Speed would be one of the chief requirements for the new service, and it was emphasized that WHO could not carry out its task efficiently without the full collaboration of the pharmaceutical industry, national pharmacopoeial commissions and health administrations, and other bodies, as in the case of the work on non-proprietary names. The information sheets would also serve as useful basic material for future revisions of the International Pharmacopoeia.

**Industrial Production of Antibiotics and DDT**

A few programmes of WHO, which were designed to meet emergency situations, have been discontinued. An example of such a temporary project is the assistance that was given by WHO in the development of plants for the production of penicillin and DDT.

At the end of the Second World War a number of countries embarked on large-scale campaigns for which considerable quantities of antibiotics or insecticides were needed. In spite of international efforts to provide these countries with the antibiotics and insecticides required at a reasonable cost, it soon became apparent that currency and other difficulties were going to delay the introduction of the campaigns in countries that had not the equipment or technical personnel to manufacture the products themselves. International assistance was therefore called for, and WHO agreed to provide it by helping governments to set up their own plants.

An Expert Committee on Antibiotics met in April 1950 to draw up scientific and technical plans for this emergency aid programme, under which WHO was to take part in the establishment of national centres for the production of antibiotics in several countries, by giving technical advice and financial assistance. Between 1950 and 1953, under the joint auspices of UNICEF and WHO, penicillin plants were established, modernized or expanded in India,
Yugoslavia and Chile, and plants for the production of DDT were set up in Egypt, India and Pakistan. Educational assistance was also provided.

The establishment of penicillin or DDT plants comes naturally within the scope of other international projects, such as those undertaken by UNICEF, or by the United Nations under its Technical Assistance Programme. Following discussions with the United Nations, the Fifth World Health Assembly approved in principle the taking over by the United Nations Technical Assistance Administration of activities connected with the manufacture of antibiotics and insecticides, it being understood that WHO must maintain its function of providing scientific advice.
International biological standardization has its roots in the late nineteenth century. Its history begins with the pioneer work of Ehrlich, who set down the principles of biological standardization and who prepared a diphtheria antitoxin standard in 1897. The unit of potency which he then defined was adopted in 1922 as the first international unit for a biological substance.

It has always been known that many substances with important therapeutic and prophylactic properties could not be assessed by chemical and physical tests alone because they were impure mixtures of complex, active principles and inert material. The potency of drugs of such complicated structure—and they include many products of living organisms—can be estimated only by tests on animals (as in the case of digitalis, insulin or vaccines), or on micro-organisms (as in the case of antibiotics).

Such an assessment of potency, if done in comparison with a known sample of the same substance (the “standard”), is called a biological assay. Biologists in several countries began to introduce biological assays in the late nineteenth century but, useful as this independent work was, it suffered from the disadvantage that it might lead to the adoption of different “standards” in different countries and perhaps in different laboratories in the same country—and to much consequent confusion.

The Health Committee of the League of Nations therefore convened a series of technical conferences to set up international standards and international units of potency: London, 1921; Paris, 1922; Edinburgh, 1923; Geneva, 1924 and 1925; Paris, 1930; London, 1931, 1932, 1934 and 1935. An intergovernmental conference under the auspices of the League was also held in Geneva in 1935.

To provide a permanent service of international co-ordination, a commission of biological standardization was established in 1924. This commission met in 1924 in Paris, in 1926 in Geneva, in 1928 in Frankfurt-am-Main, in
1930 in Geneva, in 1931 in London, in 1934 in Copenhagen and in 1935 in Geneva. In 1938 a meeting of members specialized in serology was held in Paris, but the Second World War considerably reduced the scope of this work, although, even during the war, it never came to a complete standstill—a fact that indicates its importance.

By 1945, no fewer than thirty-four international biological standards had been established for such different substances as sex hormones, vitamins, antitoxins and antisera, digitalis and tuberculin. Satisfactory procedures for international collaboration had been devised; many different procedures and techniques had been taken into account and many difficulties had been solved. With patience, discretion and sustained effort the obstacles were gradually surmounted, and the Secretary of the Permanent Commission on Biological Standardization reported that the recommendations of the Commission were being followed by the great majority of laboratories.

The potency of a biological substance can be assayed directly by determining the amount required to produce a given effect in an experimental animal. The variations of effect between different animals of the same species can be met by averaging a sufficient number of tests. Animals of different species are used in such experimental work. The potency of digitalis, for example, used to be measured in “cat” units and in “frog” units. Such units, however, have no universal validity, since the susceptibility of animals varies in different parts of the world and even in the same laboratory at different times. Consequently it has become necessary to introduce the concept of “relative potency” by measuring the effect of a substance in comparison with a standard preparation of the same substance. Then if the effect of the substance to be assayed is compared with the effect of the biological standard, the relative potency of the assayed substance in terms of that of the biological standard should be the same by any method of assay, so long as the same method is used simultaneously for the two substances. If the potency of the standard preparation is fixed at $x$ international units per milligram, the potency of the substance assayed in international units can be simply calculated from the relative amounts that produce the same effect by the same method. By such comparative assays the potency of standard preparations in national laboratories can be expressed in international units and these substances can then in turn be used as national standards against which to assay the potency of national products. This is in principle the same procedure as that by which the surveyor’s chain or the engineer’s micrometer is, through intermediate standards, compared with the standard yard or metre.
The task successfully assumed by the Health Organisation of the League of Nations has been continued by WHO. The First World Health Assembly in 1948 decided to carry on the work it had inherited, the objectives being defined as: to provide the medical practitioner with biological products of proved efficacy; to supply health authorities with standards for measuring the value of the biological remedies placed on the market; and to simplify the task of manufacturers by enabling them to express the potency of export products in accepted international units.

The scientific principles on which biological standardization had rested for more than thirty years had proved their value. However, the procedures for establishing biological standards required some adjustment to bring them into line with the methods and policies of WHO.

The work formerly done by the Permanent Commission on Biological Standardization is now carried out by members of the WHO Expert Advisory Panel on Biological Standardization, some of whom meet every year as an expert committee. Problems and suggestions are brought to the attention of this committee by various individuals and institutions and by other expert committees convened by the Organization.

When a committee considers the possibility of establishing a new standard it has to bear in mind a number of important requirements.

In the first place the substance must be such that a stable standard preparation can be made, i.e., a preparation which does not lose its potency under proper conditions of storage. Secondly, laboratory methods must be available which will enable different laboratories to obtain comparable results when assaying other samples of the substance against the international standard preparation.

Each substance has its own problems of standardization, so that many questions have to be investigated before the standard itself can be prepared. This involves a great deal of scientific work, made possible only by the cooperation of many laboratories in different parts of the world. More than a hundred laboratories have carried out many biological assays on the request of WHO as part of this international co-operation.

Speed is necessary in certain fields of the work such as the international standardization of antibiotics. Whenever a new preparation is rapidly accepted for therapeutic purposes and its potency cannot be assayed by chemical or physical methods, those who prepare or use it desire a convenient means for expressing its potency, and if no international standard exists at the time, they will be obliged to devise their own standards and units. The resulting multiplicity of standards for the new preparation will delay the establishment
of the international standard, because the replacement of several existing
national or laboratory standards by a single international one is a complex
and difficult process. International action must therefore be taken as promptly
as possible, and it should keep pace with developments in therapeutic and
prophylactic medicine.

With these and other more technical considerations in mind, the WHO
Expert Committee on Biological Standardization studies what substances
warrant the setting-up of international standards and in each case it makes
arrangements to obtain a sufficiently large batch of a preparation which may
become the international standard. The actual assay work, using samples
of this preparation, is entrusted to a number of laboratories in various countries.
The results are then collected and analysed either by the Statens Seruminstitut,
Copenhagen, which is concerned mainly with antitoxins, antisera, vaccines,
and antigens, or by the National Institute for Medical Research, London,
which deals with antibiotics, hormones, vitamins, and some other substances.
If the results are satisfactory, the standard is adopted by the Expert Committee
and the report on it submitted to the WHO Executive Board. One of the two
institutes will then hold the stock of the international standard in question and
dispatch samples of it with instructions for its use as required to a network
of centres for biological standards in fifty countries.

Biological standards differ from such fundamental physical standards
as the standard kilogram. The standard kilogram is virtually indestructible
but a small portion of any biological standard is necessarily destroyed each
time an assay is carried out. Biological standards are therefore gradually
used up and must in time be replaced. Hence, when an international standard
is exhausted the process of establishment has to be repeated. What is impor-
tant is that the new standard preparation must be carefully calibrated against
the old so as to leave the international unit of potency the same.

This work has continued to increase, and today, thirty-five years after
the establishment of the first international standard, there are more than
seventy international standards available.

Some standards have become unnecessary as the chemist's understanding
of the constitution of the substances and his ability to purify them have
made it practical to assay them by chemical and physical methods. Thus,
about a dozen substances for which international standard preparations had
been established, including most of the vitamins and several of the hormones,
can now be satisfactorily evaluated by chemical methods so that their biological
assay is no longer necessary. The distribution of these biological standards
has therefore been discontinued and those that belong to the class of pure
chemical substances have been transferred to the Centre for Authentic Chemical Substances which has been established, with WHO support, at Stockholm.¹

The range of substances for which standards are now available is shown in the list reproduced at the end of this chapter. It will be seen that fifty new biological standards were established since 1948 and that several of those that existed at that time have since been replaced. Work is at present in different stages of progress towards the establishment of further international standards for: neomycin, dextran sulfate, vitamin B₁₂, pyrogen, anti-streptolysin O, Rh blood-typing sera, poliomyelitis sera, syphilitic human serum, yellow fever immune serum, snake antivenins, typhoid vaccine, rabies vaccine, smallpox vaccine and swine erysipelas vaccine.

There has been an increasing need for assessing the potency of vaccines widely used to-day against various communicable diseases: cholera, typhoid, rabies, smallpox, yellow fever, poliomyelitis, whooping cough, etc. The standardization of a vaccine meets with great difficulties, however, since even when suitable and stable preparations are available they will not be useful as international standards unless their protective effect in laboratory animals has been proved to be an acceptable measure of their power to protect man. This demonstration has recently been accomplished for pertussis vaccine. The results of extensive field trials in children were found to parallel closely those of laboratory tests in mice and it has therefore been possible to establish a preparation of pertussis vaccine as the international standard. On the other hand, field trials with various typhoid vaccines have shown no satisfactory correlation with laboratory results: the vaccine which appeared superior in the field could not be distinguished by laboratory tests from a vaccine which had no demonstrable effect in the field. Further research is therefore necessary to obtain a valid laboratory assay of the protective power of typhoid vaccines. For most of the other vaccines too much field and laboratory work has yet to be carried out.

International collaboration with regard to biological assays was originally confined to the establishment of international standards. The development of public-health programmes which rely wholly or partly on the use of substances that have to be assayed biologically has resulted in an expansion of the work. To give an example: many national control authorities have asked WHO to issue recommendations on methods of biological assay and on requirements for biological substances. In 1957 the Organization convened

¹ See also Chapter 29.
a Study Group on Recommended Requirements for Biological Substances to examine the question. The Group was of the opinion that a uniformity of requirements would be of great practical value for facilitating the exchange of important biological preparations between different countries, and that many control laboratories would greatly benefit from guidance with respect to all technical details of the best methods of assay available. It suggested that detailed international recommendations on assay methods and requirements for important biological substances should be compiled. This will be a complicated and time-consuming task. When it is completed and finally approved, each international recommendation will be made generally available.

Another example is the work done by the Organization in connexion with yellow-fever vaccine and vaccination. The International Sanitary Regulations stipulate that persons bearing a valid certificate of yellow-fever vaccination shall not be subjected to restrictive quarantine measures. A certificate is valid only if the vaccine used has been approved by WHO and if the vaccinating centre has been designated by the health administration of the country concerned. UNRRA, in 1945, specified requirements for yellow-fever vaccine which were subsequently adopted by WHO. In 1957 it was considered that, although those requirements had been very useful, they should be revised in the light of new developments. Accordingly, an expert committee met to draw up new requirements for yellow-fever vaccine and recommend revised methods of manufacture. These recommendations are now being studied and it is hoped that revised requirements will be put into effect in 1958.

Certain problems connected with BCG vaccine provide a further illustration. In 1949 the Expert Committee on Biological Standardization recognized that BCG vaccine could not usefully be considered within the framework of classical standardization, and drew up a list of requirements for laboratories that prepare BCG vaccine to be used in vaccination campaigns jointly assisted by UNICEF and WHO. The Organization, for its part, accepted the responsibility for approving the laboratories that comply with these requirements. Such internationally-approved laboratories now exist in five WHO regions.
INTERNATIONAL BIOLOGICAL STANDARDS
AND REFERENCE PREPARATIONS

*Held in custody on behalf of WHO by the International Laboratory for Biological Standards, Statens Seruminstitut, Copenhagen, and by the International Laboratory for Biological Standards, National Institute for Medical Research, London*

<table>
<thead>
<tr>
<th>Substance</th>
<th>Present international unit (mg)</th>
<th>Adopted</th>
<th>Replaced</th>
<th>Custodian</th>
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<td>1. Diphtheria antitoxin</td>
<td>0.0628</td>
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<td>2. Insulin</td>
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<td>1935, 1952</td>
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<td>3. Oxytocic, vasopressor and antidiuretic substances</td>
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<td>1942, 1957</td>
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<td>4. Arsphenamine</td>
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<td>7. Digitalis</td>
<td>76.0</td>
<td>1926</td>
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</tr>
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<td>8. Ouabain</td>
<td>-</td>
<td>1928</td>
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<tr>
<td>9. Tetanus antitoxin</td>
<td>0.3094</td>
<td>1928</td>
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<td>10. Antidysentery serum (Shiga)</td>
<td>0.05</td>
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<td>11. Gas-gangrene antitoxin (perfringens)</td>
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<td>1931</td>
<td>1935, 1943, 1953</td>
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<td>12. Old tuberculin</td>
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<td>1931</td>
<td>1935</td>
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<td>13. Pro-Vitamin A</td>
<td>-</td>
<td>1931</td>
<td>1934, 1949</td>
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<td>14. Vitamin B₁</td>
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<td>15. Vitamin D₂</td>
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<td>16. Oestrone</td>
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<td>17. Staphylococcus &amp; antitoxin</td>
<td>0.2576</td>
<td>1934</td>
<td>1938</td>
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<td>18. Antipneumococcus serum (type 1)</td>
<td>0.0886</td>
<td>1934</td>
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<td>19. Antipneumococcus serum (type 2)</td>
<td>0.0894</td>
<td>1934</td>
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<td>20. Gas-gangrene antitoxin (P. septique)</td>
<td>0.118</td>
<td>1934</td>
<td>1947, 1957</td>
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<td>21. Gas-gangrene antitoxin (oedematios)</td>
<td>0.1135</td>
<td>1934</td>
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<td>22. Vitamin C</td>
<td>-</td>
<td>1934</td>
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<td>23. Oestradiol monobenzoate</td>
<td>-</td>
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<td>26. Gas-gangrene antitoxin (his.-locticus)</td>
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<td>Substance</td>
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<td>27. Diphtheria antitoxin for flocculation test</td>
<td>—</td>
<td>1935</td>
<td>1938, 1945, 1956</td>
<td>Copenhagen</td>
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<td>28. Gas-gangrene antitoxin (Sordelli)</td>
<td>0.1334</td>
<td>1938</td>
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<td>29. Chorionic gonadotrophin</td>
<td>0.1</td>
<td>1939</td>
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<td>30. Serum gonadotrophin</td>
<td>0.25</td>
<td>1939</td>
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<td>31. Prolactin</td>
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<td>32. Vitamin E</td>
<td>—</td>
<td>1941</td>
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<td>33. Heparin</td>
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<td>34. Penicillin</td>
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<td>1944</td>
<td>1952</td>
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<td>36. Streptomycin</td>
<td>0.001282</td>
<td>1950</td>
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<td>37. Anti-A blood-typing serum</td>
<td>0.3465</td>
<td>1950</td>
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<td>38. Anti-B blood-typing serum</td>
<td>0.3520</td>
<td>1950</td>
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<td>39. Corticotrophin</td>
<td>0.88</td>
<td>1950</td>
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<td>40. Tubocurarine</td>
<td>—</td>
<td>1951</td>
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<td>41. Penicillin K</td>
<td>—</td>
<td>1951</td>
<td>—</td>
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<td>42. Purified protein derivative of mammalian tuberculin</td>
<td>0.0000280</td>
<td>1951</td>
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<td>43. Tetanus toxoid</td>
<td>0.03</td>
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<td>44. Diphtheria toxoid, plain</td>
<td>0.50</td>
<td>1951</td>
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<td>45. Cardiolipin</td>
<td>—</td>
<td>1951</td>
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<td>46. Beef heart lecithin</td>
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<td>47. Egg lecithin</td>
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<td>49. Dimecaprol</td>
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<td>50. Scarlet fever streptococcus antitoxin</td>
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<td>51. Anti-Brucella abortus serum</td>
<td>0.091</td>
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<td>52. Anti-typhoid serum (Provisional)</td>
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<td>53. Staphylococcus β antitoxin</td>
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<td>56. Cholera antigen (Ogawa)</td>
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<td>1953</td>
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<td>57. Cholera vaccine (Inaba)</td>
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<td>1953</td>
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<tr>
<td>58. Cholera vaccine (Ogawa)</td>
<td>—</td>
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<td>59. Cholera agglutinating serum (Inaba)</td>
<td>—</td>
<td>1953</td>
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<td>60. Cholera agglutinating serum (Ogawa)</td>
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<td>Replaced</td>
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<td>61. Anti-Q-fever serum</td>
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<td>62. Opacity reference preparation</td>
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<td>63. Dihydrostreptomycin</td>
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<td>64. Bacitracin</td>
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<td>66. Purified protein derivative of avian tuberculin</td>
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<td>67. Schick test toxin (diphtheria)</td>
<td>0.0042</td>
<td>1954</td>
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<td>68. <em>Clostridium welchii</em> (perfringens) type B antitoxin</td>
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<td>69. <em>Clostridium welchii</em> (perfringens) type D antitoxin</td>
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<td>70. Swine erysipelas serum (anti-N)</td>
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<td>71. Thyrotrophin</td>
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<td>72. Mel B</td>
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<td>73. MSb</td>
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<td>74. Protamine</td>
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<td>78. Polymixin B</td>
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<td>79. Growth hormone</td>
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<td>80. Hyaluronidase</td>
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<td>81. Tetracycline</td>
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<td>82. Erythromycin</td>
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<td>83. Phenoxymethylpenicillin</td>
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<td>84. Pertussis vaccine</td>
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Addiction-producing Drugs

The importance of preventing the abuse of narcotic drugs and repressing the illicit traffic in them was recognized internationally as long ago as 1909, when the first international conference on the control of narcotics was convened in Shanghai.

The total number of drug addicts in the world is not known—it is of the nature of their condition that addicts should evade enumeration—but approximate figures from some countries are revealing. In the report on the twelfth session of the United Nations Commission on Narcotic Drugs, it is stated that in one country with a population of about twenty million there were, according to a rough estimate of the Ministry of Health, a million and a half opium addicts, and in another country with a population of nineteen million the number of cannabis addicts was estimated at between four hundred thousand and four hundred and fifty thousand.

It is, of course, impossible to arrive at an estimate of the total number of addicts in the world merely by extrapolating from such figures; but they indicate the size of the addiction problem in some countries.

The problem is not only the loss of manpower and its economic and financial consequences: addiction encourages crime and it may amount to a threat to the economic and social structure of some countries.

The Hague International Convention, in 1912, established the importance of international control of opium and other narcotic drugs. On 19 February 1925, a Convention was signed in Geneva whereby the Health Committee of the League of Nations was entrusted with the difficult task of studying the nature of various narcotics and, after consultation with the Office International d’Hygiène Publique, suggesting to the Council of the League which of them should be placed under international control.

The functions formerly performed by the League of Nations are now, in effect, shared by WHO and three special organs of the United Nations—the Commission on Narcotic Drugs of the Economic and Social Council, the...
Permanent Central Opium Board, and the Drug Supervisory Body. The Commission on Narcotic Drugs, composed of representatives of fifteen governments, is a policy-making body, which, on the basis of reports submitted by governments, makes recommendations for improving the control of narcotic drugs. The Permanent Central Opium Board, which comprises eight experts appointed by the Economic and Social Council, studies the statistics on the licit traffic in narcotics and suggests measures to counteract leakages. The Drug Supervisory Body, which is composed of four experts, two appointed by WHO, one by the Commission on Narcotic Drugs and one by the Central Opium Board, reviews each year the total requirements of each Member State for narcotic drugs, and these totals may not be exceeded once they have been fixed by agreement between the government concerned and the Body. WHO’s main function is to give advice on the medical aspects of addiction and addiction-producing drugs. This it does through an Expert Committee on Addiction-producing Drugs, which, inter alia, recommends additions to the list of substances subject to control and the examination of suspected substances for possible addiction-producing properties. On the recommendations of the Committee, the Director-General bases his decisions as to the control status of drugs, and he communicates those decisions to the Secretary-General of the United Nations who transmits them to the States that are party to the international conventions. Since WHO was established, sixty-three drugs and preparations have been thus examined, and of these forty-nine have been found to constitute a danger to public health either because of their liability to produce addiction or because they are readily convertible into addiction-producing drugs. These findings, with statements on other problems of drug addiction, are embodied in eight reports of the Expert Committee on Addiction-producing Drugs, the first of which was published in 1949.

The system of control is elaborate because the control of narcotics does not concern only the medical profession; legislators, administrators, manufacturers, traders, and customs and police authorities must also play some part in this international work.

The problem is further complicated by the constant discovery of new therapeutic substances, which may or may not have addiction-producing properties. A good example is the so-called tranquilizing drugs which have recently been introduced. Some of these have proved to be habit-forming. The attention of governments has also been drawn to the increasing indiscriminate use of amphetamine preparations, the addiction-producing properties of which might ultimately produce a serious public-health problem. Measures of control were recommended similar to those already proposed for the barbiturates.
Other substances which may give rise to an international problem are the comparatively new synthetic drugs with morphine-like effect. Their development has been followed closely by WHO, which, at the request of the Economic and Social Council, has undertaken a series of comprehensive studies on their chemical structure, as well as on their analgesic and addiction-producing properties, and has published these in the *Bulletin of the World Health Organization* for the benefit of governments, physicians and pharmacologists concerned with the preparation, use, and control of these drugs.

A special contribution to the international control of addiction-producing substances was made when the Sixth World Health Assembly recommended, on the advice of an expert committee, that steps should be taken to convince physicians and governments that diacetylmorphine (heroin) was not irreplaceable in medical practice and that its production or importation could therefore be prohibited. The Organization also advises on whether a product which is not itself an addiction-producing drug is or is not convertible into one. The Seventh World Health Assembly decided in 1954 that for this purpose WHO would consider a substance to be "convertible" if the ease of conversion and the yield obtained constituted a risk to public health, and that in cases of doubt the substance would be considered as "convertible" rather than as "not convertible".

A final example, which does not, however, exhaust the list of problems which confront the Organization, is the excessive use of cannabis. Reports from several countries have indicated that cannabis gives rise to a serious public-health problem in many parts of the world, and that it calls for international attention.

The Organization has started to take an active interest in the treatment of drug addicts. A Study Group on the Treatment and Care of Drug Addicts was convened in 1956. The group studied, particularly, the medical features of addiction to opium, opiates, morphine-like synthetic drugs and cannabis, and outlined common principles and rational methods of treatment and rehabilitation.

WHO has considered alcoholism as a problem of public health, to be treated on the same lines as addiction, in distinction from the tendency in many countries to treat it as a social welfare problem. Admittedly the problem of alcoholism has many ramifications in non-medical fields. Several meetings of experts have been convened, which brought together specialists in mental health and pharmacologists with experience in addiction-producing drugs.

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1 *Bull. Wld Hlth Org.* 1954, 10, 1003; 1955, 13, 937; 1956, 14, 353; 1957, 17, 569
The world situation was reviewed from the public-health, statistical, clinical and pharmacological aspects, and specific recommendations were made with regard to treatment and rehabilitation. Two seminars on the treatment and prevention of alcoholism have also been held in the European Region. Certain definitions suggested by an expert committee, particularly with regard to such concepts as craving for alcohol, withdrawal symptoms, inability to stop drinking, loss of control, and alcoholic amnesia, should help to clarify the further consideration of the question.

Further references to alcoholism will be found in the chapter on mental health.
 CHAPTER 32

**Health Laboratory Methods**

There is a great variety in the ways in which different countries have organized their public-health laboratory services, for in each country the services have been influenced by the historical development of public-health work or by its special needs. These differences may appear in the degree of centralization of the laboratory services, in the location of central responsibility, in the use made of private laboratories, or in the scope of the services provided. The staffing and equipment of the laboratories, and the methods that they use, are naturally affected by such circumstances.

This variety, not in itself unsatisfactory, has caused some difficulties for countries that wished to establish or extend their own laboratory services. It therefore seemed desirable to arrive at some general conclusions on organization and laboratory procedures that would be useful to such countries.

In 1956, WHO began studies which might enable it to advise on laboratory methods, and convened an expert committee to review the question and make recommendations for the organization of services of this kind. The committee's recommendations, which provided for variations according to the degree of development of the country, covered such points as control of services, type of personnel required, the provision of a central reference laboratory, district and mobile laboratories, the recruitment of staff and laboratory design. The Organization has since assisted several governments in different regions, by providing consultants, granting fellowships and giving advice on how to improve diagnostic laboratory facilities. It has also given the same type of assistance in connexion with the establishment of blood banks in several countries.

**Recommended Diagnostic Laboratory Methods**

Not less important than the organization of efficient laboratory services is the provision of diagnostic laboratory methods suited to the facilities
available and calculated to yield results of sufficient accuracy and uniformity to permit of international comparison for epidemiological and other purposes. The Organization has therefore initiated a programme for the collection and publication of recommended methods for the laboratory diagnosis of various diseases. Its purpose is to provide laboratory workers with a wide variety of reliable methods, from which they can choose those best suited to their needs. Recommended methods for the laboratory diagnosis of plague, cholera, and staphylococcal and streptococcal infections have already been prepared, and will shortly be followed by methods for diphtheria and for the diseases caused by pneumococci, Salmonellae, Shigellae andClostridia.

**International Centres for Studies on Enteric Bacteria**

The study of the epidemiology of the enteric diseases calls for international agreement on the techniques for determining and classifying the causative organisms. The identification of the *Salmonellae*, the *Escherichiae* and the *Shigellae* has for half a century been a subject of controversy among bacteriologists. Reliable information about the causal organisms is essential if the epidemiology of these diseases is to be understood and their spread controlled, and WHO agreed, at the suggestion of the International Association of Microbiological Societies (IAMS) to sponsor and develop world-wide work by three special centres for the identification and classification of enteric bacteria. The first of these—the International Salmonella Centre—was started in 1938 at the Statens Serum Institut, Copenhagen, and has been operating under the auspices of WHO since 1948. This centre was expanded in 1952 to cover the study of the *Escherichiae* also. The two other centres—one in London, England, and the other in Atlanta, Georgia, United States of America—are devoted to the study of the *Shigellae*; both were established as international centres, with the support of WHO, in 1954.

The principal aim of these centres is to promote a uniform international classification and terminology for the enteric group of micro-organisms. They do not lay down rules of nomenclature; that is the responsibility of special committees of the IAMS. They collect, identify, maintain and distribute cultures of enteric bacteria and prepare and distribute diagnostic antisera, by which the antigenic type of the bacteria studied can be determined.

In 1956, WHO issued, for the benefit of its Member States, a description of the services offered by the international centres and made suggestions for
setting up or expanding national centres for the study of enteric organisms. These centres keep close liaison with national centres. When there is an outbreak of an enteric disease in any country, the micro-organism responsible is isolated at the appropriate national centre and identified as accurately as possible at the national centre. Upon request, one of the international centres will send reference sera or specific bacterial strains to a national centre and, in difficult cases, will help in the exact classification of the micro-organism. For countries that need bacteriologists with experience in this type of investigation, facilities for the specialized training of microbiologists are provided at the international centres.

International Centres for Studies on Blood Groups

In 1952, the Blood-Group Reference Laboratory of the National Institute for Medical Research in London was made an international centre under WHO sponsorship in view of the increasing importance of blood groups in anthropological and genetical research and in the study of certain diseases. The centre has two functions: it collects from all parts of the world samples of blood and sera which it classifies by blood group, and it distributes to national laboratories sera and antigens for use in the identification of the various groups, among which the Rh groups and certain rare ones are of particular interest.

During its first year as an international centre, the laboratory examined nearly 3000 red-cell specimens. Between them, these contained nearly all the known blood-group antigens and will serve as reference panels for testing unknown sera. Some 2300 sera were tested for abnormal antibodies and reference sera were sent to laboratories in 23 countries.

Transport of Biological Substances by Post

The exchange of biological substances—sera, viruses, etc.—between laboratories engaged in work on therapeutic, diagnostic and prophylactic preparations in various countries is a useful adjunct to many national and international health programmes. For example, the world-wide exchange of viruses in the recent pandemic of Asian influenza made it possible to determine the world picture of its spread and to identify outbreaks in individual countries with the minimum delay.
In 1950 the Fifth International Congress on Microbiology, held in Rio de Janeiro, asked WHO whether anything could be done to facilitate the safe and expeditious exchange of biological products between laboratories in different countries. The remedy was, clearly, to develop uniform national regulations governing the dispatch of biological products by post, but much work had to be done to achieve this uniformity. On the one hand, the diverse national legislation on the transport of biological material had to be assembled, studied and correlated with the international postal regulations. On the other hand, standards for packaging had to be drawn up to obviate any risk to persons called upon to handle the packages. This could not have been done without the co-operation of the Universal Postal Union, and it is due to close collaboration between the two organizations that, at the Congress of the Universal Postal Union in August 1957, an agreement was reached which will greatly simplify the international exchange of biological material.

**Food Additives**

The addition of chemical substances to food is unavoidable in certain cases. Many food additives are innocuous, others are or may be harmful; the many new types of additive that come into use add to the tasks of the toxicologist and the legislator. A few governments have successfully codified and co-ordinated the many laws and regulations dealing with food products, but in most countries legislation is piecemeal, and some have scarcely attempted to institute any controls.

Even though the use of food additives has its effects on international trade, little has been done internationally to secure, in regard to food products, the uniformity that has been attained by international treaties on such matters as industrial property, patents, trade-marks and copyrights. Each country has its own legislation on the import or export of foods and the general picture is confused. There is also a lack of scientific information with regard to food additives: many are used without adequate preliminary testing as to their possible injurious effect. Some additives are allowed in one country and prohibited in another. Even when tests are carried out, the procedures vary from country to country.

For some years WHO has published in the *International Digest of Health Legislation* legislative texts on food hygiene and food additives supplied by Member States, and FAO has published a number of texts on food and agricultural legislation.
The wide-spread use of food additives is creating a new public-health problem and in 1953 the Sixth World Health Assembly decided that further international action was required. Accordingly a conference of governments on food additives was convened in September 1955 by FAO and WHO, primarily to explore the possibilities for international work on this subject. It made several recommendations to WHO and prepared the ground for a Joint FAO/WHO Expert Committee on Food Additives, which met in 1956. In accordance with the terms of reference suggested by the Conference, the Expert Committee dealt only with "non-nutritive substances which are added intentionally to food, generally in small quantities, to improve its appearance, flavour, texture or storage properties". Substances added primarily for their nutritive value, such as vitamins and minerals, were not considered. The Committee considered that the toxicity of food additives was one of the chief questions that required international study. It agreed that food additives may legitimately be used:

(1) To maintain nutritional quality. A typical example is the addition of an antioxidant to edible fats which contain substantial amounts of beta-carotene or vitamin A, destruction of which may be accelerated by the onset of rancidity during storage.

(2) To enhance keeping quality or stability. Among the additives used for this purpose are the antioxidants, various types of antimicrobial agents, inert gases, curing agents for meats, and many spices.

(3) To make food attractive to the consumer. This is done by the addition of colours, flavouring agents, emulsifying, stabilizing and thickening agents, bleaching agents and clarifiers.

(4) To assist in food processing. The object here is to permit the economical large-scale manufacture of foods of constant composition and quality throughout the year, by the use of stabilizing, clarifying, oxidizing and sequestering agents, acids, alkalis, and buffer salts.

The Committee agreed that food additives should never be used: to disguise the use of faulty processing and handling techniques; to deceive the consumer by suggesting to him that he is purchasing food of a quality higher than it really is; if they substantially reduce the nutritive value of the food; or if the desired effect can be obtained by sound and economical manufacturing processes.

In 1957 the wide question of the toxicity of food additives was considered by a Joint FAO/WHO Expert Committee on Food Additives, which dealt specifically with the procedures for testing their safety. There was felt to be
a need for guidance to workers engaged in the biological testing of food additives. Since its general aim was to ensure the safety of chemicals used as food additives, the Committee's work was not confined to a study of toxicity per se or of toxicological procedures. The Committee's findings, to be submitted to the WHO Executive Board at its twenty-first session (in January 1958), contained an outline of procedures for toxicity tests and information as to their validity and their applicability to man. The Committee also suggested lines on which the international programme might be further developed. These included the search for better safety tests, agreement on specifications for some of the more important additives, the study of the carcinogenic and mutagenic action of additives, and the exchange of information about safety investigations.

The Organization has already acted on one of the Committee's suggestions by collecting information on colouring agents. This very large group of food additives has been given priority because of its importance and because of the difficulty of collating information on national practices. For example, only one synthetic colour out of a very large total number is found in all the lists of permitted agents that have so far been submitted by governments. The information collected on food-colouring agents was set out on data sheets, which were sent to WHO Member States for comments and suggestions. The information was then revised and new data sheets containing information on twenty natural and 115 synthetic colouring agents, nearly all of which are in common use, were prepared at the end of 1957. Similar documents relating to antimicrobials, antioxidants and emulsifying agents are in preparation.

Histopathology of Cancer

In view of the very large amount of research on cancer that was being carried out in several countries, and the more pressing claims of international work on other health problems, the First World Health Assembly assigned no high priority to work on cancer.

For several years, therefore, WHO's work on cancer was confined to the granting of fellowships for advanced studies abroad and to certain statistical studies. However, the Organization has also helped to arrange some exchanges of workers between countries engaged on cancer research, and in 1954 it assisted in a comparison of the methods and results of research into cancer of the liver in Africa. The International Union against Cancer, a non-governmental organization in official relations with WHO, has assisted its work.
In 1955 a small group was convened to advise on possible developments in the WHO cancer programme. One of its recommendations was that certain selected national laboratories should be established as reference laboratories from which national institutions could draw material which would assist them to define in standard terms the pathological conditions and types that they were examining. The main ground of this proposal was that it was not possible to be sure that the results obtained by workers in different countries were strictly comparable, because a pathologist diagnosing cancer had to rely on his own experience and on illustrations in textbooks to distinguish between the many different types of cancerous tissue.

This proposal was considered by the Executive Board at its seventeenth session. The Board endorsed the group’s suggestion and in consequence a study group met in 1957 to examine how effect could be given to it and to recommend the types of cancerous tissue that should first be selected.

From the preliminary discussions and studies it appeared that an international centre would provide the best answer to the problem. A group of experts would examine definitions and criteria for diagnosis, classify the different types of cancerous tissue and supervise the preparation of reference tissues. The international centre would be aided by a number of national centres, appointed by Member States at the request of WHO. Each national centre would serve as a clearing-house: on the one hand it would collect specimens from pathologists for transmission to the international centre, and on the other it would receive from the international centre histological reference preparations and other illustrative material for distribution to pathologists. The object of this system would be to facilitate research on the histopathology of cancer. It is not intended to undertake the routine examination of pathological material, which is the responsibility of the national institutions.
CHAPTER 33

Publications and Reference Services

PUBLICATIONS

The pattern of its publications reflects to a large extent the Organization's evolution from earlier international health organizations and may be said to have its origin half a century ago in the Rome Agreement of 1907 which established the Office International d'Hygiène Publique.

In pursuance of that agreement the OIHP had since 1909 published a monthly Bulletin containing information on laws relating to communicable diseases, on their spread and on sanitary measures, public-health statistics, and bibliographical notes. WHO inherited from the OIHP an obligation to continue the publication of such information: it also assumed responsibility in respect of certain publications of the Health Organisation of the League of Nations. It was therefore necessary for WHO to adopt a publishing programme, based largely on those inherited functions, but which would allow for additions and improvements.

The regular publications of the Health Organisation of the League were its Bulletin, which first appeared in 1932, and its monthly and annual statistical reports. Apart from these publications of a technical character, the proceedings both of the Permanent Committee of OIHP and of the Health Committee of the League were recorded as published Minutes.

The Interim Commission had pointed out that, in addition to their prime function of conveying information, publications would form the chief link between WHO and the great majority of professional health workers, and that it was of fundamental importance that WHO publications should be of the highest standard, both in content and in form.

Although the Interim Commission had thus decided in principle, before the permanent organization was established, to initiate a comprehensive programme of publications, it had to take account both of the limited scope
of its activities and of the small size of its staff. By the time the First World Health Assembly was convened on 24 June 1948 the first ten of the *Official Records* series had appeared.¹ These volumes were essential documentation for the Assembly, and almost all the available resources had been applied to producing them in time. The *Chronicle*, the *Weekly Epidemiological Record*, and the *Epidemiological and Vital Statistics Report* were being issued regularly, but the only other publication available was the first number of the *Bulletin*, which appeared in January 1948.

The main outline of the publishing programme proposed by the Interim Commission was endorsed by the First World Health Assembly, although some items were deleted or deferred. The OIHP had suspended publication of its *Bulletin* in 1946, assuming that WHO would quickly take over the responsibility; but the unexpectedly long life of the Interim Commission caused a delay of two years before WHO's regular programme of publications could get properly under way. It was necessary to expand the nuclear staff taken over from the Interim Commission; and to find suitably experienced staff, and train others less experienced, proved to be a long and arduous task. Moreover, in the earlier years financial limitations made it impossible to bring this staff to full strength.

The World Health Assembly and the Executive Board, at several of their earlier meetings, recognized these difficulties, but emphasized the importance to WHO of a sound and adequate programme of publications and urged the Director-General to expedite its full operation.

In particular, the Executive Board, with the aid of its Standing Committee on Administration and Finance, carried out in January 1952 a very detailed study of the entire publishing programme. In the course of this study, the character and purpose of each publication were examined, and possible changes were discussed. The study also covered the criteria for selecting material for publication; languages of publications; their physical presentation; and the staff services involved in their editing, translation, and production.

The Fifth World Health Assembly in 1952 considered this study, noted the considerable progress made, expressed its satisfaction with the general programme of publications, and asked the Director-General to continue the programme with such modifications as the Board had recommended. On one question which had been included in the Board's report—that of free

¹ These included seven reports of expert committees, which were originally published in the *Official Records*. 
distribution and sales—the Assembly asked that the Director-General and the Board should continue their studies.

The Director-General in 1951 had undertaken exhaustive management surveys of the secretariat services responsible for the editing, translation, and production of publications. These were completed in 1952, and resulted in improvements in organization and methods, in clearer definition of the responsibilities and reciprocal relations between these services, and in a more precise appraisal of staff needs. The Director-General reported to the Sixth World Health Assembly in 1953 that the Organization's work of international medical documentation, comprising editorial, translation, and library services, had reached maturity, and that it would now be possible to attend to the more effective application of those services.

In the Organization's first five years, therefore, the publishing programme was under continuous and close scrutiny by the Executive Board and the Health Assembly. The second five years have been characterized by a sustained effort to develop and improve the publications within the framework that had been firmly established by studies in which the three organs of WHO had fully participated.

This effort has not been confined to devising purely technical improvements, but is also directed at clearer definition of publishing policy.

It would be idle to claim that even after ten years a complete solution to such problems has been found. for considerations are involved which are fundamental to international health work. One of the Organization's functions is to give information and counsel in the field of health, and publications are clearly one of the most effective mediums for this purpose.

The publishing of factual information involves problems of appraisal and selection similar to those encountered in national scientific and technical publishing, with the additional requirement that the material must have a clear relation to some established WHO field of interest. On the other hand, the publication under the imprint of WHO of opinion, counsel, and advocacy involves the far more difficult problem of ensuring that the recommendations communicated to the world at large in the name of an international health organization do truly represent an international consensus rather than a particular school of thought or practice. As has been indicated earlier in this volume, the problem of the extent to which the responsibility of an intergovernmental health agency is engaged by technical reports that it publishes is far from being a new one; it arose for the first time almost half a century ago in one of the earlier sessions of the Permanent Committee of the OIHP. It has been partly met by the decision of the Executive Board in 1952 that
the printed reports of expert committees should contain a prominent statement that the collective views expressed in the reports do not necessarily represent the decisions or stated policy of WHO.

A similar problem exists in the case of monographs on important public-health subjects commissioned from expert consultants. In such cases, the practice has developed of distributing copies of the manuscript to representative experts in different countries. In this way it is possible to obtain a reasonable assurance before publication that opinions expressed and methods advocated take into account differences of practice and methods.

Experience will no doubt lead to an increasing measure of agreement on exactly what the WHO imprint on a publication should represent.

**Individual Publications**

In its Supplementary Report to the First World Health Assembly the Interim Commission pointed out that there was an urgent need to develop the *Bulletin* as a “substantial publication of the highest standard”—but added that it was improbable that this periodical could reach maturity for two or three years—a prophecy that was amply justified. The Interim Commission also proposed that the *Bulletin* should be the principal scientific organ of WHO, using the word “scientific” to “include all studies which contribute to knowledge in the health sciences and the technique of applying that knowledge”. It added that the scope of the *Bulletin* should be as broad as that of WHO itself. Another point made by the Interim Commission was that the *Bulletin* should not only publish studies relevant to the work of expert committees, but “should also cover subjects for which expert committees have not been established, but for which there are expert members of the Secretariat”. These, then, are the general concepts which have determined the character of the *Bulletin*.

The Executive Board in 1952 amplified the specifications for this publication. Its main function was defined as being to advance the work of the Organization by bringing to the knowledge of medical and public-health workers articles of international significance on subjects within the scope of WHO’s interests and activities. The material which it should contain was classified into six broad groups: (a) laboratory studies on such subjects as biological standardization and communicable diseases, one of the main objects being to encourage uniform methods, and hence comparable results; (b) internationally significant studies of results achieved by specific disease-
control methods; (e) studies of the geographical distribution of diseases; (d) reports of surveys on specific subjects, especially those involving studies of relevant world literature and visits to countries; (e) reports of original findings made in the course of field programmes; (f) review articles based primarily on surveys of the literature summarizing the present state of knowledge in different fields.

The principle that the scope of the *Bulletin* should be as broad as that of WHO itself does not—and could not—imply that there is an approximately equal allocation of space to the various subjects which together make up the Organization’s programme. The pattern of subject-representation in the *Bulletin* reflects, not the relative importance of the subjects, but the availability of reportable results. In a field such as that of communicable diseases, in which such strides have been made in recent years, and in which the Organization has major operational programmes, there is a continuous flow of material suitable for publication in the *Bulletin*. In other fields, and especially in those whose main concern is the general promotion of health or the training of health personnel, the material that becomes available for publication is usually more in the nature of counsel and advice than of factual information or reportable results.

Since 1952 twelve numbers of the *Bulletin* have been published each year. It has now reached its seventeenth volume, and the total number of pages published in the first ten years of WHO is some 15,000.

The *Monograph Series* was initiated in 1951 by the re-issue in book form of a study originally published in the *Bulletin*, and other early issues in this series were also reprints. However, since the special study of publications made by the Executive Board in 1952 the *Monograph Series* has become established as a distinct entity. Its only present link with the *Bulletin* is that certain major studies have first been published in instalments in the *Bulletin* and subsequently cumulated and revised for definitive publication as monographs.

The *Monograph Series* is the Organization’s main vehicle for books on public-health subjects of international significance. In general, it consists of systematic and full presentations of specific subjects. It does not include directories (such as the *World Directory of Medical Schools*) or books of international standards (such as the *Pharmacopoea Internationalis*). Up to the end of 1957, a total of thirty-six monographs had been published.

Books not issued in the *Monograph Series* include, in addition to the *Pharmacopoea Internationalis*, and the *World Directory of Medical Schools*, the *Manual of the International Statistical Classification of Diseases, Injuries*,
and Causes of Death; Specifications for Pesticides; Effects of Radiation on Human Heredity, and (published jointly with UNESCO) World Medical Periodicals. Originally two of these were issued as “Supplements” to the Bulletin, as in the earlier years of the Organization this term was used as a general designation for certain important publications whose date or order of publication could not be estimated accurately. With the subsequent improvements in the publishing programme, this device has outlived its usefulness and it has now been abandoned.

The International Digest of Health Legislation is the successor to the legislative section of the Bulletin of the OIHP. It was decided during the life of the Interim Commission that the special character of this material warranted publication in a separate vehicle. From the beginning, the undertaking proved to be a difficult one, especially in view of the large number of languages of the laws and regulations which provide the source material for the Digest.

In 1949 the Second World Health Assembly called upon the Director-General to report on methods of making available and publishing health legislation, and the Third World Health Assembly requested the Executive Board to study this report in detail. It also resolved that the Digest should contain complete documentation of as recent date as possible on national health laws and regulations, which should be reproduced, according to circumstances, verbatim, as partial citations, as abstracts, or simply as references. Publication was to be at quarterly intervals. At its sixth session, in 1950, the Board approved the criteria proposed by the Director-General for selection of material and his recommendations as to the form of publication. Two years later, the Board again considered the Digest in the course of its special study on publications, and confirmed this approval.

The Digest is now regularly publishing information on health legislation derived from sources in twenty different languages. This number of languages is not an arbitrary choice, but the limit set by the staff services available for seeking, appraising and preparing the material, under the direction of a public-health specialist. In respect of these twenty languages, the Digest has developed into a reliable—and, in fact, a unique—source of reference. Certain language groups are still not provided for, and the scope of the Digest is therefore not yet universal.

An interesting innovation in 1952 was the publication of comparative surveys of health legislation on specific subjects such as—to cite the first two—tuberculosis and the control of communicable diseases in schools. The aim of such surveys is not to provide a complete inventory of the legislation
in each country but rather, by reviewing a sufficiently large and representative sample of national laws, to bring into relief differences of approach and of practice, some of which are not easily explicable on scientific grounds. Other studies published have been on nursing, leprosy, smallpox vaccination, malaria, midwives, venereal diseases, hospitalization of mental patients, diphtheria immunization, medical specialization and the control of insect vectors in international air traffic.

Finally, it should be mentioned that the Digest forms part of a network of legislative publications issued by the United Nations and some of the specialized agencies, and that this involves reciprocal consultations in order to delimit the respective fields of interest.

The Technical Report Series contains the published reports of expert committees, study groups, technical conferences, and similar bodies. It is essentially the vehicle for collective reports by international groups of experts on subjects of public-health interest. By the end of 1957, 141 titles had been published in this series.

Reference has been made earlier to the Board’s decision in 1952 that each expert committee report issued in the Technical Report Series should carry a clear statement that the views it contained were those of an international group of experts and did not represent decisions or the stated policy of the Organization. Although the Board did not mention the reports of other expert groups, this decision has been taken to apply to them also. An exception is made for the reports of the Expert Committee on Addiction-producing Drugs, because those reports are recommendations made by WHO to the United Nations. Since the Executive Board’s study in 1956 of the use of study groups and expert committees, an increasing proportion of the Technical Report Series is made up of study group reports.

Although it is more comprehensive than any of its forerunners, the Official Records series may be regarded as the successor to the published Minutes of the Permanent Committee of the OIHP and of the Health Committee of the Health Organisation of the League of Nations, and to the proceedings of the International Sanitary Conferences, the first of which was published in Paris in 1852. Apart from its immediate practical utility, this series will provide for the future historian of international public health an indispensable—and almost inexhaustible—source of information.

The Official Records series of WHO includes both the proceedings of organizational meetings and the documents—notably the Annual Report of the Director-General and the annual Proposed Programme and Budget Estimates—which provide the most important items for discussion at those
meetings. By the end of 1957, the Official Records series consisted of eighty-one volumes.

Two important ancillary volumes to the Official Records series are also published—Basic Documents and the Handbook of Resolutions and Decisions. The first edition of the former appeared in 1949, and it is now in its eighth edition. The latter was first published in 1952, and the Assembly in the following year requested the Director-General to publish a second edition. In 1955 the Assembly decided that new editions should be published every two years. Its fourth edition appeared at the end of 1957.

The general purpose of the Chronicle has been to give a month-by-month account of the activities of WHO, but it also provides short and easily-readable accounts of work reported in other WHO publications. The Third World Health Assembly and the Executive Board, in its special study on publications, endorsed this general purpose. Since then innovations have been introduced into the Chronicle but its objective is still to provide the informed reader—that is, the professional health worker—with a readable account of the Organization’s activities as a whole.


To conclude and resume this account of the evolution of WHO publications during the Organization’s first ten years, the following passage from the Annual Report of the Director-General for 1955 may be cited:

The pattern of WHO publications is that, with only very rare exceptions, they are organized into periodicals and series, each periodical or series being planned to meet a specific publishing objective. The systematization of WHO publications in this way makes it much easier for libraries and other interested institutions and persons to know what has been published, and helps to avoid the pitfall of publishing a miscellaneous assortment of isolated publications of varying relationship to the Organization’s programme and constitutional functions.

Languages of Publication

The general principle for languages of publication decided upon by the Interim Commission and endorsed by the First World Health Assembly was that all publications should be made available in English and French, the working languages of the Assembly, the Executive Board, and the expert committees, but certain exceptions to this principle were made. From its
inception, the *Chronicle* was published in five languages—Chinese, English, French, Russian and Spanish—the official languages for organizational meetings of WHO. It was also proposed by the Interim Commission, and agreed by the Assembly, that the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* and the *Pharmacopoea Internationalis* should be published in Spanish as well as in English and French.

At the First World Health Assembly a proposal was made that WHO publications should be printed in as many languages as possible, and it was in fact indisputable that if they were available in a few languages only it must seriously limit the possibilities for their effective distribution and worldwide use. This proposal was referred to the Executive Board, which, on practical and financial grounds, was unable to recommend an increase in the number of languages of publication regularly used. Nevertheless, it recognized that there might be a need for producing certain special non-serial publications in an additional language or languages. In practice, except for the extension in the use of Spanish to which reference is made below, this need has been met as far as possible by stimulating and assisting national bodies, private or official, to assume responsibility for publishing translations in the national language.

For example, the *Pharmacopoea Internationalis* was issued by WHO in English, French and Spanish only, but translations in German and Japanese have been published without cost to the Organization. Some WHO monographs have, in this way, been made available in several additional languages.

In the first years of the Organization's existence there was some concern as to the quality of published translations, but by the end of 1951 measures had been taken to improve them. The languages of publication continued to present problems for decision, and in 1952 the Assembly decided that the small distribution of the Russian edition of the *Chronicle* did not justify its continued publication. In 1957 it was decided that publication of the Russian edition should be resumed, as the return to active participation in the work of the Organization by certain countries was expected to lead to an increase in distribution.

In 1954 an important step towards increasing the utility of WHO publications was taken when the Assembly decided that the *Official Records* and reports of expert committees should be issued in Spanish translations as well as in English and French. Two years later the Assembly approved proposals for publishing the *Monograph Series* also in Spanish.
On the other hand, in 1950 the Executive Board, while recognizing the need that other publications should continue to be issued in English and French, authorized the Director-General to publish, as from Volume 3, a single edition of the Bulletin containing articles either in English or in French, according to the language in which they were submitted. The proposal for this form of publication had been made by the Director-General for two reasons. In the first place, the technical nature of the material published in the Bulletin made it difficult to obtain high quality translations in a reasonable time. But, more important, it was believed that most readers of the Bulletin would be accustomed to reading technical literature in languages other than their own. The considerable difficulty and expense of producing separate editions in the two languages therefore seemed to have less justification in this case than in others.

**Distribution and Sales**

As has been indicated earlier, efforts during the first years were concentrated on building up the programme of publications, and adequate staff was not available for organizing their distribution. Moreover, until a regular rhythm of publication had been established, attempts at improving distribution could not be very effective.

Since the Second World Health Assembly in 1949, the distribution of publications has been almost continuously discussed by the Secretariat, both at Headquarters and the regional offices, and has been studied in detail by the Executive Board and the Assembly. From those discussions and studies, two main conclusions are to be drawn: first, there could never be a simple and universally applicable formula for the world distribution of WHO publications; secondly, whatever imperfections may remain, there has been a progressive and rapid improvement, to which the increase in the annual value of sales by commercial agents from $30,000 in 1950 to nearly $100,000 in 1957 is the most eloquent witness.

One of the outcomes of the special study on publications made by the Executive Board was that the Director-General was authorized by the Health Assembly to use the Publications Revolving Fund (see page 126) for promoting sales of publications, the amounts to be withdrawn for this purpose being limited to $6000 in 1952 and $10,000 in 1953. At the same time, the Director-General and the Executive Board were asked to continue their studies on distribution and sales.
Here it should be mentioned that all receipts from the sales of WHO publications are paid into this special fund, which was established by the First World Health Assembly. Originally, the only expenditure that the Director-General was able to make from the Fund was for printing additional copies of WHO publications for sale.

In 1953, the Board authorized a special post of distribution and sales officer, the cost of which was to be met from the $10,000 referred to above. The creation of this post, which was filled in the last quarter of 1953, has made possible a more vigorous and systematic approach to the many problems of the distribution of WHO publications. By the end of 1957, the Assembly had withdrawn a total of $70,000 from the Fund to be applied as miscellaneous income for financing the Organization’s programme.

**Medical Documentation**

Under this heading are described some considerations relating to medical and public-health literature in general. Although the Organization’s main interest in publications is centred on those for which it is directly responsible, it is evident that WHO publications are of value only in so far as they usefully supplement the vast world output of publications in similar fields.

During the period of the Interim Commission, a proposal was considered for producing French and Spanish editions of two well-known English-language abstracting journals. It was not questioned that the Organization had a legitimate interest in promoting wider knowledge of world public-health literature, but the Interim Commission decided, on grounds both of principle and of cost, that it would not recommend to the Assembly that editions in other languages of these national journals should be sponsored by WHO.

The First World Health Assembly referred to the Executive Board proposals for the publication of a periodical index to world medical literature, for the systematic exchange of medical literature, through WHO, by all Member States, and for a special series of publications recording the proceedings of international congresses. Reports prepared by the Director-General on these proposals showed them to have such wide implications that the Board was not able to recommend their adoption.

However, the Board did at its first session recommend that WHO should co-operate with UNESCO in sponsoring an Interim Co-ordinating Committee on Medical and Biological Abstracting. This committee originated in 1947, and
its main task was to investigate the possibility of a greater systematization of medical bibliography and especially of the existing medical and biological abstracting periodicals and published medical indexes. WHO participated in the several meetings of the committee that were held in the years 1947-49, but the committee’s work was later absorbed partly by the Council for International Organizations of Medical Sciences and partly by the International Advisory Committee on Documentation and Terminology in Pure and Applied Science which was constituted by UNESCO in 1954.

Two tangible outcomes of these discussions were the published report of the Co-ordinating Committee on Abstracting and Indexing Services in the Medical and Biological Sciences (its subsequent title), and the first edition of World Medical Periodicals, which was published jointly by UNESCO and WHO on the recommendation of the Committee. By agreement with both organizations, responsibility for the second edition (1957) of this publication was assumed by the World Medical Association.

LIBRARY AND REFERENCE SERVICES

Library

The need for an adequate library and a reference service, forming an essential adjunct to the technical work of the Organization, was recognized at an early stage, and it was in December 1946 that the first books and periodicals were acquired and initial arrangements made to deal with urgent library requirements. The first issue of Library News, a monthly list of new accessions, appeared in May 1947 and reported that the Library comprised 111 volumes and received 57 current periodicals.

From these beginnings the WHO Library has grown rapidly, its collections keeping pace with the expanding technical work of the Organization. Today, thanks in part to the inheritance of the Library of the Office International d’Hygiène Publique, it contains over 35,000 volumes, in addition to large collections of reprints, mimeographed documents and official government reports. Although a representative collection is maintained of modern works in several languages on most branches of medicine, special emphasis is placed on public health, communicable diseases, environmental sanitation and the other specialties of importance to WHO. A special feature is the large international collection of current periodicals, of which over 1900 are regularly received, approximately 1000 being in exchange for WHO publications.
To these resources must be added the health and medical material of the League of Nations Library, which the United Nations agreed in 1949 should be made available to WHO for an indefinite period and housed in a place convenient to the Organization. This arrangement fully meets the needs of WHO, while maintaining intact the original library of the League, now the United Nations Library, Geneva. The closest co-operation exists between the two libraries, with acquisition policies designed to avoid unnecessary duplication.

The growth in the size of the Library has been accompanied by a notable increase in the services provided. For example, in 1950 the number of items lent, including the circulation of periodicals, amounted to 29,366; by 1957 it had risen to 41,280. In 1950, 163 volumes were lent to other libraries; in 1957, 1,118. In 1950, 3077 readers were recorded in the library reading room; in 1957, 8640, while over the same period the number of inquiries rose from 1509 to 2887.

The original conception of the WHO Library as a small working collection designed for the use of the WHO Secretariat has had to be adjusted to the fact that it is now one of the largest collections of current medical and public-health literature in Europe and is being called upon more and more for inter-library loans and for the supply of microfilms and photocopies not obtainable elsewhere.

A distinguishing feature of the work of the WHO Library has been its use as a training centre for future medical and scientific librarians. Since 1950 WHO fellows from various countries have spent periods of from one to twelve months in the WHO Library studying its routine and techniques and participating in the work. Similar facilities have from time to time been made available to UNESCO fellows.

Reference Services

Much of the special difficulty of providing a reference service in WHO results from the fact that more than two-thirds of the technical staff are working away from Geneva, many in the field far removed from the most rudimentary form of medical library.

In 1949 the WHO Library began regularly indexing by subject the articles in medical periodicals that were of potential interest to WHO technical staff. A master file of index slips was maintained in the Library and duplicates were sent to the appropriate specialist. In 1956 the purchase of new photocopying
equipment made it possible to contemplate a wider distribution. Approximately 1100 periodicals are regularly scrutinized and about 1000 articles selected each month. From a master-slip, cards are prepared by a cheap photographic process for weekly distribution to WHO technical staff at Headquarters and to all regional offices. As well as providing these index cards the Organization has a photocopying and microfilm service so that staff on the periphery may be supplied as rapidly as those at Headquarters with the literature they require. Similarly, a detailed analytical card index of WHO publications and documents has been maintained since the early days of the Interim Commission.

The virtual absence of the geographical approach in the usual medical reference sources led in 1953 to the establishment of a geographical index of articles and books. Thus a comprehensive guide has been built up to the literature on the health, medical and, to a limited extent, social conditions of a given area. This has proved of considerable value in the briefing of WHO staff.

The indexes to current periodical literature described above have formed essential components in the provision of a reference service available on request to WHO staff, to the medical and health departments and institutions of WHO Member States, and to the United Nations and specialized agencies. A large number of inquiries have been dealt with, ranging in scope from the identification of references to the compilation of bibliographical surveys of available literature. Much of this work is of an ephemeral character, but since 1953 an average of a hundred major bibliographies has been compiled annually. In those cases where the bibliographies might have a wider application they were considered for publication in the Bibliographical Section of the Bulletin of the World Health Organization. Thus lists of the current articles indexed and traced on quarantinable diseases have been published annually in the Bulletin. Among recent bibliographies deemed worthy of publication may be mentioned: leishmaniasis, 1950-55; viral hepatitis, 1954-56; and toxicity of pesticides to man and animals, 1945-52, with supplement, 1953-55.

The acquisitions of the WHO Library are listed monthly in the WHO Library News, which, in addition to its distribution throughout the WHO Secretariat, is available free on request to medical and scientific libraries. From time to time supplements of a medico-bibliographical nature have been issued. These, although originally intended to help the Secretariat make use of the library’s resources, have sometimes been found to have a wider application. One such supplement is a list of the periodical holdings of the Library; first issued in December 1947, it is now regularly revised and issued every two
years. A list of current indexing and abstracting periodicals in the medical and biological sciences, giving details of publisher, price, periodicity, date of first issue, coverage, etc., was issued in 1953. Another supplement, issued in 1955, listed the holdings of the three large international libraries in Geneva (WHO, International Labour Office, and the United Nations) of annual government reports on public-health and medical subjects.

**Supply of Medical Literature**

During the immediate post-war period part of the medical relief programme of the United Nations Relief and Rehabilitation Administration consisted of aid to medical libraries in war-devastated areas. During the two years between the signing of the WHO Constitution and its coming into effect, the Interim Commission took over UNRRA's work of health rehabilitation in countries that had received aid from that agency, and the WHO Library was assigned the responsibility of procuring the medical literature required. The number of books supplied to Member States as part of other projects had by the end of 1957 exceeded 40,000, while nearly 12,000 new and repeat subscriptions to periodicals, as well as many hundreds of reprints, photocopies and microfilms, had been provided. These have helped to replace libraries destroyed or damaged during the war, rehabilitate inadequate or antiquated collections, and provide basic material to countries where the standards of medical education or of health services were below average. They have served, too, to provide essential foreign medical literature to countries short of foreign exchange.

**Extension of Services to Regional Offices**

The regional structure of WHO has inevitably presented the library and reference service with a considerable number of problems, but it was not until 1952 that systematic attempts were made to extend the services beyond Geneva. In November of that year a central cataloguing service was initiated by means of photocopied cards, and since then cards for all material acquired and catalogued by the WHO Library have been sent monthly to all regional offices. Works have been sent on loan and from time to time special collections provided for use at WHO-organized seminars and similar functions. In 1953 a routine distribution of duplicate material was inaugurated, as well
as the periodical circulation of lists of works for disposal, and several thou-
sands of volumes have been dispatched to date. The following year microfilm
readers were sent to the regional offices in Brazzaville and Manila. Improved
photocopying equipment led in 1956 to a central cataloguing service for all
WHO mimeographed documents and, as has already been mentioned, to the
weekly distribution to all regional offices and interested regional advisers of
the index slips to the current literature. In 1957 photocopies of over three
hundred articles were supplied on request to regional office and field staff.
The World Health Organization's work in public information has from the first had two different but related purposes. The first is, in the words of the Constitution, "to assist in developing an informed public opinion among all peoples on matters of health." The second is to rouse and satisfy a general interest in WHO and its work.

Activities of the first kind are necessary for the success of the programmes in which the Organization assists countries to raise the health standards of their citizens. Clearly, projects to control disease and promote health are unlikely to have lasting results unless they are actively supported by people who know why the projects are being undertaken and what their effect on everyday life will be.

The second group of activities is connected with the existence of WHO itself, for the Organization can effectively express international solidarity in health work only if its objectives and programmes are fully understood by as many people in as many countries as possible. If the public is not provided with adequate and accurate information on the problems and work of WHO it can hardly be expected to give it the necessary support.

Often the two aspects of WHO's public information work overlap and merge. For example, to win public support for large campaigns to eradicate malaria, the importance of insect resistance to insecticides must be made clear. Similarly, for a programme against the hazards of atomic radiation to be acceptable the public must be made aware of the health risks involved in the use of nuclear energy and how these can be minimized. The value of the Organization's policies and programmes will be appreciated only if the scientific facts underlying them are made widely known.

In planning its own information services, the Organization had three sources on which to draw: first, the great experience accumulated by com-
mercial publicity in the use and development of the various media of mass communication—which no information service can afford to neglect; secondly, the less keenly developed but more appropriate information work of various governments; and, lastly, the techniques evolved by the United Nations and others of its specialized agencies in the years before 1948, which were readily adaptable to the needs of WHO.

One of the more obvious tasks of WHO's information service is to satisfy requests, from individuals, groups or organizations, for information on the Organization, or on some aspect of its work. That the questions are asked shows that interest has already been roused, that the information given is likely to be well used and that it may stimulate an active and lasting interest.

Inquiries may come from individuals or from groups—and may be for literature, for display material, for the loan or purchase of films or for speakers to address a meeting. The number of requests has been increasing at both Headquarters and regional offices. Each must be personally answered. Such personal contacts are worth the time they take: a correspondent or a visitor who goes to trouble to get information will often pass it on to others.

Publications and Press

The first publication for the general public issued by WHO was a basic folder entitled *WHO, What it Is, What it Does, How it Works*, which contains the essential facts and figures on the structure, aims and work of WHO. In the last ten years there have been ten editions of the folder in English, French and Spanish. Single editions have been published in Italian, Swedish, Norwegian, Danish, German, Japanese, Urdu, Arabic, Russian, Hindi, Thai, Swahili, Chinese and Indonesian.

The periodical *World Health* (formerly the *WHO Newsletter*) was begun in 1949 as a simple mimeographed sheet, issued in a few thousand copies. Its form has been changed several times, and it now appears in four languages (English, French, Spanish and Portuguese) and it is estimated that each issue reaches some 91,000 readers.

In addition to information and news about WHO, *World Health* provides articles on a wide variety of health topics, often written by well-known authorities. Articles on matters of topical interest, such as accident prevention and Asian influenza, are often widely reproduced in other periodicals,
and special numbers on subjects like alcoholism and malaria control are frequently asked for in bulk by interested groups who pay the cost of the reprinting.

Press coverage may be supposed to reflect the public interest in any subject. During the ten years of WHO’s existence journalists and editors have shown increasing interest in the Organization and its work, although, at first, there was a general tendency to confuse WHO with the Red Cross, UNRRA, and other international welfare organizations.

The changed attitude has probably been due in part to the gradual realization that WHO is a source of information on health matters that is in many ways unique: WHO statistical studies can provide comparative figures on general trends in mortality and morbidity from, for example, infectious diseases, cancer of various organs, accidents, alcoholism, and suicides, and on changes in health conditions as reflected in lowered infant and maternal morbidity. Decisions of the World Health Assembly, such as that which led to a world-wide campaign for malaria eradication, have been widely reported in the Press as important events in economic and social development.

The esteem in which WHO is held by the Press and the public depends on their recognition of the practical importance and utility of its work. The basic function of public information work is to make the facts easily available in an appropriate and acceptable form.

A time-honoured method of influencing the public through the Press is the issue of press-releases. Every day, a mass of mimeographed sheets from scores of organizations or groups appears on the desks of news-editors. To survive this intense competition, a release must not be too old (and it is no small problem to get some thousands of copies, in different languages, sent off promptly by post); it must have news-value; and as far as possible it must give the full story (attempts to evade an important issue or to stifle facts are quickly detected).

 Provided that they fulfil these conditions, press-releases are one of the surest means of getting space in the daily and weekly press; they are also used by medical and nursing journals and other periodicals with a special interest in health matters, and, if not used immediately, they are often kept as background material. They may also prompt journalists to seek further information in writing, or by interview with the technical staff member concerned.

The press-release has its greatest effect when handed directly to the accredited press and agency correspondents who telegraph what they
consider most interesting to their headquarters for dissemination all over the world. The very wide distribution thus obtained generally outweighs the disadvantage that the brief telegraphed version may “kill” the full story when it arrives at the newspaper offices by post some days or weeks later.

Photographs, Posters and Illustrated Publications

Good photographs and attractive photo stories are welcomed by illustrated papers and magazines, and efforts have been made in recent years to collect and distribute material of this kind. In the earlier days of the Organization, photographs were often sent in by workers in field projects, but very few of these came up to the required technical standards. In 1951, the first professional photographic mission was sent out and the resulting photo stories roused so much interest that since then professional photographers have been used as often as possible.

This part of the work has grown rapidly since a photographic laboratory was installed at Headquarters and an effective distribution system has been developed. In 1957, for instance, nearly 30,000 prints were distributed to newspapers, magazines and other users.

A combination of text and photographs has been used to illustrate the work of WHO at different phases of its existence and to portray health progress in various parts of the world. The first booklet issued, entitled The Lamp is Lit (1951—35,000 copies in English, French and Spanish), concentrated mainly on the health problems which faced WHO during its early years. The second, A Strategy for World Health (1955—65,000 copies in English, French and Spanish), gave an account of some of the results achieved in the first seven years of WHO’s existence. The third, entitled Ten Steps Forward (1957—90,000 copies in English, French and Spanish), was published to celebrate the Organization’s tenth anniversary.

Publicity by exhibit can be costly, and experience has shown that, when financial resources are limited, expenditure is best concentrated on exhibit material that can be produced at reasonable cost and in fairly large quantities. It can then be used as part of a general information programme, combined with films, the distribution of printed material, etc.

Exhibits can also be used repeatedly for the information of specialized audiences; or they may be used on a much larger scale for a wider public. A good example of effective and large-scale use of exhibit material is the
United Nations Pavilion at the Brussels Universal Exhibition in 1958, where a WHO exhibit, put up at no cost to the Organization, will be seen by millions of visitors.

Posters constitute an allied form of publicity. Two attempts have been made to produce a WHO poster to symbolize international health work in a way understandable by people everywhere. Both were designed by poster artists of international repute, yet neither was an unqualified success. This experience shows that, to be effective and acceptable, posters must be produced on the spot and in the language and symbolism of the group for which they are intended.

Films and Television

A well-made film on a health subject may be depended upon to arouse interest. Even an inexpensive and unpretentious film such as Somewhere in India, produced by WHO in 1952, is still shown and appreciated year after year. The film on treponematoses, We Have the Cure, made in 1956 essentially for technical audiences, was found to have a general appeal as well and there has been a brisk sale of prints, partly for direct projection and partly for television.

The short films that have been produced by the Organization have been designed for the dual purpose of public information and instruction of field and other professional workers.

The UNESCO film, World without End, which dealt partly with work against yaws, has elicited many donations for the work of WHO and of UNICEF.

Film production is always more costly than the outsider is willing to believe; but the high cost is often justified by the vivid, intimate and frequently lasting impression that a good film goes on making, year after year, on audience after audience.

A crucial problem is how to ensure wide distribution of the films made by WHO. The United Nations, which is the largest film producer of the United Nations group of organizations, puts its distribution facilities at the disposal of the specialized agencies. Other outlets are through the regional offices of WHO, and a number of non-governmental organizations. Occasionally, national film boards will accept a WHO film for distribution in commercial cinemas as part of the "official quota" but, no matter how good they may be, films of this kind are generally classed as "institutional" and
it is extremely difficult to get regular commercial distribution for films so labelled.

The rapid development of television in recent years has appreciably changed this situation. To keep up with the increasing demand, television producers are always on the lookout for suitable fresh material, and have shown a growing interest in films on health subjects.

For example, a television programme about nurses produced by the British Broadcasting Corporation for World Health Day, 1954, and another on virus diseases made the same year, obtained what the BBC considered a high rating of "viewer response".

To provide film material on health subjects designed specifically for use in television is probably, at the present time, the investment that will pay the highest dividends in numbers reached and response aroused.

A film enterprise unique of its kind was the animated cartoon on alcoholism, produced in colour in 1956. This film, entitled *To Your Health*, makes no mention of WHO, but aims exclusively at presenting the problem of alcoholism in a way that will engage the interest of the general public and enlarge popular understanding of the alcoholic's behaviour. It has been well received by the people most closely concerned with this problem in many countries, and over three hundred prints in English and French were sold within twelve months of its release. German and Swedish versions have been produced by private organizations, at their own expense. It seems likely that the demand for this film will continue for many years.

The most ambitious film yet produced by the Organization was made in 1957, in readiness for the tenth anniversary in 1958. It was produced by one of the leading makers of documentary films, and it attempts to convey in fifty minutes a lasting impression of the significance of international health work, by combining three short and vivid stories from Asia, Africa, and South America. This film is expected to be widely shown, on television and cinema screens, during and after the tenth anniversary celebrations.

**Radio**

Despite the rapid growth of television, sound radio still has large audiences in most countries for both national and internationally beamed short-wave services, and it is likely to remain for many years an important channel for information work.
The programmes that have been found most interesting to radio listeners have been those connected with the annual World Health Assemblies, meetings of expert committees and study groups, and feature programmes on field projects and the treatment of specific diseases, and World Health Day. Material for radio programmes may take such forms as news items, talks and commentaries by Assembly delegates, members of expert committees and field staff, round-table conferences, and recordings of the Director-General's World Health Day message. His message in 1957 was used in thirty-six programmes.

The material which WHO provides is often designed rather to assist the production, on national networks, of radio programmes dealing with health subjects, than to serve as feature programmes ready for broadcasting. This applies particularly to subjects of general interest. Recently the material distributed by WHO on atomic radiation, heart disease, and various aspects of mental health such as the psychobiological development of the child, maternal deprivation, and so on, has been used as a basis for feature programmes. Material has also been collected for dramatized radio features for broadcast by the United Nations and by national networks.

The largest single outlet for WHO material has been the Radio Division of the United Nations, which has built up a distribution network that covers the whole world; but a considerable amount of material is also recorded on tape and sent direct to national broadcasting organizations. Very often, too, national networks are assisted in the production of programmes on health subjects of their choice, some of which are intended for broadcast to schools.

Outside Information Work and Joint Missions

So far, this account has dealt principally with ways of bringing to public notice information originating within the Organization, on a broad range of health subjects.

However objectively such material is presented, it is always open to the charge of having been prepared with some intention of propaganda for the Organization. There is no doubt that articles, radio programmes and films dealing with health subjects and health work, but coming from sources independent of the Organization, obtain a readier welcome and carry greater conviction.
WHO has therefore frequently invited authors, journalists, science writers and film producers to visit Headquarters, regional offices and field projects for varying periods, to collect at first hand material which they afterwards use freely for books, articles, films or broadcasts.

This policy has produced good results, including the commercial publication of a best seller for teen-agers, *Mankind against the Killers*. The success of independently-produced television programmes has already been mentioned.

Several first-class films dealing wholly or in part with health subjects have been produced by commercial firms. In such cases WHO has usually been consulted from the planning stage onwards, and the producers have had the co-operation of WHO technical and field workers in the actual making of the film. An outstanding example is the film, *The Rival World*, which contains several sections dealing with the world-wide fight against insect carriers of disease.

Another way in which WHO has tried to facilitate independent testimony of this kind has been through the joint sponsoring of information missions. The first of these was in 1951, when arrangements were made for a well-known science writer, a professional photographer and a radio producer to visit health projects in several countries in Asia. The mission was sponsored jointly by several United Nations bodies, but the essential condition was that the information material produced should be the work of independent witnesses.

This mission resulted in articles and booklets which were used and reproduced in several countries, for years afterwards. A book written by the science writer of the team was published commercially. The radio material collected during the trip yielded three one-hour programmes in English and in several other languages; and the photographs are still an important part of the Organization’s photo library.

Other missions of the same type were arranged subsequently, but with varying success. For instance, it was often difficult to reconcile the rather different needs of the participating agencies, and missions sponsored by too many organizations were not entirely satisfactory. There was also some evidence that teams of workers in various media, working at a different pace and with different techniques, were less successful than individuals working alone or teams specialized in the same medium.

Experience has shown that some of the defects of this method can be corrected and, in spite of its limitations, it has proved to be particularly suited to the telling of the story of international health work.
World Health Day

The First World Health Assembly decided that the Organization should sponsor an annual World Health Day, which the following Assembly agreed should be observed on 7 April, the anniversary of the day on which the Constitution of WHO officially came into force in 1948. Since 1950 a special theme has been selected for World Health Day each year and background information on that theme has been prepared and distributed to Member governments.

The success of World Health Day has probably been due in part to WHO's policy of encouraging each participating country to observe the occasion in the way best suited to the national health effort. The aim has been, not to glorify the Organization, but to focus attention on health problems of interest to most countries of the world.

Some of the subjects which have aroused the best response have been Health for your Child and the World's Children (1951), Health is Wealth (1953), The Nurse, Pioneer of Health (1954) and The Insect-borne Diseases (1956).

Co-operation with Other Organizations

As in other branches of the Organization's work, it is most important to cultivate effective working relationships with the United Nations and the other specialized agencies. Some aspects of the co-operation offered by the United Nations Department of Public Information and by UNESCO have already been mentioned in connexion with films and radio. But this co-operation extends to many other branches of information work. In particular, United Nations Information Centres throughout the world have been very useful as distribution points for information on WHO.

Through the Consultative Committee for Public Information and the United Nations Film Board, the United Nations and the specialized agencies are able to discuss policy and planning on common information problems. Examples of inter-agency co-operation have been the joint information missions mentioned earlier, the joint sponsorship by FAO and WHO of World Health Day in 1957, the theme of which was Food and Health, and the frequent use by the UNESCO Courier of articles on health subjects.

Although working relationships are making progress, through the existing co-ordination machinery, more systematic joint planning and production of information material would produce even better results, particularly in expensive media such as films and television.
Future Development

From the public information work of the last ten years, certain conclusions may be drawn that are important for the future.

A first general conclusion is that, to produce the widest effect with the limited resources available, it is necessary to experiment continually with new methods and to re-examine critically old methods consecrated by usage. Information material issued by or in co-operation with WHO often deals with technical subjects and it must be treated in ways that combine technical accuracy with a presentation sufficiently attractive to engage and hold the interest of the general public.

The most important conclusion to be drawn from the ten years’ experience is that the production and distribution of routine types of information by the Organization, although essential, is not sufficient in itself. There is a growing number of writers, journalists, and radio, film and television producers who realize the popular appeal of health subjects and whose independent accounts of the Organization’s work can be more convincing than official statements. This type of activity, however, involves active co-operation from WHO itself, which supplies the necessary background and technical information. This may be done in many ways: for film or television production, WHO may provide ready-made material showing different aspects of its field work. Sometimes WHO information officers accompany a writer, photographer or producer who is making an expedition to get his own material at first hand. Similar work will probably soon be done from the regional offices, and will have to be combined with effective distribution of material within each region and a general development of the regional information work.

A final point is the possibility, both at Headquarters and in the regions, of enlisting the co-operation of governments and of non-governmental organizations in the collection and distribution of information.

The WHO National Committees in a number of countries do valuable work in disseminating information, organizing World Health Day observances, holding seminars on health topics, etc. The World Federation of United Nations Associations (WFUNA) and its affiliated national associations each year organize study groups on health and social questions.

Many governments now observe World Health Day each year and a certain number have already made liaison with WHO’s regional information units. It is true that up to the present national information services have only occasionally been able to spend their own money on the translation or adaptation
and reproduction of WHO leaflets, booklets or visual media. There are good grounds for hoping, however, that, as peoples everywhere become more aware of the significance and value of international health work and of their countries’ share in it, national information services will increasingly produce and distribute, on their own initiative, information about WHO.
Annex 1

CONSTITUTION OF THE WORLD HEALTH ORGANIZATION

The States Parties to this Constitution declare, in conformity with the Charter of the United Nations, that the following principles are basic to the happiness, harmonious relations and security of all peoples:

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.

The health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest co-operation of individuals and States.

The achievement of any State in the promotion and protection of health is of value to all.

Unequal development in different countries in the promotion of health and control of disease, especially communicable disease, is a common danger.

Healthy development of the child is of basic importance; the ability to live harmoniously in a changing total environment is essential to such development.

The extension to all peoples of the benefits of medical, psychological and related knowledge is essential to the fullest attainment of health.

Informed opinion and active co-operation on the part of the public are of the utmost importance in the improvement of the health of the people.

Governments have a responsibility for the health of their peoples which can be fulfilled only by the provision of adequate health and social measures.

Accepting these principles, and for the purpose of co-operation among themselves and with others to promote and protect the health of all peoples, the Contracting Parties agree to the present Constitution and hereby establish the World Health Organization as a specialized agency within the terms of Article 57 of the Charter of the United Nations.

Chapter 1 — Objective

Article 1

The objective of the World Health Organization (hereinafter called the Organization) shall be the attainment by all peoples of the highest possible level of health.

1 Adopted by the International Health Conference held in New York from 19 June to 22 July 1946, and signed on 22 July 1946 by the representatives of sixty-one States (Off. Rec. Wld Hlth Org. 2, 100)
In order to achieve its objective, the functions of the Organization shall be:

(a) to act as the directing and co-ordinating authority on international health work;
(b) to establish and maintain effective collaboration with the United Nations, specialized agencies, governmental health administrations, professional groups and such other organizations as may be deemed appropriate;
(c) to assist Governments, upon request, in strengthening health services;
(d) to furnish appropriate technical assistance and, in emergencies, necessary aid upon the request or acceptance of Governments;
(e) to provide or assist in providing, upon the request of the United Nations, health services and facilities to special groups, such as the peoples of trust territories;
(f) to establish and maintain such administrative and technical services as may be required, including epidemiological and statistical services;
(g) to stimulate and advance work to eradicate epidemic, endemic and other diseases;
(h) to promote, in co-operation with other specialized agencies where necessary, the prevention of accidental injuries;
(i) to promote, in co-operation with other specialized agencies where necessary, the improvement of nutrition, housing, sanitation, recreation, economic or working conditions and other aspects of environmental hygiene;
(j) to promote co-operation among scientific and professional groups which contribute to the advancement of health;
(k) to propose conventions, agreements and regulations, and make recommendations with respect to international health matters and to perform such duties as may be assigned thereby to the Organization and are consistent with its objective;
(l) to promote maternal and child health and welfare and to foster the ability to live harmoniously in a changing total environment;
(m) to foster activities in the field of mental health, especially those affecting the harmony of human relations;
(n) to promote and conduct research in the field of health;
(o) to promote improved standards of teaching and training in the health, medical and related professions;
(p) to study and report on, in co-operation with other specialized agencies where necessary, administrative and social techniques affecting public health and medical care from preventive and curative points of view, including hospital services and social security;
(q) to provide information, counsel and assistance in the field of health;
(r) to assist in developing an informed public opinion among all peoples on matters of health;
(s) to establish and revise as necessary international nomenclatures of diseases, of causes of death and of public health practices;
to standardize diagnostic procedures as necessary;

(u) to develop, establish and promote international standards with respect to food, biological, pharmaceutical and similar products;

(v) generally to take all necessary action to attain the objective of the Organization.

CHAPTER III — MEMBERSHIP AND ASSOCIATE MEMBERSHIP

Article 3

Membership in the Organization shall be open to all States.

Article 4

Members of the United Nations may become Members of the Organization by signing or otherwise accepting this Constitution in accordance with the provisions of Chapter XIX and in accordance with their constitutional processes.

Article 5

The States whose Governments have been invited to send observers to the International Health Conference held in New York, 1946, may become Members by signing or otherwise accepting this Constitution in accordance with the provisions of Chapter XIX and in accordance with their constitutional processes provided that such signature or acceptance shall be completed before the first session of the Health Assembly.

Article 6

Subject to the conditions of any agreement between the United Nations and the Organization, approved pursuant to Chapter XVI, States which do not become Members in accordance with Articles 4 and 5 may apply to become Members and shall be admitted as Members when their application has been approved by a simple majority vote of the Health Assembly.

Article 7

If a Member fails to meet its financial obligations to the Organization or in other exceptional circumstances, the Health Assembly may, on such conditions as it thinks proper, suspend the voting privileges and services to which a Member is entitled. The Health Assembly shall have the authority to restore such voting privileges and services.

Article 8

Territories or groups of territories which are not responsible for the conduct of their international relations may be admitted as Associate Members by the Health Assembly upon application made on behalf of such territory or group of territories by the Member or other authority having responsibility for their international relations. Representatives of Associate Members to the Health Assembly should be qualified by their technical
competence in the field of health and should be chosen from the native population. The nature and extent of the rights and obligations of Associate Members shall be determined by the Health Assembly.

**CHAPTER IV — ORGANS**

**Article 9**

The work of the Organization shall be carried out by:
(a) The World Health Assembly (herein called the Health Assembly);
(b) The Executive Board (hereinafter called the Board);
(c) The Secretariat.

**CHAPTER V — THE WORLD HEALTH ASSEMBLY**

**Article 10**

The Health Assembly shall be composed of delegates representing Members.

**Article 11**

Each Member shall be represented by not more than three delegates, one of whom shall be designated by the Member as chief delegate. These delegates should be chosen from among persons most qualified by their technical competence in the field of health, preferably representing the national health administration of the Member.

**Article 12**

Alternates and advisers may accompany delegates.

**Article 13**

The Health Assembly shall meet in regular annual session and in such special sessions as may be necessary. Special sessions shall be convened at the request of the Board or of a majority of the Members.

**Article 14**

The Health Assembly, at each annual session, shall select the country or region in which the next annual session shall be held, the Board subsequently fixing the place. The Board shall determine the place where a special session shall be held.

**Article 15**

The Board, after consultation with the Secretary-General of the United Nations, shall determine the date of each annual and special session.

**Article 16**

The Health Assembly shall elect its President and other officers at the beginning of each annual session. They shall hold office until their successors are elected.

**Article 17**

The Health Assembly shall adopt its own rules of procedure.
ANNE\'X 1

Artic1e 18

The functions of the Health Assembly shall be:

(a) to determine the policies of the Organization;
(b) to name the Members entitled to designate a person to serve on the Board;
(c) to appoint the Director-General;
(d) to review and approve reports and activities of the Board and of the Director-General and to instruct the Board in regard to matters upon which action, study, investigation or report may be considered desirable;
(e) to establish such committees as may be considered necessary for the work of the Organization;
(f) to supervise the financial policies of the Organization and to review and approve the budget;
(g) to instruct the Board and the Director-General to bring to the attention of Members and of international organizations, governmental or non-governmental, any matter with regard to health which the Health Assembly may consider appropriate;
(h) to invite any organization, international or national, governmental or non-governmental, which has responsibilities related to those of the Organization, to appoint representatives to participate, without right of vote, in its meetings or in those of the committees and conferences convened under its authority, on conditions prescribed by the Health Assembly; but in the case of national organizations, invitations shall be issued only with the consent of the Government concerned;
(i) to consider recommendations bearing on health made by the General Assembly, the Economic and Social Council, the Security Council or Trusteeship Council of the United Nations, and to report to them on the steps taken by the Organization to give effect to such recommendations;
(j) to report to the Economic and Social Council in accordance with any agreement between the Organization and the United Nations;
(k) to promote and conduct research in the field of health by the personnel of the Organization, by the establishment of its own institutions or by co-operation with official or non-official institutions of any Member with the consent of its Government;
(l) to establish such other institutions as it may consider desirable;
(m) to take any other appropriate action to further the objective of the Organization.

Article 19

The Health Assembly shall have authority to adopt conventions or agreements with respect to any matter within the competence of the Organization. A two-thirds vote of the Health Assembly shall be required for the adoption of such conventions or agreements, which shall come into force for each Member when accepted by it in accordance with its constitutional processes.

Article 20

Each Member undertakes that it will, within eighteen months after the adoption by the Health Assembly of a convention or agreement, take action relative to the acceptance of such convention or agreement. Each Member shall notify the Director-General of the
action taken, and if it does not accept such convention or agreement within the time limit, it will furnish a statement of the reasons for non-acceptance. In case of acceptance, each Member agrees to make an annual report to the Director-General in accordance with Chapter XIV.

Article 21

The Health Assembly shall have authority to adopt regulations concerning:

(a) sanitary and quarantine requirements and other procedures designed to prevent the international spread of disease;
(b) nomenclatures with respect to diseases, causes of death and public health practices;
(c) standards with respect to diagnostic procedures for international use;
(d) standards with respect to the safety, purity and potency of biological, pharmaceutical and similar products moving in international commerce;
(e) advertising and labelling of biological, pharmaceutical and similar products moving in international commerce.

Article 22

Regulations adopted pursuant to Article 21 shall come into force for all Members after due notice has been given of their adoption by the Health Assembly except for such Members as may notify the Director-General of rejection or reservations within the period stated in the notice.

Article 23

The Health Assembly shall have authority to make recommendations to Members with respect to any matter within the competence of the Organization.

Chapter VI — The Executive Board

Article 24

The Board shall consist of eighteen persons designated by as many Members. The Health Assembly, taking into account an equitable geographical distribution, shall elect the Members entitled to designate a person to serve on the Board. Each of these Members should appoint to the Board a person technically qualified in the field of health, who may be accompanied by alternates and advisers.

Article 25

These Members shall be elected for three years and may be re-elected; provided that of the Members elected at the first session of the Health Assembly, the terms of six Members shall be for one year and the terms of six Members shall be for two years, as determined by lot.

Article 26

The Board shall meet at least twice a year and shall determine the place of each meeting.

Article 27

The Board shall elect its Chairman from among its members and shall adopt its own rules of procedure.
Article 28

The functions of the Board shall be:

(a) to give effect to the decisions and policies of the Health Assembly;
(b) to act as the executive organ of the Health Assembly;
(c) to perform any other functions entrusted to it by the Health Assembly;
(d) to advise the Health Assembly on questions referred to it by that body and on matters assigned to the Organization by conventions, agreements and regulations;
(e) to submit advice or proposals to the Health Assembly on its own initiative;
(f) to prepare the agenda of meetings of the Health Assembly;
(g) to submit to the Health Assembly for consideration and approval a general programme of work covering a specific period;
(h) to study all questions within its competence;
(i) to take emergency measures within the functions and financial resources of the Organization to deal with events requiring immediate action. In particular it may authorize the Director-General to take the necessary steps to combat epidemics, to participate in the organization of health relief to victims of a calamity and to undertake studies and research the urgency of which has been drawn to the attention of the Board by any Member or by the Director-General.

Article 29

The Board shall exercise on behalf of the whole Health Assembly the powers delegated to it by that body.

Chapter VII — The Secretariat

Article 30

The Secretariat shall comprise the Director-General and such technical and administrative staff as the Organization may require.

Article 31

The Director-General shall be appointed by the Health Assembly on the nomination of the Board on such terms as the Health Assembly may determine. The Director-General, subject to the authority of the Board, shall be the chief technical and administrative officer of the Organization.

Article 32

The Director-General shall be ex-officio Secretary of the Health Assembly, of the Board, of all commissions and committees of the Organization and of conferences convened by it. He may delegate these functions.

Article 33

The Director-General or his representative may establish a procedure by agreement with Members, permitting him, for the purpose of discharging his duties, to have direct
access to their various departments, especially to their health administrations and to
national health organizations, governmental or non-governmental. He may also establish
direct relations with international organizations whose activities come within the compe-
tence of the Organization. He shall keep regional offices informed on all matters involving
their respective areas.

Article 34

The Director-General shall prepare and submit annually to the Board the financial
statements and budget estimates of the Organization.

Article 35

The Director-General shall appoint the staff of the Secretariat in accordance with
staff regulations established by the Health Assembly. The paramount consideration in
the employment of the staff shall be to assure that the efficiency, integrity and internation­
ally representative character of the Secretariat shall be maintained at the highest level.
Due regard shall be paid also to the importance of recruiting the staff on as wide a geogra­
phical basis as possible.

Article 36

The conditions of service of the staff of the Organization shall conform as far as
possible with those of other United Nations organizations.

Article 37

In the performance of their duties the Director-General and the staff shall not seek
or receive instructions from any government or from any authority external to the Organ­
zation. They shall refrain from any action which might reflect on their position as inter­
national officers. Each Member of the Organization on its part undertakes to respect the
exclusively international character of the Director-General and the staff and not to seek
to influence them.

Chapter VIII — Committees

Article 38

The Board shall establish such committees as the Health Assembly may direct and,
on its own initiative or on the proposal of the Director-General, may establish any other
committees considered desirable to serve any purpose within the competence of the Organ­
ization.

Article 39

The Board, from time to time and in any event annually, shall review the necessity for
continuing each committee.

Article 40

The Board may provide for the creation of or the participation by the Organization
in joint or mixed committees with other organizations and for the representation of the
Organization in committees established by such other organizations.
CHAPTER IX — CONFERENCES

Article 41

The Health Assembly or the Board may convene local, general, technical or other special conferences to consider any matter within the competence of the Organization and may provide for the representation at such conferences of international organizations and, with the consent of the Government concerned, of national organizations, governmental or non-governmental. The manner of such representation shall be determined by the Health Assembly or the Board.

Article 42

The Board may provide for representation of the Organization at conferences in which the Board considers that the Organization has an interest.

CHAPTER X — HEADQUARTERS

Article 43

The location of the headquarters of the Organization shall be determined by the Health Assembly after consultation with the United Nations.

CHAPTER XI — REGIONAL ARRANGEMENTS

Article 44

(a) The Health Assembly shall from time to time define the geographical areas in which it is desirable to establish a regional organization.

(b) The Health Assembly may, with the consent of a majority of the Members situated within each area so defined, establish a regional organization to meet the special needs of such area. There shall not be more than one regional organization in each area.

Article 45

Each regional organization shall be an integral part of the Organization in accordance with this Constitution.

Article 46

Each regional organization shall consist of a regional committee and a regional office.

Article 47

Regional committees shall be composed of representatives of the Member States and Associate Members in the region concerned. Territories or groups of territories within the region, which are not responsible for the conduct of their international relations and which are not Associate Members, shall have the right to be represented and to participate in regional committees. The nature and extent of the rights and obligations of these territories or groups of territories in regional committees shall be determined by the Health Assembly in consultation with the Member or other authority having responsibility for the international relations of these territories and with the Member States in the region.
Article 48

Regional committees shall meet as often as necessary and shall determine the place of each meeting.

Article 49

Regional committees shall adopt their own rules of procedure.

Article 50

The functions of the regional committees shall be:

(a) to formulate policies governing matters of an exclusively regional character;
(b) to supervise the activities of the regional office;
(c) to suggest to the regional office the calling of technical conferences and such additional work or investigation in health matters as in the opinion of the regional committee would promote the objective of the Organization within the region;
(d) to co-operate with the respective regional committees of the United Nations and with those of other specialized agencies and with other regional international organizations having interests in common with the Organization;
(e) to tender advice, through the Director-General, to the Organization on international health matters which have wider than regional significance;
(f) to recommend additional regional appropriations by the Governments of the respective regions if the proportion of the central budget of the Organization allotted to that region is insufficient for the carrying-out of the regional functions;
(g) such other functions as may be delegated to the regional committee by the Health Assembly, the Board or the Director-General.

Article 51

Subject to the general authority of the Director-General of the Organization, the regional office shall be the administrative organ of the regional committee. It shall, in addition, carry out within the region the decisions of the Health Assembly and of the Board.

Article 52

The head of the regional office shall be the Regional Director appointed by the Board in agreement with the regional committee.

Article 53

The staff of the regional office shall be appointed in a manner to be determined by agreement between the Director-General and the Regional Director.

Article 54

The Pan American Sanitary Organization represented by the Pan American Sanitary Bureau and the Pan American Sanitary Conferences, and all other inter-governmental regional health organizations in existence prior to the date of signature of this Constitution, shall in due course be integrated with the Organization. This integration shall be effected as soon as practicable through common action based on mutual consent of the competent authorities expressed through the organizations concerned.
CHAPTER XII — BUDGET AND EXPENSES

Article 55

The Director-General shall prepare and submit to the Board the annual budget estimates of the Organization. The Board shall consider and submit to the Health Assembly such budget estimates, together with any recommendations the Board may deem advisable.

Article 56

Subject to any agreement between the Organization and the United Nations, the Health Assembly shall review and approve the budget estimates and shall apportion the expenses among the Members in accordance with a scale to be fixed by the Health Assembly.

Article 57

The Health Assembly or the Board acting on behalf of the Health Assembly may accept and administer gifts and bequests made to the Organization provided that the conditions attached to such gifts or bequests are acceptable to the Health Assembly or the Board and are consistent with the objective and policies of the Organization.

Article 58

A special fund to be used at the discretion of the Board shall be established to meet emergencies and unforeseen contingencies.

CHAPTER XIII — VOTING

Article 59

Each Member shall have one vote in the Health Assembly.

Article 60

(a) Decisions of the Health Assembly on important questions shall be made by a two-thirds majority of the Members present and voting. These questions shall include: the adoption of conventions or agreements; the approval of agreements bringing the Organization into relation with the United Nations and inter-governmental organizations and agencies in accordance with Articles 69, 70 and 72; amendments to this Constitution.

(b) Decisions on other questions, including the determination of additional categories of questions to be decided by a two-thirds majority, shall be made by a majority of the Members present and voting.

(c) Voting on analogous matters in the Board and in committees of the Organization shall be made in accordance with paragraphs (a) and (b) of this Article.

CHAPTER XIV — REPORTS SUBMITTED BY STATES

Article 61

Each Member shall report annually to the Organization on the action taken and progress achieved in improving the health of its people.
Article 62

Each Member shall report annually on the action taken with respect to recommendations made to it by the Organization and with respect to conventions, agreements and regulations.

Article 63

Each Member shall communicate promptly to the Organization important laws, regulations, official reports and statistics pertaining to health which have been published in the State concerned.

Article 64

Each Member shall provide statistical and epidemiological reports in a manner to be determined by the Health Assembly.

Article 65

Each Member shall transmit upon the request of the Board such additional information pertaining to health as may be practicable.

Chapter XV — Legal Capacity, Privileges and Immunities

Article 66

The Organization shall enjoy in the territory of each Member such legal capacity as may be necessary for the fulfilment of its objective and for the exercise of its functions.

Article 67

(a) The Organization shall enjoy in the territory of each Member such privileges and immunities as may be necessary for the fulfilment of its objective and for the exercise of its functions.

(b) Representatives of Members, persons designated to serve on the Board and technical and administrative personnel of the Organization shall similarly enjoy such privileges and immunities as are necessary for the independent exercise of their functions in connexion with the Organization.

Article 68

Such legal capacity, privileges and immunities shall be defined in a separate agreement to be prepared by the Organization in consultation with the Secretary-General of the United Nations and concluded between the Members.

Chapter XVI — Relations with Other Organizations

Article 69

The Organization shall be brought into relation with the United Nations as one of the specialized agencies referred to in Article 57 of the Charter of the United Nations. The agreement or agreements bringing the Organization into relation with the United Nations shall be subject to approval by a two-thirds vote of the Health Assembly.
Article 70
The Organization shall establish effective relations and co-operate closely with such other inter-governmental organizations as may be desirable. Any formal agreement entered into with such organizations shall be subject to approval by a two-thirds vote of the Health Assembly.

Article 71
The Organization may, on matters within its competence, make suitable arrangements for consultation and co-operation with non-governmental international organizations and, with the consent of the Government concerned, with national organizations, governmental or non-governmental.

Article 72
Subject to the approval by a two-thirds vote of the Health Assembly, the Organization may take over from any other international organization or agency whose purpose and activities lie within the field of competence of the Organization such functions, resources and obligations as may be conferred upon the Organization by international agreement or by mutually acceptable arrangements entered into between the competent authorities of the respective organizations.

CHAPTER XVII — AMENDMENTS

Article 73
Texts of proposed amendments to this Constitution shall be communicated by the Director-General to Members at least six months in advance of their consideration by the Health Assembly. Amendments shall come into force for all Members when adopted by a two-thirds vote of the Health Assembly and accepted by two-thirds of the Members in accordance with their respective constitutional processes.

CHAPTER XVIII — INTERPRETATION

Article 74
The Chinese, English, French, Russian and Spanish texts of this Constitution shall be regarded as equally authentic.

Article 75
Any question or dispute concerning the interpretation or application of this Constitution which is not settled by negotiation or by the Health Assembly shall be referred to the International Court of Justice in conformity with the Statute of the Court, unless the parties concerned agree on another mode of settlement.

Article 76
Upon authorization by the General Assembly of the United Nations or upon authorization in accordance with any agreement between the Organization and the United Nations, the Organization may request the International Court of Justice for an advisory opinion on any legal question arising within the competence of the Organization.
Article 77

The Director-General may appear before the Court on behalf of the Organization in connexion with any proceedings arising out of any such request for an advisory opinion. He shall make arrangements for the presentation of the case before the Court, including arrangements for the argument of different views on the question.

Chapter XIX — Entry-into-Force

Article 78

Subject to the provisions of Chapter III, this Constitution shall remain open to all States for signature or acceptance.

Article 79

(a) States may become parties to this Constitution by
   (i) signature without reservation as to approval;
   (ii) signature subject to approval followed by acceptance; or
   (iii) acceptance.

(b) Acceptance shall be effected by the deposit of a formal instrument with the Secretary-General of the United Nations.

Article 80

This Constitution shall come into force when twenty-six Members of the United Nations have become parties to it in accordance with the provisions of Article 79.

Article 81

In accordance with Article 102 of the Charter of the United Nations, the Secretary-General of the United Nations will register the Constitution when it has been signed without reservation as to approval on behalf of one State or upon deposit of the first instrument of acceptance.

Article 82

The Secretary-General of the United Nations will inform States parties to this Constitution of the date when it has come into force. He will also inform them of the dates when other States have become parties to this Constitution.

IN FAITH WHEREOF the undersigned representatives, having been duly authorized for that purpose, sign this Constitution.

DONE in the City of New York this twenty-second day of July 1946, in a single copy in the Chinese, English, French, Russian and Spanish languages, each text being equally authentic. The original texts shall be deposited in the archives of the United Nations. The Secretary-General of the United Nations will send certified copies to each of the Governments represented at the Conference.
Annex 2

MEMBERS AND ASSOCIATE MEMBERS
OF THE WORLD HEALTH ORGANIZATION
(31 December 1957)

The following list shows the Member States of WHO, together with the date on which each became a party to the Constitution, the chronological order being indicated by the numbers in parentheses. Territories admitted to associate membership are also shown.

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<td>France (42)</td>
<td>16 June 1948</td>
</tr>
<tr>
<td>Germany, Federal Republic of (78)</td>
<td>29 May 1951</td>
</tr>
<tr>
<td>Ghana (85)¹</td>
<td>8 April 1957</td>
</tr>
</tbody>
</table>

¹ The Gold Coast was admitted as an Associate Member on 9 May 1956.

--- 473 ---
<table>
<thead>
<tr>
<th>Member States</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece (31)</td>
<td>12 March 1948</td>
</tr>
<tr>
<td>Guatemala (66)</td>
<td>26 August 1949</td>
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<tr>
<td>Haiti (17)</td>
<td>12 August 1947</td>
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<td>Honduras (61)</td>
<td>8 April 1949</td>
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<td>Hungary (43)</td>
<td>17 June 1948</td>
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<td>Iceland (44)</td>
<td>17 June 1948</td>
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<td>India (27)</td>
<td>12 January 1948</td>
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<tr>
<td>Indonesia, Republic of (74)</td>
<td>23 May 1950</td>
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<tr>
<td>Iran (4)</td>
<td>23 November 1946</td>
</tr>
<tr>
<td>Iraq (20)</td>
<td>23 September 1947</td>
</tr>
<tr>
<td>Ireland (23)</td>
<td>20 October 1947</td>
</tr>
<tr>
<td>Israel (64)</td>
<td>21 June 1949</td>
</tr>
<tr>
<td>Italy (10)</td>
<td>11 April 1947</td>
</tr>
<tr>
<td>Japan (76)</td>
<td>16 May 1951</td>
</tr>
<tr>
<td>Jordan, Hashemite Kingdom of (9)</td>
<td>7 April 1947</td>
</tr>
<tr>
<td>Korea (65)</td>
<td>17 August 1949</td>
</tr>
<tr>
<td>Laos (71)</td>
<td>17 May 1950</td>
</tr>
<tr>
<td>Lebanon (58)</td>
<td>19 January 1949</td>
</tr>
<tr>
<td>Liberia (7)</td>
<td>14 March 1947</td>
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<tr>
<td>Libya, United Kingdom of (79)</td>
<td>16 May 1952</td>
</tr>
<tr>
<td>Luxembourg (63)</td>
<td>3 June 1949</td>
</tr>
<tr>
<td>Mexico (35)</td>
<td>7 April 1948</td>
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<tr>
<td>Monaco (53)</td>
<td>8 July 1948</td>
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<tr>
<td>Morocco (82)</td>
<td>14 May 1956</td>
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<tr>
<td>Nepal (80)</td>
<td>2 September 1953</td>
</tr>
<tr>
<td>Netherlands (12)</td>
<td>25 April 1947</td>
</tr>
<tr>
<td>New Zealand (5)</td>
<td>10 December 1946</td>
</tr>
<tr>
<td>Nicaragua (69)</td>
<td>24 April 1950</td>
</tr>
<tr>
<td>Norway (18)</td>
<td>18 August 1947</td>
</tr>
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<td>Pakistan (48)</td>
<td>23 June 1948</td>
</tr>
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<td>Panama (75)</td>
<td>20 February 1951</td>
</tr>
<tr>
<td>Paraguay (57)</td>
<td>4 January 1949</td>
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<tr>
<td>Peru (67)</td>
<td>11 November 1949</td>
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<tr>
<td>Philippines, Republic of the (54)</td>
<td>9 July 1948</td>
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<tr>
<td>Poland (38)</td>
<td>6 May 1948</td>
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<td>Portugal (29)</td>
<td>13 February 1948</td>
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<td>Romania (40)</td>
<td>8 June 1948</td>
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<td>Saudi Arabia (14)</td>
<td>26 May 1947</td>
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<tr>
<td>Spain (77)</td>
<td>28 May 1951</td>
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<tr>
<td>Sudan (83)</td>
<td>14 May 1956</td>
</tr>
<tr>
<td>Sweden (19)</td>
<td>28 August 1947</td>
</tr>
<tr>
<td>Switzerland (8)</td>
<td>26 March 1947</td>
</tr>
</tbody>
</table>

1 Previously an Associate Member (French Zone from 12 May 1952; Spanish Protectorate Zone from 20 May 1953)
2 Previously an Associate Member (from 20 May 1955)
### Member States

<table>
<thead>
<tr>
<th>Member State</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syria</td>
<td>18 December 1946</td>
</tr>
<tr>
<td>Thailand</td>
<td>26 September 1947</td>
</tr>
<tr>
<td>Tunisia</td>
<td>14 May 1958</td>
</tr>
<tr>
<td>Turkey</td>
<td>2 January 1948</td>
</tr>
<tr>
<td>Ukrainian SSR</td>
<td>3 April 1948</td>
</tr>
<tr>
<td>Union of South Africa</td>
<td>7 August 1947</td>
</tr>
<tr>
<td>Union of Soviet Socialist Republics</td>
<td>24 March 1948</td>
</tr>
<tr>
<td>United Kingdom of Great Britain and Northern Ireland</td>
<td>22 July 1946</td>
</tr>
<tr>
<td>United States of America</td>
<td>21 June 1948</td>
</tr>
<tr>
<td>Uruguay</td>
<td>22 April 1949</td>
</tr>
<tr>
<td>Venezuela</td>
<td>7 July 1948</td>
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<tr>
<td>Viet Nam</td>
<td>17 May 1950</td>
</tr>
<tr>
<td>Yemen</td>
<td>20 November 1953</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>19 November 1947</td>
</tr>
</tbody>
</table>

### Associate Members

<table>
<thead>
<tr>
<th>Associate Member</th>
<th>Date of admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federation of Nigeria</td>
<td>9 May 1956</td>
</tr>
<tr>
<td>Federation of Rhodesia and Nyasaland</td>
<td>14 May 1954</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>9 May 1956</td>
</tr>
</tbody>
</table>

---

1. Previously an Associate Member (from 12 May 1952)
2. Southern Rhodesia was an Associate Member from 16 May 1950.
Annex 3

TECHNICAL PREPARATORY COMMITTEE
FOR THE INTERNATIONAL HEALTH CONFERENCE
Paris, 18 March–5 April 1946
MEMBERS AND OTHER PARTICIPANTS

Members, Alternates and Advisers

Dr René Sand, Technical Counsellor, Ministry of Health, Brussels, Belgium, Chairman

Dr Manuel Martínez Baez, former Chief Health Officer, Mexico City, Mexico; Representative of Mexico to UNESCO, Vice-Chairman

Dr Brock Chisholm, Deputy Minister of National Health, Ottawa, Canada, Rapporteur

Dr Gregorio Bermann, former Professor, University of Córdoba, Argentina

Dr Joseph Cancek, Professor of Hygiene, University of Prague, Czechoslovakia

Dr André Cavaillon, Secretary-General, Ministry of Health, Paris, France

Advisers:

Dr Xavier Leclainche, Inspector-General of Health, Ministry of Health, Paris

Médecin-Grand Marcel Vaucel, Director, Health Service, Ministry of French Overseas Territories, Paris

Dr Aly Tewfik Shousha, Under-Secretary of State, Ministry of Public Health, Cairo, Egypt

Alternate:

Dr Wasfy Omar, Deputy Director-General, Quarantine Administration, Alexandria

Dr Karl Evang, Director-General of Public Health, Oslo, Norway

Sir Wilson Jameson, Chief Medical Officer, Ministry of Health, London, United Kingdom of Great Britain and Northern Ireland

Alternate:

Dr Melville D. MacKenzie, Principal Medical Officer, Ministry of Health, London

Adviser:

Mr Gilbert Yates, Assistant Secretary, Ministry of Health, London
ANNEX 3

Dr Marcin KACPRZAK, President of the National Health Council, Warsaw, Poland

Dr Phokion KOPANARIS, Director-General, Ministry of Health, Athens, Greece

Alternate:
Mr Jean RAZIS, Chief, International Sanitary Conventions Section, Ministry of Health, Athens

Adviser:
Mr Charis STEPHOPOULOS, Chief of Section, Ministry of Health, Athens

Dr C. MANI, Indian Medical Service, Deputy Public Health Commissioner, New Delhi, India

Adviser:
Dr Chuni Lal KATIAL, Chairman, Medical Board, Ministry of Pensions, London, England

Dr Thomas PARRAN, Surgeon-General, US Public Health Service, Washington, D.C., United States of America

Alternate:
Dr James A. DOULL, Chief, Office of International Health Relations, US Public Health Service, Washington, D.C.

Advisers:
Miss Marcia MAYLOTT, Technical Adviser, State Department, Washington, D.C.

Dr Geraldo H. DE PAULA SOUZA, Professor, University of São Paulo, Brazil

Dr Andrija STAMPAR, Professor, Rector of the University of Zagreb, Yugoslavia

Dr Szeming SZE, Senior Technical Expert, National Health Administration of China, Chinese Embassy, Washington, D.C.

Observers

Pan American Sanitary Bureau

Dr Hugh CUMMING, Director

Dr Aristides A. MOLL, Secretary

League of Nations Health Organisation

Dr Jacques PARISOT, Chairman, Health Committee

Dr Yves M. BIRAUD, Head, Service of Epidemiological Intelligence and Public Health Statistics
United Nations Relief and Rehabilitation Administration

Dr Andrew Topping, Assistant Director, Relief Services, European Regional Office

Dr Neville Goodman, Director, Health Division, European Regional Office

Dr M. Gaud, Chief Medical Officer, UNRRA Mission to France

Office International d'Hygiène Publique

Dr M. T. Morgan, Medical Officer of Health, Port of London Health Authority

Dr Robert Pierret, Director-General
Annex 4

INTERNATIONAL HEALTH CONFERENCE
New York, 19 June – 22 July 1946

1. PARTICIPATING STATES AND ORGANIZATIONS

STATES MEMBERS OF THE UNITED NATIONS REPRESENTED BY DELEGATIONS

Argentina, Australia, Belgium, Bolivia, Brazil, Byelorussian Soviet Socialist Republic, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, France, Greece, Guatemala, Haiti, Honduras, India, Iran, Iraq, Lebanon, Liberia, Luxembourg, Mexico, Netherlands, New Zealand, Nicaragua, Norway, Panama, Paraguay, Peru, Poland, Philippines, Saudi Arabia, Syria, Turkey, Ukrainian Soviet Socialist Republic, Union of South Africa, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela, Yugoslavia.

STATES NON-MEMBERS OF THE UNITED NATIONS REPRESENTED BY OBSERVERS

Albania, Austria, Bulgaria, Finland, Hungary, Iceland, Ireland, Italy, Portugal, Siam, Sweden, Switzerland, Transjordan.

ALLIED CONTROL AUTHORITIES REPRESENTED BY OBSERVERS

Authorities for Germany, and for Japan and Korea.

ORGANIZATIONS REPRESENTED BY OBSERVERS


1 The Governments of Afghanistan, Romania and Yemen were invited to send observers but were not represented.
2. OFFICERS OF THE CONFERENCE AND CHAIRMEN OF COMMITTEES

OFFICERS OF THE CONFERENCE

President:

Dr Thomas Parran, Surgeon-General, US Public Health Service United States of America

Vice-Presidents:

Dr Geraldo H. de Paula Souza, Director, Faculty of Hygiene and Public Health, University of São Paulo Brazil

Dr James Kofoi Shen, Deputy Director-General, National Health Administration, Nanking China

Dr André Cavillon, Secretary-General, Ministry of Health France

Dr Fedor Grigorievitch Krotkov, Deputy Minister of Public Health Union of Soviet Socialist Republics

Sir Wilson Jameson, Chief Medical Officer, Ministry of Health United Kingdom of Great Britain and Northern Ireland

Secretary-General ex officio:

Professor Henri Laugier, Assistant Secretary-General in charge of the Department of Social Affairs, United Nations

Secretary:

Dr Yves M. Biraud, Counsellor, Head of the Epidemiological Intelligence Service, League of Nations; in charge of the Health Division, United Nations

Assistant Secretaries:

Mr Zygmunt Deutschman, Deputy Chief, Epidemiological Information Service, UNRRA; Health Division, United Nations

Mr Walter R. Sharp, Professor of Public Administration, New York City College; Health Division, United Nations

CHAIRMEN OF COMMITTEES

General Committee:

Dr Thomas Parran, Surgeon-General, US Public Health Service United States of America

Credentials Committee:

Dr Aly Tewfik Shousha, Under-Secretary of State, Ministry of Public Health Egypt

Committee on Rules of Procedure:

Dr André Cavillon, Secretary-General, Ministry of Health France
Working Committees:

Committee I — Scope and Functions of the World Health Organization:
Dr Aly Tewfik Shousha, Under-Secretary of State, Ministry of Public Health

Committee II — Administration and Finance:
Dr Brock Chisholm, Deputy Minister of National Health

Committee III — Legal Questions:
Dr Karl Evang, Director-General of Public Health

Committee IV — Relations with the United Nations and other Organizations:
Dr A. Gabaldon, Chief, Malaria Division, Ministry of Health and Welfare, Maracay

Committee V — Regional Arrangements:
Dr W. Aeg. Timmerman, Director, National Institute of Public Health, Utrecht

Central Drafting Committee:
Dr Melville D. Mackenzie, Principal Medical Officer, Ministry of Health

United Kingdom of Great Britain and Northern Ireland
MEMBERSHIP OF THE INTERIM COMMISSION

The Interim Commission of the World Health Organization was set up by paragraph I of the Arrangement of 22 July 1946 concluded by the governments represented at the International Health Conference.

The following eighteen States were entitled to designate persons "technically qualified in the field of health" to serve on it: 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, Yugoslavia.

The Interim Commission held five sessions:
- First session, New York, 19 - 23 July 1946
- Second session, Geneva, 4 - 13 November 1946
- Third session, Geneva, 31 March - 12 April 1947
- Fourth session, Geneva, 30 August - 13 September 1947

The persons designated by the eighteen States were as follows:

Australia
- Sir Raphael CILENTO, Director-General of Health and Medical Services, State of Queensland (two meetings only)
- Mr A. H. TANGE, First Secretary, Australian Mission to the United Nations, New York, N.Y., United States of America
- Dr G. M. REDSHAW, Chief Medical Officer, Australia House, London, England

Brazil
- Dr G. H. DE PAULA SOUZA, Director, Faculty of Hygiene and Public Health, University of São Paulo (Vice-Chairman at fourth and fifth sessions)

Canada
- Dr Brock CHISHOLM, Deputy Minister of National Health, Ottawa
- Dr T. C. ROUTLEY, General Secretary, Canadian Medical Association, Toronto (Alternate at third and fourth sessions)

1 Elected Executive Secretary at the first session
The Hon. Brooke CLAXTON, Minister of National Health and Welfare, Ottawa 2 (first meeting only)

Dr G. D. W. CAMERON, Deputy Minister of National Health, Ottawa 3, 4

Dr F. W. JACKSON, Deputy Minister, Department of Health and Public Welfare, Province of Manitoba 5

**China**

Dr J. K. SHEN, Deputy Director-General, National Health Administration, Nanking 1 (first meeting only)

Dr Szeming SzE, Resident Representative of the National Health Administration of China, Washington, D.C., United States of America, Vice-Chairman (Alternate at fourth session)

Dr P. Z. KING, Vice-Minister of Health, Nanking 4

Dr T. L. Su, Technical Expert, National Health Administration of China; School of Pathology, University of Oxford, England (Alternate)

**Egypt**

Dr A. T. SHOUSHA, Under-Secretary of State, Ministry of Public Health, Cairo, Vice-Chairman

**France**

Dr X. LECLAINCHE, Inspector-General of Health, Ministry of Health, Paris (Alternate at second, fourth and fifth sessions)

Professor J. PARISOT, Professor of Hygiene, Faculty of Medicine, Nancy 1 (three meetings only)

Dr A. CAVAILLON, Director-General of Health, Ministry of Health, Paris 2, 3, 4, 5

Dr H. Y. SAUTTER, Inspector of Health, Ministry of Health, Paris 2, 3 (Alternate)

Dr M. A. VAUCEL, Director, Health Service, Ministry of French Overseas Territories, Paris (Alternate)

**India**

Dr C. K. LAKSHMANAN, All-India Institute of Hygiene and Public Health, Calcutta 1

Dr C. MANI, Deputy Director-General of Health Services, New Delhi 1, 2, 3, 4, 5 (Alternate at first session)
Liberia
Dr J. N. Togba, Acting Director of Public Health and Sanitation, 1, 2
Monrovia

Mexico
Dr O. S. Mondragón, Under-Secretary, Ministry of Health and Welfare, Mexico, D.F. (Vice-Chairman, at first session)
Dr M. Martínez Baez, Permanent Representative of Mexico to 2, 3
UNESCO, Paris, France

Netherlands
Dr C. Van den Berg, Director-General of Public Health, Ministry of Social Affairs, The Hague
Dr W. Aeg. Timmerman, Director, National Institute of Public Health, Utrecht (Alternate)
Dr C. Banning, Chief Medical Officer of Health, The Hague 2, 3, 4, 5 (Alternate)

Norway
Dr K. Evang, Director-General of Public Health, Oslo 1, 2, 3, 4, 5
Dr H. T. Sandberg, Department of Public Health, Oslo (Alternate) 1
Dr J. Bjornsson, Chief, Section for Epidemiology and Hygiene, Ministry of Social Affairs, Oslo (Alternate)

Peru
Dr C. E. Paz Soldán, Professor of Hygiene, Faculty of Medicine, 1, 3, 4
University of San Marcos, Lima

Ukrainian Soviet Socialist Republic
Dr L. I. Medved, Deputy Minister of Public Health, Kiev 1
Dr N. Baran, Vice-Minister of Public Health, Kiev 5

Union of Soviet Socialist Republics
Dr F. G. Krotkov, Deputy Minister of Public Health; Member, 1, 2
Academy of Medical Sciences of the USSR, Moscow (Temporary Chairman, at first session)
Dr S. Kolesnikov, President, Alliance of Red Cross and Red Crescent Societies, Moscow
Dr N. Vinogradov, Vice-Minister of Public Health, Moscow 4, 5
United Kingdom of Great Britain and Northern Ireland

Dr Melville D. MACKENZIE, Principal Medical Officer, Ministry of Health, London

Sir William JAMESON, Chief Medical Officer, Ministry of Health, London (first three meetings only)

Mr G. E. YATES, Assistant Secretary, Ministry of Health, London

Mr L. M. FEERY, Principal, General Register Office, London

Dr W. H. KAUNTZE, Chief Medical Adviser, Colonial Office, London

Mr L. M. FEERY, Principal, General Register Office, London (Alternate)

Dr Wilson RAE, Deputy Medical Adviser, Colonial Office, London (Alternate)

United States of America

Dr T. PARRAN, Surgeon-General, US Public Health Service, Washington, D.C.


Venezuela

Dr A. ARREAZA GUZMÁN, Director of Public Health, Ministry of Health and Welfare, Caracas

Dr A. GABALDÓN, Chief, Malaria Division, Ministry of Health and Welfare, Maracay

Dr D. CASTILLO, Assistant to the Director of Public Health, Ministry of Health and Welfare, Caracas

Dr D. CURIEL, Medical Chief, Division of Epidemiology and Vital Statistics, Ministry of Health and Welfare, Caracas (Alternate)

Yugoslavia

Dr A. ŠTAMPAR, President, Yugoslav Academy of Sciences and Arts; Professor of Public Health and Social Medicine, University of Zagreb, Chairman

Dr B. JUZBAŠIĆ, Professor, Medical School of Skopje (Alternate)

Dr P. GREGORIĆ, Minister, Government of the People's Republic of Croatia; President, Public Health Protection Committee, Belgrade (Alternate)
WORLD HEALTH ASSEMBLIES, 1948–1957
PRESIDENTS, VICE-PRESIDENTS
AND CHAIRMEN OF MAIN COMMITTEES

First World Health Assembly, Geneva, 24 June - 24 July 1948

President:
Dr A. Štampar, President, Yugoslav Academy of Sciences and Arts; Professor of Public Health and Social Medicine, University of Zagreb

Yugoslavia

Vice-Presidents:
Rajkumari Amrit Kaur, Minister of Health
Indonesia

Dr A. T. Shousha, Under-Secretary of State, Ministry of Public Health
Egypt

Dr G. H. de Paula Souza, Professor and Director, Faculty of Hygiene and Public Health, University of São Paulo
Brazil

Chairmen of Main Committees

Committee on Programme:
Dr K. Evang, Director-General of Public Health
Norway

Committee on Administration and Finance:
Dr M. Kacprzak, Professor of Hygiene; Director, State School of Hygiene; President, National Health Council
Poland

Committee on Relations:
Dr Melville D. Mackenzie, Principal Medical Officer, Ministry of Health
United Kingdom of Great Britain and Northern Ireland

Committee on Headquarters and Regional Organization:
Dr J. Zozaya, Technical Adviser, Ministry of Health and Welfare
Mexico

Legal Committee:
Dr C. van den Berg, Director-General of Public Health, Ministry of Social Affairs
Netherlands
Second World Health Assembly, Rome, 13 June - 2 July 1949

Honorary President:
Professor M. COTELLESSA, High Commissioner for Hygiene and Public Health

President:
Dr K. EVANG, Director-General of Public Health

Vice-Presidents:
Mr S. W. R. D. BANDARANAIKE, Minister of Health and Local Government
Dr N. SCANDER, Minister of Public Health
Dr J. ZOZAYA, Technical Adviser, Ministry of Health and Welfare

Chairmen of Main Committees

Committee on Programme:
Dr H. van Zile HYDE, Medical Director, US Public Health Service

Committee on Administration and Finance:
Dr B. Schober, Head, Department of Foreign Relations, Ministry of Health

Committee on Constitutional Matters:
Dr P. Volleneider, Director, Federal Service of Public Health

Third World Health Assembly, Geneva, 8 - 27 May 1950

President:
Rajkumari AMRIT KAUR, Minister of Health

Vice-Presidents:
Professor G. A. CANAPERIA, Chief Medical Officer, Office of the High Commissioner for Hygiene and Public Health
Dr H. P. Frôes, Director-General, National Department of Health
Dr M. JAFAR, Director-General of Health

Chairmen of Main Committees

Committee on Programme:
Dr J. A. HÖFER, Director-General of Public Health

Committee on Administration, Finance and Legal Matters:
Dr J. H. HOLM, Chief, Tuberculosis Division, Statens Seruminstitut, Copenhagen
Fourth World Health Assembly, Geneva, 7-25 May 1951

President:
Dr L. A. Scheele, Surgeon-General, US Public Health Service United States of America

Vice-Presidents:
Dr D. A. Dowling, Chief Medical Officer, Australia House, London Australia
Dr A. H. Taba, Chief, Health Department, State Railways Iran
Dr K. Evangel, Director-General of Health Services Norway

Chairmen of Main Committees
Committee on Programme:
Dr M. Jafar, Director-General of Health Pakistan

Committee on Administration, Finance and Legal Matters:
Professor G. A. Canaparia, Chief Medical Officer, Office of the High Commissioner for Hygiene and Public Health Italy

Committee on International Sanitary Regulations:
Dr M. T. Morgan, Medical Officer, Port of London Authority United Kingdom of Great Britain and Northern Ireland

Fifth World Health Assembly, Geneva, 5-22 May 1952

President:
Dr J. Salcedo, Jr, Secretary of Health Philippines

Vice-Presidents:
Dr A. Bellerive, Director-General, Public Health Service Haiti
Dr J. N. Togba, Director of Public Health and Sanitation Liberia
Dr P. Vollenweider, Director, Federal Service of Public Health Switzerland

Chairmen of Main Committees
Committee on Programme and Budget:
Dr N. Romero, Director-General of Health Chile

Committee on Administration, Finance and Legal Matters:
Sir Arcot Mudaliar, Vice-Chancellor, University of Madras India
Sixth World Health Assembly, Geneva, 5 - 22 May 1953

President:
Dr M. KHATER, Minister of Health

Vice-Presidents:
Dr S. ANWAR, Director, Public Health Service, East Java
Dr R. C. BUSTAMANTE, Under-Secretary of State for Health and Welfare
Dr Melville MACKENZIE, Principal Medical Officer, Ministry of Health

Chairmen of Main Committees

Committee on Programme and Budget:
Dr O. LEROUX, Assistant Director, Department of National Health and Welfare

Committee on Administration, Finance and Legal Matters:
Mr T. J. BRADY, Assistant Secretary, Department of Health

Seventh World Health Assembly, Geneva, 4 - 21 May 1954

President:
Dr J. N. TOGBA, Director-General of National Health Services

Vice-Presidents:
Dr Y. BAHR, Director-General, Ministry of Health
Sir Claude COREA, High Commissioner for Ceylon in the United Kingdom
Professor F. HURTADO, Ambassador to International Organizations; Professor of Paediatrics, Havana Medical School

Chairmen of Main Committees

Committee on Programme and Budget:
Dr E. J. Y. AUJALEU, Director of Social Hygiene, Ministry of Health

Committee on Administration, Finance and Legal Matters:
Dr M. JAFAR, Director-General of Health and Joint Secretary, Ministry of Health and Works
Eighth World Health Assembly, Mexico, D.F., 10 - 27 May 1955

President:
Dr I. MORONES PRIETO, Minister of Health and Welfare

Vice-Presidents:
Dr J. GRATZER, Deputy Director-General of Public Health, Federal Ministry of Social Affairs
Sir Arcot MUDALIAR, Vice-Chancellor, University of Madras
Dr S. AL-WAHBI, Director, Karkh Hospital, Ministry of Health

Chairmen of Main Committees
Committee on Programme and Budget:
Professor G. A. CANAPERIA, Director of International and Cultural Relations, Office of the High Commissioner for Hygiene and Public Health

Committee on Administration, Finance and Legal Matters:
Dr P. E. MOORE, Director, Indian Health Services, Department of National Health and Welfare

Ninth World Health Assembly, Geneva, 8 - 25 May 1956

President:
Professor J. PARISOT, Honorary Dean of the Faculty of Medicine, Nancy

Vice-Presidents:
Dr Nor-el-Din TARRAF, Minister of Public Health
Dr B. M. CLARK, Deputy Chief Health Officer
Dr E. de Paiva Ferreira BRAGA

Chairmen of Main Committees
Committee on Programme and Budget:
Dr M. JAFAR, Director-General of Health and Joint Secretary, Ministry of Health

Committee on Administration, Finance and Legal Matters:
Mr W. H. BOUCHER, Assistant Secretary, Ministry of Health

490 THE FIRST TEN YEARS
Tenth World Health Assembly, Geneva, 7 - 24 May 1957

President:
Dr S. Al-Wahbi, Director, Karkh Hospital, Ministry of Health    Iraq

Vice-Presidents:
Dr M. El Materi, Minister of Health    Tunisia
Dr D. A. Cameron, Minister for Health    Australia
Dr O. Vargas-Méndez, Director-General of Health    Costa Rica

Chairmen of Main Committees

Committee on Programme and Budget:
Dr B. M. Clark, Deputy Chief Health Officer    Union of South Africa

Committee on Administration, Finance and Legal Matters:
Mr Akira Saita, Councillor, Ministry of Health and Welfare    Japan
**Annex 7**

**EXECUTIVE BOARD, 1948–1957**

1. **Chairmen of the Board and of its Standing Committees**

<table>
<thead>
<tr>
<th>Executive Board</th>
<th>Chairman</th>
<th>Designating State</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Session, 16-28 July 1948</td>
<td>Dr A. T. SHOUSHA</td>
<td>Egypt</td>
</tr>
<tr>
<td>Standing Committee on Administration and Finance</td>
<td>Dr A. T. SHOUSHA</td>
<td>Egypt</td>
</tr>
<tr>
<td>Second session, 25 Oct.-11 Nov. 1948</td>
<td>Dr A. T. SHOUSHA</td>
<td>Egypt</td>
</tr>
<tr>
<td>Standing Committee on Non- governmental Organizations</td>
<td>Dr G. H. DE PAULA SOUZA</td>
<td>Brazil</td>
</tr>
<tr>
<td>Third Session, 21 Feb.-9 March 1949</td>
<td>Dr A. T. SHOUSHA</td>
<td>Egypt</td>
</tr>
<tr>
<td>Fourth Session, 8-19 July 1949</td>
<td>Sir Arcot MUDALIAR</td>
<td>India</td>
</tr>
<tr>
<td>Fifth Session, 16 Jan.-2 Feb. 1950</td>
<td>Sir Arcot MUDALIAR</td>
<td>India</td>
</tr>
<tr>
<td>Standing Committee on Non- governmental Organizations</td>
<td>Dr G. H. DE PAULA SOUZA</td>
<td>Brazil</td>
</tr>
<tr>
<td>Standing Committee on Administration and Finance</td>
<td>Dr H. S. GEAR</td>
<td>Union of South Africa</td>
</tr>
<tr>
<td>Sixth Session, 1-9 June 1950</td>
<td>Dr H. S. GEAR</td>
<td>Union of South Africa</td>
</tr>
<tr>
<td>Standing Committee on Administration and Finance</td>
<td>Sir Arcot MUDALIAR</td>
<td>India</td>
</tr>
</tbody>
</table>

1 All sessions of the Board were held in Geneva except the sixteenth, which was held in Mexico City.
<table>
<thead>
<tr>
<th>Executive Board</th>
<th>Chairman</th>
<th>Designating State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seventh Session, 22 Jan - 5 Feb. 1951</td>
<td>Dr H. S. Gear</td>
<td>Union of South Africa</td>
</tr>
<tr>
<td>Standing Committee on Non-governmental Organizations</td>
<td>Dr A. Stampar</td>
<td>Yugoslavia</td>
</tr>
<tr>
<td>Standing Committee on Administration and Finance</td>
<td>Dr A. Stampar</td>
<td>Yugoslavia</td>
</tr>
<tr>
<td>Eighth Session, 1 - 8 June 1951</td>
<td>Professor J. Parisot</td>
<td>France</td>
</tr>
<tr>
<td>Standing Committee on Administration and Finance</td>
<td>Dr A. L. Bravo</td>
<td>Chile</td>
</tr>
<tr>
<td>Ninth Session, 21 Jan. - 4 Feb. 1952</td>
<td>Professor J. Parisot</td>
<td>France</td>
</tr>
<tr>
<td>Standing Committee on Non-governmental Organizations</td>
<td>Dr N. Karabuda</td>
<td>Turkey</td>
</tr>
<tr>
<td>Standing Committee on Administration and Finance</td>
<td>Dr A. L. Bravo</td>
<td>Chile</td>
</tr>
<tr>
<td>Tenth Session, 29 May - 3 June 1952</td>
<td>Dr M. Jafar</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Eleventh Session, 12 Jan. - 4 Feb. 1953</td>
<td>Dr M. Jafar</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Standing Committee on Administration and Finance</td>
<td>Dr M. Jafar</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Twelfth Session, 28 - 30 May 1953</td>
<td>Dr Melville Mackenzie</td>
<td>United Kingdom of Great Britain and Northern Ireland</td>
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<tr>
<td>Thirteenth Session, 12 Jan. - 2 Feb. 1954</td>
<td>Dr Melville Mackenzie</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>Standing Committee on Non-governmental Organizations</td>
<td>Professor O. Andersen</td>
<td>Denmark</td>
</tr>
</tbody>
</table>

1 The whole Board was established as the Standing Committee on Administration and Finance.
2 The Board itself acted as the Standing Committee on Administration and Finance without formally establishing itself as such.
Executive Board

Chairman

Designating State

Fourteenth Session, 27 - 28 May 1954

Dr H. van Zile Hyde

United States of America

Standing Committee on Administration and Finance

Dr H. B. Turbott

New Zealand

Fifteenth Session, 18 Jan. - 4 Feb. 1955

Dr H. van Zile Hyde

United States of America

Standing Committee on Non-gouvernmental Organizations

Professor O. Andersen

Denmark

Standing Committee on Administration and Finance

Dr H. B. Turbott

New Zealand

Sixteenth Session, 30 May 1955

Dr S. Al-Wahbi

Iraq

Standing Committee on Non-governmental Organizations

Dr S. Al-Wahbi

Iraq

Standing Committee on Administration and Finance

Dr J. J. Du Pré Le Roux

Union of South Africa

Dr F. J. Brady

United States of America

Eighteenth Session, 28 - 30 May 1956

Professor G. A. Canaperia

Italy

Standing Committee on Non-governmental Organizations

Professor G. A. Canaperia

Italy

Standing Committee on Administration and Finance

Dr B. M. Clark

Union of South Africa

Mr W. H. Boucher

United Kingdom of Great Britain and Northern Ireland

Twentieth Session, 27 - 28 May 1957

Sir John Charles

United Kingdom
### 2. Members entitled to designate a person to serve on the Executive Board 1948–1957

<table>
<thead>
<tr>
<th>For one year</th>
<th>For two years</th>
<th>For three years</th>
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<tr>
<td>Australia</td>
<td>Brazil</td>
<td>Byelorussian SSR</td>
<td>Philippines</td>
<td>Chile</td>
<td>Belgium</td>
<td>Brazil</td>
<td>Austria</td>
<td>Burma</td>
<td>Argentina</td>
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<td>Ceylon</td>
<td>China</td>
<td>ESR</td>
<td>Sweden</td>
<td>France</td>
<td>Ceylon</td>
<td>Canada</td>
<td>Costa Rica</td>
<td>Chile</td>
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<td>Iran</td>
<td>Egypt</td>
<td>India</td>
<td>Turkey</td>
<td>Italy</td>
<td>Cuba</td>
<td>Denmark</td>
<td>Indonesia</td>
<td>France</td>
<td>Iceland</td>
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<td>Norway</td>
<td>France</td>
<td>Netherlands</td>
<td>United Kingdom</td>
<td>Pakistan</td>
<td>Greece</td>
<td>Iran</td>
<td>Iraq</td>
<td>Japan</td>
<td>Mexico</td>
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<td>United Kingdom</td>
<td>Mexico</td>
<td>Poland</td>
<td>United States of America</td>
<td>El Salvador</td>
<td>Lebanon</td>
<td>New Zealand</td>
<td>Switzerland</td>
<td>Saudi Arabia</td>
<td>Pakistan</td>
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<tr>
<td>United States of America</td>
<td>USSR</td>
<td>South Africa</td>
<td>Yugoslavia</td>
<td>Brazil *</td>
<td>Liberia</td>
<td>United States of America</td>
<td>United Kingdom</td>
<td>Philippines</td>
<td>Syria</td>
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<td>Afghanistan</td>
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<td></td>
<td></td>
<td></td>
<td>United States of America</td>
</tr>
</tbody>
</table>

* Elected for one year only to replace the Byelorussian SSR.
EXPERT ADVISORY PANELS AND COMMITTEES

1. EXPERT ADVISORY PANELS

To supply the Organization with technical advice by correspondence and to provide the membership of its expert committees (and of the Committee on International Quarantine,¹) panels of experts have been established (see page 153). At the end of 1957 panels were in existence on the following subjects:

Addiction-producing Drugs
Antibiotics
Biological Standardization
Brucellosis
Cancer
Cholera
Chronic Degenerative Diseases
Dental Health
Environmental Sanitation
Health Education of the Public
Health Laboratory Methods
Health Statistics
Insecticides
International Pharmacopoeia and Pharmaceutical Preparations
International Quarantine
Leprosy
Malaria
Maternal and Child Health
Mental Health
Nursing
Nutrition
Occupational Health
Organization of Medical Care
Parasitic Diseases
Plague
Professional and Technical Education of Medical and Auxiliary Personnel
Public-Health Administration
Rabies
Radiation
Rehabilitation
Trachoma
Tuberculosis
Venerable Infections and Treponematoses (including Serology and Laboratory Aspects)
Virus Diseases
Yellow Fever
Zoonoses

¹ The Committee on International Quarantine, which has special functions defined by the Health Assembly (see p. 264), is for convenience included in this annex.

² The terms of reference of this panel cover the health aspects of the peaceful uses of atomic energy and also the health problems of x-radiation.
2. EXPERT COMMITTEES 1947–1957

Addiction-Producing Drugs,¹ Expert Committee on
Geneva, 24 - 29 Jan. 1949
Geneva, 9 - 14 Jan. 1950
Geneva, 7 - 12 Jan. 1952
Geneva, 22 - 27 June 1953
Geneva, 24 - 29 Oct. 1955
Geneva, 18 - 24 Oct. 1956
Geneva, 14 - 19 Oct. 1957

Air Pollution, Expert Committee on
Geneva, 18 - 23 Nov. 1957

Alcohol, Expert Committee on
Geneva, 5 - 10 Oct. 1953

Alcohol and Alcoholism, Expert Committee on

Antibiotics, Expert Committee on
Geneva, 11 - 15 April 1950

Bilharziasis, Expert Committee on
San Juan, Puerto Rico, 4 - 10 Oct. 1952

Biological Standardization, Expert Committee on
Geneva, 9 - 13 June 1947
Geneva, 18 - 23 March 1948
Geneva, 2 - 7 May 1949
Geneva, 6 - 11 Nov. 1950
Geneva, 3 - 8 Dec. 1951
Geneva, 26 - 31 Oct. 1953
Geneva, 8 - 13 Oct. 1956
Geneva, 16 - 21 Sept. 1957

Fat-Soluble Vitamins, Sub-Committee on
London, 26 - 29 April 1949

Brucellosis, Joint FAO/WHO Expert Committee on
Washington, D.C., 6 - 13 Nov. 1950
Florence, 13 - 18 Oct. 1952
Lima, 9 - 14 Oct. 1957

Cholera, Expert Committee on
New Delhi, 19 - 20 Nov. 1951

Environmental Sanitation, Expert Committee on
Geneva, 12 - 17 Sept. 1949
Geneva, 15 - 20 Oct. 1951
Geneva, 27 - 31 July 1953
Geneva, 26 July - 1 Aug. 1955

Food Additives, Joint FAO/WHO Expert Committee on
Rome, 3 - 10 Dec. 1956
Geneva, 17 - 24 June 1957

Health Education of the Public, Expert Committee on
Paris, 7 - 11 Dec. 1953

¹ Formerly “Habit-forming Drugs”, and “Drugs Liable to Produce Addiction”
Health Education of the Public, Expert Committee on the Training of Health Personnel in Geneva, 23 Oct. - 1 Nov. 1957

Health Laboratory Methods, Expert Committee on Geneva, 22 - 27 Oct. 1956

Health Statistics, Expert Committee on Geneva, 23 - 28 May 1949
Geneva, 18 - 21 April 1950
Geneva, 21 - 29 Nov. 1951
Geneva, 10 - 15 Dec. 1956

Cancer Statistics, Sub-Committee on 1 Paris, 6 - 10 March 1950
Paris, 18 - 21 Sept. 1951
Geneva, 9 - 14 Dec. 1957

Definition of Stillbirth and Abortion, Sub-Committee on Geneva, 27 Feb. - 3 March 1950

Hospital Statistics, Sub-Committee on Geneva, 11 - 14 April 1950

Hepatitis, Expert Committee on Liège, 21 - 26 July 1952

Hygiene of Seafarers, Joint ILO/WHO Committee on Geneva, 12 - 14 Dec. 1949
Geneva, 9 - 12 April 1954

Influenza, Expert Committee on Geneva, 8 - 12 Sept. 1952

Insect Resistance and Vector Control, Expert Committee on Geneva, 18 - 23 Nov. 1957

Insecticides, Expert Committee on Cagliari, Sardinia, 10 - 15 May 1949
Geneva, 4 - 11 Oct. 1950
Savannah, Ga., 30 July - 4 Aug. 1951
Geneva, 28 Nov. - 4 Dec. 1951
Maracay, Venezuela, 2 - 11 Sept. 1954
Geneva, 4 - 11 Oct. 1955
Geneva, 10 - 17 July 1956

International Epidemic Control, Expert Committee on Geneva, 12 - 17 April 1948

International Epidemiology and Quarantine, 2 Expert Committee on Geneva, 15 - 20 Nov. 1948
Geneva, 5 - 14 Dec. 1949
Geneva, 9 - 18 Oct. 1950

Legal Sub-Committee Geneva, 3 - 6 Feb. 1950
Geneva, 13 - 21 March 1950
Geneva, 2 - 9 Nov. 1950

Quarantine, Section on Geneva, 18 Nov. 1948
Geneva, 13 Dec. 1949
Geneva, 16 Oct. 1950

1 Formerly “Sub-Committee on the Registration of Cases of Cancer as well as their Statistical Presentation”

2 See also International Quarantine; Quarantine.
International Lists of Diseases and Causes of Death, Expert Committee for the Preparation of the Sixth Decennial Revision of the International Pharmacopoeia, ¹ Expert Committee on

- Ottawa, 10 - 21 March 1947
- Geneva, 4 - 7 May 1948
- Geneva, 31 May - 5 June 1948
- Geneva, 15 - 23 Oct. 1948
- Geneva, 20 - 30 April 1949
- New York, 20 - 29 April 1950
- Geneva, 30 Oct. - 4 Nov. 1950
- Geneva, 19 - 28 April 1951
- Geneva, 29 Oct. - 3 Nov. 1951
- Geneva, 23 - 30 April 1952
- Geneva, 29 June - 4 July 1953
- Geneva, 28 June - 3 July 1954
- Geneva, 26 April - 3 May 1956
- Geneva, 2 - 8 Oct. 1957
- Geneva, 6 - 7 Nov. 1950
- Geneva, 30 April - 1 May 1951
- Geneva, 5 Nov. 1951
- Geneva, 1 - 2 May 1952
- Geneva, 3 - 4 Nov. 1952
- Geneva, 13 - 15 June 1957
- Geneva, 19 Oct. - 4 Nov. 1953
- Geneva, 19 - 24 March 1956
- Geneva, 5 - 9 Nov. 1956
- Geneva, 21 - 26 Oct. 1957
- Rio de Janeiro, 10 - 15 Nov. 1952
- São Paulo, 17 - 19 Nov. 1952
- Geneva, 22 - 25 April 1947
- Washington, D.C., 19 - 25 May 1948
- Geneva, 10 - 17 Aug. 1949
- Kampala, Uganda, 11 - 16 Dec. 1950
- Istanbul, 7 - 12 Sept. 1953
- Athens, 20 - 28 June 1956

¹ Formerly “Unification of Pharmacopoeias”
² See footnote¹ on p. 496
<table>
<thead>
<tr>
<th>Committee/Committees/Committee on</th>
<th>Date of Meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternity Care, Expert Committee on</td>
<td>Geneva, 5 - 9 Nov. 1951</td>
</tr>
<tr>
<td>Medical Care, Expert Committee on Organization of</td>
<td>Geneva, 18 - 23 June 1956</td>
</tr>
<tr>
<td>Mental Health Aspects of Adoption, Joint UN/WHO Meeting of Experts on</td>
<td>New York, 15 - 20 Sept. 1952</td>
</tr>
<tr>
<td>Mentally Subnormal Child, Joint Expert Committee on</td>
<td>Geneva, 16 - 21 Feb. 1953</td>
</tr>
<tr>
<td>Midwifery Training, Expert Committee on</td>
<td>The Hague, 2 - 7 Aug. 1954</td>
</tr>
<tr>
<td>Milk Hygiene, Joint FAO/WHO Expert Committee on</td>
<td>Geneva, 25 - 30 June 1956</td>
</tr>
<tr>
<td>Onchocerciasis, Expert Committee on</td>
<td>Mexico City, 23 Nov. - 1 Dec. 1953</td>
</tr>
<tr>
<td>Physically Handicapped Child, Joint Expert Committee on</td>
<td>Geneva, 3 - 8 Dec. 1951</td>
</tr>
</tbody>
</table>

1 Convened by WHO with the participation of the United Nations, ILO and UNESCO
Poliomyelitis, Expert Committee on
Rome, 14 - 19 Sept. 1953
Geneva, 15 - 20 July 1957

Prematurity, Expert Group on
Geneva, 17 - 21 April 1950

Professional and Technical Education of Medical
and Auxiliary Personnel, Expert Committee on
Geneva, 6 - 10 Feb. 1950
Nancy, 3 - 9 Dec. 1952
Geneva, 24 - 29 Oct. 1955
Geneva, 23 - 28 Sept. 1957¹
Geneva, 25 - 29 Nov. 1957²

Psychiatric Nursing, Expert Committee on
Geneva, 29 Aug. - 3 Sept. 1955

Public-Health Administration, Expert Committee on
Geneva, 3 - 7 Dec. 1951
Geneva, 21 - 26 Sept. 1953

Quarantine, Expert Committee on³
Revision of the Pilgrimage Clauses of the
International Sanitary Conventions,
Expert Sub-Committee for the
Alexandria, 16 - 26 April 1947

Rabies, Expert Committee on
Geneva, 17 - 22 April 1950
Rome, 14 - 19 Sept. 1953
Paris, 26 Nov. - 1 Dec. 1956

Rheumatic Diseases, Expert Committee on
Geneva, 21 Aug. - 4 Sept. 1953
Geneva, 1 - 5 Oct. 1956

School Health Services, Expert Committee on
Geneva, 7 - 12 Aug. 1950

Trachoma, Expert Committee on
Geneva, 3 - 8 March 1952
Geneva, 7 - 14 Sept. 1955

Tuberculosis, Expert Committee on
Paris, 30 July - 2 Aug. 1947
Geneva, 17 - 20 Feb. 1948
Paris, 30 Sept. - 4 Oct. 1948
Copenhagen, 26 - 30 July 1949
Geneva, 11 - 16 Sept. 1950
Copenhagen, 30 Nov. - 4 Dec. 1953

Tuberculin and BCG, Sub-Committee on
Paris, 15 June 1948

Vaccination against Tuberculosis, Expert Com-
mittee on
Copenhagen, 30 Nov. - 4 Dec. 1953

¹ On post-graduate training in the public-health aspects of atomic energy
² On introduction of radiation medicine into the undergraduate curriculum
³ See also International Epidemiology and Quarantine; International Quarantine.
Venereal Infections and Treponematoses, Expert Committee on

Geneva, 12-16 Jan. 1948
Paris, 15-19 Oct. 1948
Washington, D.C., 10-20 Oct. 1949
London, 28 July-2 Aug. 1952

Serology and Laboratory Aspects, Sub-Committee on

Washington, D.C., 12-20 Oct. 1949
Paris, 23 Sept.-2 Oct. 1950
Copenhagen, 31 Aug.-5 Sept. 1953

Water Fluoridation, Expert Committee on

Geneva, 26-30 Aug. 1957

Yellow Fever, Expert Committee on

Geneva, 1-6 Dec. 1949
Kampala, Uganda, 14-19 Sept. 1953

Yellow Fever Vaccine, Expert Committee on

Geneva, 8-13 April 1957

Zoonoses, Joint FAO/WHO Expert Group on

Geneva, 11-16 Dec. 1950

* Formerly "Venereal Diseases", and "Venereal Infections"
Annex 9

TECHNICAL MEETINGS, 1947–1957

Accidents
Advisory Group on Prevention of Accidents in Childhood
Geneva, 4 - 8 June 1956

Air Pollution
Conference on Air Pollution
Milan, 6 - 14 Nov. 1957

Alcoholism
UN/WHO: Seminar and Lecture Course on Alcoholism
Copenhagen, 22 Oct. - 3 Nov. 1951
Seminar on Alcoholism
Buenos Aires, 3 - 23 May 1953
Seminar on Prevention and Treatment of Alcoholism
Noordwijk, 28 March - 10 April 1954

Atherosclerosis
Study Group on Atherosclerosis and Ischaemic Heart Diseases
Geneva, 7 - 11 Nov. 1955
Study Group on Classification of Atherosclerotic Lesions
Washington, D.C., 7 - 11 Oct. 1957

Atomic Energy in relation to Health
Consultant Group on Atomic Energy in relation to Medicine and Public Health
Study Group on Radiological Units and Radiological Protection
Geneva, 11 - 14 April 1956
Study Group on the Effect of Radiation on Human Heredity
Copenhagen, 7 - 11 Aug. 1956

Bilharziasis (Schistosomiasis)
Meeting of Schistosomiasis Specialists during the Fourth International Congress of Tropical Medicine and Malaria
Washington, D.C., 15 May 1948
Joint OIHP/WHO Study Group on Bilharziasis in Africa
Cairo, 24 - 29 Oct. 1949

1 In this annex are listed the meetings (conferences, study groups, seminars, etc.) which WHO organized or helped to organize during the period under review. For expert committees, see Annex 8.
Study Group on Bilharzia Snail Vector Identification and Classification  

Study Group on the Ecology of Intermediate Snail Hosts of Bilharziasis  
Paris, 3 - 9 Oct. 1956

African Conference on Bilharziasis  
Brazzaville, 26 Nov. - 8 Dec. 1956

Biological Standardization  
Study Group on Recommended Requirements for Biological Substances  
Geneva, 7 - 12 Oct. 1957

Brucellosis  
Inter-American Seminar on Brucellosis  
Santiago, Chile, 1 - 15 Dec. 1952

Cancer  
Consultant Group on Cancer  
Geneva, 22 June 1955

Study Group on Histological Definitions of Cancer Types  
Oslo, 24 - 28 June 1957

Child Health  
See Accidents; Maternal and Child Health; Mental Health

Cholera  
Joint OIHP/WHO Study Group on Cholera  
Paris, 5 - 7 April 1948

Joint OIHP/WHO Study Group on Cholera  

Joint OIHP/WHO Study Group on Cholera  
New Delhi, 15 - 21 Nov. 1949

Chronic Diseases  
Symposium on the Public-Health Aspects of Chronic Diseases  
Amsterdam, 30 Sept. - 5 Oct. 1957

Dental Health  
Dental Health Seminar  
Wellington, 4 - 21 May 1954

Consultant Group on Dental Health  

Diphtheria and Pertussis  
Conference on Diphtheria and Pertussis Vaccines  
Dubrovnik, 13 - 18 Oct. 1952

Education and Training  
European Study Conference on Undergraduate Training in Hygiene, Preventive Medicine and Social Medicine  
Nancy, 8 - 13 Dec. 1953

Conference on Post-graduate Teaching of Preventive and Social Medicine  
Göteborg, 6 - 10 July 1953

Seminar on Teaching of Preventive Medicine  
Viña del Mar, Chile, 10 - 15 Oct. 1955
ANNEX 9

Seminar on Teaching of Preventive Medicine
Conference on Teaching of Hygiene, Preventive and Social Medicine
Conference on Public-Health Training of General Practitioners
Study Group on the Teaching of Social and Preventive Medicine
Study Group on the Preventive Aspects in the Teaching of Physiology

Environmental Sanitation
Seminar on Environmental Sanitation
Seminar of European Sanitary Engineers
Seminar of European Sanitary Engineers
Seminar for Central American Sanitary Engineers
Seminar for Waterworks Operators
Study Group on Standard Methods for Analysing Water and on Standards of Water Quality
Seminar on Sanitary Engineering
Conference on Water Pollution and Water Chlorination
Seminar on Sanitary Engineering
Symposium on Training of Sanitary Engineers
Regional Advisory Group on Drinking-Water Standards
Environmental Sanitation Seminar
PASB/WHO Seminar on Sanitary Engineering
Regional Study Group on Drinking-Water Standards
Seminar on Environmental Sanitation
Regional Advisory Group on Drinking-Water Standards
Water Standards Study Group
Study Group on International Standards of Drinking-Water Quality
European Seminar for Sanitary Engineers

Tehuacán, Mexico, 23-28 April 1956
Zagreb, 2-6 July 1956
Geneva, 29 Oct.-2 Nov. 1956
Manila, 16-29 Oct. 1957
Geneva, 2-7 Dec. 1957
The Hague, 27 Nov.-2 Dec. 1950
Rome, 12-17 Nov. 1951
London, 27 Oct.-Nov. 1952
Managua, 10-13 Nov. 1952
New Delhi, 2-15 Dec. 1953
The Hague, 8-10 Dec. 1953
San José, Costa Rica, 17-24 March 1954
Opatija, 21-30 April 1954
Caracas, 17-31 May 1954
Oxford, 2-7 April 1955
Geneva, 26-29 July 1955
Kandy, Ceylon, 15-27 Aug. 1955
San Juan, Puerto Rico, 31 Oct.-10 Nov. 1955
Alexandria, 23-24 Nov. 1955
Ibadan, Nigeria, 12-17 Dec. 1955
Geneva, 12-17 March 1956
Geneva, 11-16 June 1956
Helsinki, 23-29 July 1956

1 With the Rockefeller Foundation
Environmental Sanitation Seminar
Taipeh, Taiwan, 14 Oct. - 1 Nov. 1956
Environmental Sanitation Seminar
Beirut, 29 Oct. - 10 Nov. 1956

Filariaasis
Study Group on Filariaasis
Kuala Lumpur, 6 - 15 Dec. 1955

Food Additives
WHO/FAO Joint Conference on Food Additives

Health Education of the Public
Conference on Health Education
London, 10 - 18 April 1953
Seminar on Health Education
Mexico City, 18 Sept. - 1 Oct. 1953
FAO/WHO: Seminar on Nutrition Education and Health Education
Baguio City, Philippines, 10 Oct. - 3 Nov. 1955
International Seminar on Health Education of the Public
Dakar, 25 - 30 March 1957
Conference on Health Education of the Public
Wiesbaden, 27 June - 5 July 1957

Health and Vital Statistics
International Conference for the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death
Paris, 2 - 30 April 1948
First Regional Conference on Health Statistics of the Eastern Mediterranean Region
Istanbul, 8 - 9 Sept. 1950
Inter-American Seminar on Biostatistics1
Santiago, Chile, 25 Sept. - 15 Dec. 1950
Conference on Morbidity Statistics
Geneva, 21 - 26 Nov. 1951
UN/WHO Western Pacific Regional Seminar on Vital and Health Statistics
Tokyo, 4 Aug. - 20 Sept. 1952
UN/WHO: International Conference of National Committees on Vital and Health Statistics
London, 12 - 17 Oct. 1953
Health Statistics Seminar
Santiago, Chile, 30 Nov. - 11 Dec. 1953
Advisory Group on Classification of Diseases
London, 15 - 20 Feb. 1954
International Conference for the Seventh Decennial Revision of the International Lists of Diseases and Causes of Death
Paris, 21 - 26 Feb. 1955
Study Group on the Measurement of Levels of Health
Health Statistics Seminar
Saigon, 3 - 28 April 1956

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1 With PASB, the Inter-American Statistical Institute, and the United States Public Health Service
ANNEX 9

CCTA/WHO: Seminar on Vital and Health Statistics
Seminar on Classification of Diseases

Immunization
Conference on Immunization

Influenza
Informal meeting of experts in connexion with
the Fourth International Microbiological Conference, for the purpose of obtaining
information on influenza

Insecticides
Symposium on Insect Control
FAO/WHO: Study Group on the Toxic Hazards of Pesticides to Man
Technical Conference on Insect Resistance to consider an International Collaborative Programme of Research

International Quarantine
Joint WHO/OIHP Study Group on Plague, Typhus and Some Diseases in respect of which Measures on an International Level may be required
Ad hoc Committee on Reservations to the International Sanitary Regulations
Seminar on the Application of the International Sanitary Regulations
Seminar on the Application of the International Sanitary Regulations

Laboratory Services
Advisory Group on Public-Health Laboratory Services

Leptospirosis
Study Group on Leptospirosis

Malaria
WHO/CCTA: Malaria Conference in Equatorial Africa

Brazzaville, 19 - 24 Nov. 1956
Caracas, 26 - 30 Aug. 1957
Frankfurt-am-Main, 15 - 20 March 1954
Copenhagen, 25 July 1947
Rome, 26 - 31 Oct. 1953
Geneva, 6 - 13 June 1956
Geneva, 25 - 31 July 1957
Paris, 31 March - 3 April 1948
Geneva, 18 - 24 March 1952
San José, Costa Rica, 22 - 27 Aug. 1955
Maracay, Venezuela, 21 - 25 Jan. 1957
Moscow, 14 - 19 Oct. 1957
Amsterdam, 2 - 4 Nov. 1955
Kampala, Uganda, 27 Nov. - 9 Dec. 1950
THE FIRST TEN YEARS

Malaria Conference
Malaria Conference for the Western Pacific and South-East Asia Regions
African Malaria Conference
Conference on Malaria Control
Conference on Malaria
Borneo Inter-territorial Malaria Conference
Borneo Inter-territorial Malaria Conference
Inter-regional Conference on Malaria for the Eastern Mediterranean and European Regions
Advisory Meeting on Malaria Eradication
Technical Meeting of Chiefs of Malaria Services
Antimalaria Co-ordination Board
Study Group on International Protection against Malaria
Borneo Inter-territorial Malaria Conference
Malaria Conference (for Eastern and South-Eastern European Countries)
Borneo Inter-territorial Malaria Conference
Meeting of Malarialogists
Borneo Inter-territorial Malaria Conference
Meeting on Malaria Eradication
Antimalaria Co-ordination Board
Malaria Symposium

Maternal and Child Health
Regional Seminar on Child Health
Seminar on Social Paediatrics
Seminar on Infant Metabolism
Seminar on Infant Metabolism
Expert Group on Prematurity
International Paediatric Association/WHO:
  Joint Working Conference of National Representatives of European Paediatric Associations on Paediatric Education in Europe

Bangkok, 21 - 24 Sept. 1953
Baguio City, 15 - 24 Nov. 1954
Lagos, 28 Nov. - 6 Dec. 1955
Belgrade, 12 - 14 Dec. 1955
Phnom-Penh, 10 - 12 Jan. 1956
Kuching, Sarawak, 22 Feb. 1956
Marudi, Sarawak, 16 - 19 May 1956
Athens, 11 - 19 June 1956
Athens, 27 - 29 June 1956
Nairobi, 5 - 8 Nov. 1956
Saigon, 15 - 19 Nov. 1956
Amsterdam, 4 - 7 Dec. 1956
Kuching, Sarawak, 6 - 7 Dec. 1956
Belgrade, 26 - 29 March 1957
Keningau, North Borneo, 2 - 6 April 1957
Brazzaville, 19 - 22 Nov. 1957
Labuan, North Borneo, 26 - 28 Nov. 1957
Baghdad, 7 - 12 Dec. 1957
Bangkok, 11 - 13 Dec. 1957
Bangkok, 13 - 20 Dec. 1957

New Delhi, 30 Dec. 1949 - 2 Jan. 1950
Geneva, 31 July - 5 Aug. 1950
Leyden, 15 - 30 Oct. 1950
Stockholm, 1 - 15 Nov. 1950
Geneva, 17 - 21 April 1951
Zurich, 2 - 4 March 1953

1 With UNICEF, the Council for the Co-ordination of International Congresses of Medical Sciences, and the International Congress of Paediatrics
Travelling Study Group on School Health Services

Study Group on Problems of the Perinatal Period

Conference on School Health Services

Study Conference on Care of Children in Hospitals

Study Group on Paediatric Education

Study Group on Paediatric Education

Study Group on Perinatal Mortality

Maternal and Child Health Seminar

Meat Hygiene

Seminar on Meat Hygiene

Medical Documentation

WHO/UNESCO: Interim Co-ordinating Committee on Medical and Biological Abstracting

WHO/UNESCO Co-ordinating Committee on Abstracting and Indexing in the Medical and Biological Sciences, Executive Committee

CIOMS/UNESCO/WHO: Joint Meeting on Medical Documentation

Mental Health

UNESCO/WHO: Study Group on Mental Hygiene in the Nursery School

UN/WHO: Scandinavian Seminar on Child Psychiatry and Child Guidance Work

UN/WHO: Joint Meeting of Experts on the Mental Health Aspects of Adoption

Study Group on the Psychobiological Development of the Child

Ad hoc Advisory Committee on Relations between Paediatricians and Child Psychiatrists

Seminar on Mental Health Aspects of Public Health Practice

Regional Seminar on Mental Health in Childhood

Mental Health Seminar

Denmark and Netherlands, 9 April - 1 May 1953

Brussels, 17 - 23 Sept. 1953

Grenoble, 14 - 19 June 1954

Stockholm, 2 - 11 Sept. 1954

Geneva, 1 June 1956

Stockholm, 30 July - 4 Aug. 1956

Dublin, 26 - 29 Nov. 1956

Cairo, 25 Nov. - 7 Dec. 1957

Copenhagen, 22 - 27 Feb. 1954

Paris, 1 - 4 June 1949

Paris, 28 - 29 Oct. 1949

Geneva, 31 July - 1 Aug. 1953

Paris, 19 - 22 Sept. 1951

Lillehammer, 21 April - 2 May 1952

New York, 15 - 20 Sept. 1952

Geneva, 26 - 30 Jan. 1953

Geneva, 6 - 7 Feb. 1953

Amsterdam, 12 - 24 July 1953

Sydney, 10 - 28 Aug. 1953

Beirut, 3 Nov. - 5 Dec. 1953
Study Group on the Psychobiological Development of the Child
Study Group on the Psychobiological Development of the Child
Study Group on Mental Health through Public Health Practice
Seminar on Mental Health
Advisory Committee on Mental Health Problems of Displaced Persons
Study Group on Juvenile Epilepsy
Seminar on Child Guidance
Study Group on the Psychobiological Development of the Child
Study Group on the Treatment and Care of Drug Addicts
Advisory Group on Human Relations and Mental Health in Industrial Units
UN/WHO: Seminar on the Mental Health of the Subnormal Child
Study Group on Schizophrenia
Study Group on Mental Health Aspects of Peaceful Uses of Atomic Energy
Study Group on Ataraxic and Hallucinogenic Drugs in Psychiatry

See also Nursing

Microbiology

International Symposium on Chemical Microbiology

Nursing

Working Conference on Public-Health Nursing
Working Conference on Nursing Education
PASB/WHO: Nursing Workshop
UNESCO/WHO: Regional Seminar on Nursing Education
Regional Nursing Conference
Nursing Education Conference

London, 7-13 Jan. 1954
Geneva, 17-23 Feb. 1955
Monaco, 18-28 April 1955
Montevideo, 18-30 July 1955
London, 6-12 Oct. 1955
Lausanne, 18-19 Sept. 1956
Geneva, 20-26 Sept. 1956
Geneva, 19-24 Nov. 1956
Geneva, 17-19 Dec. 1956
Oslo, 25 April - 3 May 1957
Geneva, 9-14 Sept. 1957
Geneva, 21-26 Oct. 1957
Geneva, 4-9 Nov. 1957
Geneva, 24 Mar. - 5 April 1952
Lima, 30 June - 8 Aug. 1952
Taiwan, 3-21 Nov. 1952
Rio de Janeiro, 19-23 July 1953
Kampala, Uganda, 28 Sept. - 7 Oct. 1953

1 With CIOMS and the Istituto Superiore di Sanità
2 With the Institute of Inter-American Affairs and the Rockefeller Foundation
Public-Health Nursing Conference  Mont - Pèlerin s/Vevey, Switzerland, 4 - 18 Oct. 1953
Nursing Education Seminar  Suva, Fiji, 4 - 28 July 1955
Study Group on Basic Nursing Curriculum  Brussels, 17 - 26 Nov. 1955
Conference on Post-Basic Nursing Education  Peebles, Scotland, 12 - 26 June 1956
Seminar for Nursing Leaders  Delhi, 6 - 25 Aug. 1956
Regional Nursing Congress  Mexico City, 9 - 15 Sept. 1956
Seminar on the Nurse in the Psychiatric Team  Noordwijk, 4 - 15 Nov. 1957
Advisory Group on Nursing Service  Geneva, 6 - 12 Dec. 1957
Administration

Nutrition

FAO/WHO: Ad hoc Joint Committee on Child Nutrition  Washington, D.C., July 1947
Study Group on Endemic Goitre  London, 8 - 12 Dec. 1952
Nutrition Conference (FAO/WHO Regional Nutrition Committee in South and East Asia)  Bandung, 23 - 30 June 1953
FAO/WHO/Josiah Macy Jr. Foundation: Meeting on Protein Malnutrition  Kingston, Jamaica, 2 - 6 Nov. 1953
FAO/WHO: Regional Nutrition Committee in South and East Asia  Tokyo, 25 Sept. - 2 Oct. 1956
See also Health Education of the Public

Onchocerciasis

Onchocerciasis Conference  Leopoldville, 1 - 6 Oct. 1954

Paediatrics

See Maternal and Child Health; Mental Health

Pharmaceutical Preparations

Study Group on Specifications for Pharmaceutical Preparations

Geneva, 4 - 8 Dec. 1956

Plague

Meeting of group of experts on plague reporting to the Executive Secretary of the Organizing Committee of the Fourth International Congress on Tropical Medicine and Malaria

Washington, D.C., 11 May 1948

Joint OIHP/WHO Study Group on Plague

Paris, 5 - 8 Oct. 1948

Poliomyelitis

Study Group on Poliomyelitis Vaccination

Stockholm, 21 - 25 Nov. 1955

Preventive and Social Medicine

See Education and Training

Public-Health Administration

Conference of Directors of Health Services of the South-East Asia Region

Kandy, Ceylon, 29 Sept. - 1 Oct. 1950

Travelling Study Group on Public-Health Administration

Belgium, Scotland and Sweden, 3 Sept. - 10 Oct. 1951

Travelling Study Group on Public-Health Administration

France and Norway, 6 Sept. - 5 Oct. 1952

Public-Health Administration Seminar

Egypt and Sudan, 15 Nov. - 3 Dec. 1955

Public-Health Conference and Study Tour

Japan and Taiwan, 13 - 30 Sept. 1957

Rural Health Conference

New Delhi, 14 - 26 Oct. 1957

Rabies

Inter-regional Rabies Conference and Seminar

Coonoor, India, 14 - 28 July 1952

Rehabilitation

Conference on Prosthetics

Copenhagen, 23 - 28 Aug. 1954

Study Group on the Rehabilitation of the Deaf and Partially Deaf Child


Rickettsioses

Joint OIHP/WHO Study Group on African Rickettsioses

Brazzaville, 8 - 14 Feb. 1950

See also Virus Diseases

Rural Health

See Public-Health Administration
School Health

See Maternal and Child Health

Smallpox

Joint OIHP/WHO Study Group on Smallpox
Paris, 8 - 10 April 1948

Joint OIHP/WHO Study Group on Smallpox
Paris, 18 - 19 Oct. 1948

Consultative Group on Laboratory Investigations of Dried Smallpox Vaccine
Geneva, 23 - 25 June 1952

Social and Occupational Health

UN/WHO: Social Welfare Seminar for Arab States in the Middle East
Cairo, 22 Nov. - 15 Dec. 1950

ILO/WHO: Meeting of Experts on Medical Selection of Migrants
Rome, 3 Sept. 1951

Consultative Group on Medical Aspects of Social Security
Geneva, 17 - 18 Dec. 1951

UN/WHO: European Seminar on Occupational Health
Leyden, 30 Nov. - 9 Dec. 1952

UN/WHO: Seminar on Rural Social Welfare in Latin America
Rio de Janeiro, Feb. 1953

ILO/WHO: Seminar on Occupational Health
Milan, 28 Sept. - 3 Oct. 1953

ILO/ICEM/WHO: Meeting of Experts on Medical Criteria for Selection of Migrants
Geneva, 8 - 11 Dec. 1953

Consultative Group on Medical Requirements for the Licensing of Motor Vehicle Drivers

UN/WHO: Advisory Group on Social and Medico-Social Work
Amsterdam, 5 - 9 Dec. 1955

Trachoma

Joint OIHP/WHO Study Group on Trachoma
Paris, 9 - 12 Oct. 1948

Treponematoses

See Venereal Diseases and Treponematoses

Tropical Diseases

Symposium on the Prophylactic and Therapeutic Aspects of Tropical Diseases
Beirut, 18 - 19 Nov. 1950

Tuberculosis

UNICEF/WHO: Joint Enterprise Meeting on BCG Vaccination Programme (Group 3)
Copenhagen, 8 - 11 Sept. 1949

1 With UNWRA, the American and French Universities, Beirut, and the United States Naval Research Unit, Cairo
UNICEF/WHO: Meeting on Streptomycin Therapy of Tuberculosis in Children and Adolescents
Paris, 8 - 9 Feb. 1950

UNICEF/WHO: BCG Conference for the Countries in the South-East Asia and Western Pacific Regions
Rangoon, 27 - 29 Sept. 1951

Pan-Pacific Conference on Tuberculosis
Manila, 13 - 19 April 1953

Study Group on Tuberculosis Control
Luxembourg, 28 Nov. - 2 Dec. 1955

Tuberculosis Workers' Meeting
New Delhi, 14 - 18 Jan. 1957

Study Group on Chemotherapy and Chemoprophylaxis in Tuberculosis Control
Copenhagen, 23 - 25 Sept. 1957

Veneral Diseases and Treponematoses

International Symposium on Syphilis
Helsinki, 4 - 10 Sept. 1950

International Symposium on Syphilis

International Symposium on Yaws Control
Bangkok, 14 - 22 March 1952

International Conference on Yaws Control
Enugu, Eastern Nigeria, 10-24 Nov. 1955

Yaws Co-ordination Meeting
Accra, 28 - 30 Aug. 1956

Seminar on Treponematosis Eradication
Port-au-Prince, Haiti, 21 - 27 Oct. 1956

Study Group on the Revision of the Brussels Agreement of 1924
Oslo, 3 - 10 Dec. 1956

Yaws Co-ordination Meeting
Brazzaville, 20 - 21 Aug. 1957

Veterinary Public Health

Advisory Group on Veterinary Public Health
Geneva, 6 - 10 June 1955

Seminar on Veterinary Public Health
Warsaw, 25 Nov. - 4 Dec. 1957

Virus Diseases

Seminar on the Public-Health Laboratory Aspects of Virus and Rickettsial Diseases
Madrid, 16 - 25 April 1956

Yellow Fever

Yellow Fever Seminar
Kampala, Uganda, 7 - 11 Sept. 1953

Zoonoses

FAO/WHO: Seminar on the Zoonoses
Vienna, 24 - 29 Nov. 1952
Annex 10

NON-GOVERNMENTAL ORGANIZATIONS
IN OFFICIAL RELATIONS WITH WHO

(as at 31 December 1957)

Biometric Society
Central Council for Health Education
Council for International Organizations of Medical Sciences
Fédération dentaire internationale
Inter-American Association of Sanitary Engineering
International Academy of Legal Medicine and of Social Medicine
International Association of Microbiological Societies
International Association for the Prevention of Blindness
International Commission on Radiological Protection
International Commission on Radiological Units and Measurements
International Committee of Catholic Nurses
International Committee of the Red Cross
International Confederation of Midwives
International Conference of Social Work
International Council of Nurses
International Diabetes Federation
International Federation of Gynecology and Obstetrics
International Federation for Housing and Town Planning
International Hospital Federation
International Hydatidological Association
International League against Rheumatism
International Leprosy Association
International Organization against Trachoma
International Paediatric Association
International Pharmaceutical Federation
International Society for Blood Transfusion
International Society for Criminology
International Society for the Welfare of Cripples
International Union against Cancer
International Union for Child Welfare
International Union for Health Education of the Public
International Union against Tuberculosis
International Union against Venereal Diseases and the Treponematoses
League of Red Cross Societies
Medical Women’s International Association

1 Particulars of these organizations may be found in the Yearbook of International Organizations, published by the Union of International Organizations (Palais d’Egmont, Brussels), an organization in official relationship with the United Nations.

2 In January 1958 official relations were established with three more non-governmental organizations—The International Fertility Association, the International Union of Local Authorities, and the Federation internationale de Médecine sportive.
Permanent Committee for the International Veterinary Congresses
World Confederation for Physical Therapy
World Federation for Mental Health
World Federation of Societies of Anaesthesiologists

World Federation of United Nations Associations
World Medical Association
World Union OSE (Child Relief and Health Protection of Jewish Populations)
World Veterans Federation
### Annex II

**ANNUAL DISTRIBUTION OF FELLOWSHIPS BY SUBJECT OF STUDY, 1947-1956**

*(Regular, Technical Assistance, and UNICEF Funds)*

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THE FIRST TEN YEARS

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<td></td>
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</tr>
<tr>
<td>Malaria</td>
<td>1</td>
<td>3</td>
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<td>15</td>
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<td>38</td>
<td>57</td>
<td>40</td>
<td>72</td>
<td>51</td>
<td>318</td>
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<tr>
<td>Venereal diseases and treponematoses</td>
<td>4</td>
<td>6</td>
<td>27</td>
<td>45</td>
<td>19</td>
<td>64</td>
<td>35</td>
<td>31</td>
<td>23</td>
<td>8</td>
<td>262</td>
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<tr>
<td>Tuberculosis</td>
<td>8</td>
<td>13</td>
<td>28</td>
<td>31</td>
<td>55</td>
<td>59</td>
<td>94</td>
<td>73</td>
<td>81</td>
<td>45</td>
<td>487</td>
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<tr>
<td>Other communicable diseases</td>
<td>13</td>
<td>22</td>
<td>8</td>
<td>12</td>
<td>28</td>
<td>130</td>
<td>61</td>
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<td>76</td>
<td>47</td>
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</tr>
<tr>
<td>Laboratory</td>
<td>16</td>
<td>14</td>
<td>10</td>
<td>21</td>
<td>19</td>
<td>47</td>
<td>35</td>
<td>40</td>
<td>41</td>
<td>39</td>
<td>282</td>
</tr>
<tr>
<td><strong>Total—Communicable Disease Services</strong></td>
<td>42</td>
<td>58</td>
<td>98</td>
<td>124</td>
<td>137</td>
<td>338</td>
<td>282</td>
<td>224</td>
<td>293</td>
<td>190</td>
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</tr>
<tr>
<td>Percentage of Total for Year</td>
<td>22%</td>
<td>25%</td>
<td>44%</td>
<td>31%</td>
<td>21%</td>
<td>30%</td>
<td>31%</td>
<td>29%</td>
<td>21%</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Medical Education, Clinical and Basic Medical Sciences</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Clinical Medicine</td>
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<td></td>
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</tr>
<tr>
<td>Surgery and Medicine</td>
<td>18</td>
<td>23</td>
<td>6</td>
<td>12</td>
<td>28</td>
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<td>Anaesthesiology</td>
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<td>14</td>
<td>29</td>
<td>17</td>
<td>16</td>
<td>19</td>
<td>12</td>
<td>126</td>
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<td>Radiology</td>
<td>8</td>
<td>7</td>
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<td>3</td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>39</td>
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</tr>
<tr>
<td>Haematology</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Other medical and surgical specialities</td>
<td>34</td>
<td>19</td>
<td>16</td>
<td>9</td>
<td>13</td>
<td>41</td>
<td>34</td>
<td>18</td>
<td>22</td>
<td>14</td>
<td>220</td>
</tr>
<tr>
<td><strong>Total—Clinical medicine</strong></td>
<td>65</td>
<td>52</td>
<td>23</td>
<td>37</td>
<td>61</td>
<td>114</td>
<td>87</td>
<td>68</td>
<td>79</td>
<td>73</td>
<td>659</td>
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<tr>
<td>Basic Medical Sciences and Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic medical sciences</td>
<td>14</td>
<td>21</td>
<td>12</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>16</td>
<td>109</td>
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<tr>
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<td>—</td>
<td>—</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>5</td>
<td>4</td>
<td>16</td>
<td>16</td>
<td>38</td>
<td>94</td>
</tr>
<tr>
<td><strong>Total—Basic Medical Sciences and Education</strong></td>
<td>14</td>
<td>21</td>
<td>16</td>
<td>6</td>
<td>12</td>
<td>14</td>
<td>12</td>
<td>26</td>
<td>28</td>
<td>54</td>
<td>203</td>
</tr>
<tr>
<td><strong>Total—Medical Education, Clinical and Basic Medical Sciences</strong></td>
<td>79</td>
<td>73</td>
<td>39</td>
<td>43</td>
<td>73</td>
<td>128</td>
<td>99</td>
<td>94</td>
<td>107</td>
<td>127</td>
<td>862</td>
</tr>
<tr>
<td>Percentage of Total for Year</td>
<td>39%</td>
<td>32%</td>
<td>17%</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
<td>13%</td>
<td>13%</td>
<td>10%</td>
<td>14%</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>199</td>
<td>228</td>
<td>224</td>
<td>396</td>
<td>662</td>
<td>1143</td>
<td>904</td>
<td>716</td>
<td>1020</td>
<td>904</td>
<td>6396</td>
</tr>
</tbody>
</table>
Annex 12

NUMBERS AND DISTRIBUTION OF STAFF, 1946–1957

1. INTERIM COMMISSION, 1946–1948

The figures below show the growth in the number of staff of the Interim Commission between 1 October 1946, when it came into being, and 1 April 1948, when it submitted its report to the First World Health Assembly.

<table>
<thead>
<tr>
<th>Distribution</th>
<th>1 October 1946</th>
<th>1 April 1948</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York (Headquarters of the Interim Commission)</td>
<td>5</td>
<td>32*</td>
</tr>
<tr>
<td>Geneva</td>
<td>3</td>
<td>115</td>
</tr>
<tr>
<td>Singapore Epidemiological Intelligence Station</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Field missions</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>15</strong></td>
<td><strong>197</strong></td>
</tr>
</tbody>
</table>

* Excluding consultants

2. WORLD HEALTH ORGANIZATION, 1948–1957

The following tables show the number of staff at 1 September 1948 immediately after the dissolution of the Interim Commission and, for purposes of comparison, the number at 31 December 1957.

<table>
<thead>
<tr>
<th>Distribution</th>
<th>1 September 1948</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headquarters (Geneva)</td>
<td>140</td>
</tr>
<tr>
<td>New York</td>
<td>25</td>
</tr>
<tr>
<td>Singapore Epidemiological Intelligence Station</td>
<td>9</td>
</tr>
<tr>
<td>Field missions and other</td>
<td>32</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>206</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution</th>
<th>31 December 1957</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headquarters</td>
<td>489</td>
</tr>
<tr>
<td>Other offices directly attached to Headquarters</td>
<td>12</td>
</tr>
<tr>
<td>Regional Offices</td>
<td>459</td>
</tr>
<tr>
<td>Area and Zone Offices</td>
<td>38</td>
</tr>
<tr>
<td>Field staff in countries</td>
<td>483</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>*<em>1481</em></td>
</tr>
</tbody>
</table>

* Including staff not paid from WHO funds, and excluding consultants
### 3. Numbers and Detailed Distribution of Staff

**As at 31 December 1957**

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Total</th>
<th>Technical Assistance</th>
<th>Regular Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Headquarters</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internationally recruited</td>
<td>245</td>
<td></td>
<td></td>
</tr>
<tr>
<td>locally recruited</td>
<td>243</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>488</td>
<td>38</td>
<td>450</td>
</tr>
<tr>
<td><strong>Regional Offices</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Africa</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internationally recruited</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>locally recruited</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td><strong>The Americas</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>internationally recruited</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>locally recruited</td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td><strong>South-East Asia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internationally recruited</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>locally recruited</td>
<td>87</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>110</td>
<td>37</td>
<td>73</td>
</tr>
<tr>
<td><strong>Europe</strong></td>
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</tr>
<tr>
<td>internationally recruited</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>locally recruited</td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>69</td>
<td>10</td>
<td>59</td>
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<tr>
<td><strong>Eastern Mediterranean</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>internationally recruited</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>locally recruited</td>
<td>61</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>86</td>
<td>15</td>
<td>71</td>
</tr>
<tr>
<td><strong>Western Pacific</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>internationally recruited</td>
<td>21</td>
<td></td>
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</tr>
<tr>
<td>locally recruited</td>
<td>50</td>
<td></td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td>71</td>
<td>11</td>
<td>60</td>
</tr>
</tbody>
</table>

---

1 Excluding consultants
2 Including United Nations Liaison Office, New York, and Tuberculosis Research Office, Copenhagen
3 Not including staff on PASB payroll
<table>
<thead>
<tr>
<th>Distribution</th>
<th>Total</th>
<th>Technical Assistance</th>
<th>Regular Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and Zone Offices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>38</td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>Field staff in countries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>471</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>477</td>
<td>327</td>
<td>150</td>
</tr>
<tr>
<td>UNICEF Liaison</td>
<td>4</td>
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<td>4</td>
</tr>
<tr>
<td>Tuberculosis Immunization Research Centre, Copenhagen</td>
<td>3</td>
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<td>3</td>
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<tr>
<td>UNRWA</td>
<td>4</td>
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<td>4</td>
</tr>
<tr>
<td>International Children's Centre, Paris</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1471</td>
<td>450</td>
<td>1021</td>
</tr>
<tr>
<td>Staff not paid from WHO funds</td>
<td>10</td>
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</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>1481</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Including staff of the Singapore Epidemiological Intelligence Station, but not including staff on PASB payroll
2 Appointed on reimbursable basis
## INCOME AND EXPENDITURE

**Annex 13**

---

### INCOME

<table>
<thead>
<tr>
<th>Description</th>
<th>1948</th>
<th>1949</th>
<th>1950</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Contributions from Member States</td>
<td>1 791 151</td>
<td>3 693 603</td>
<td>4 164 925</td>
</tr>
<tr>
<td>2. Allocations from Expanded Programme of Technical Assistance</td>
<td>1 878</td>
<td>395 647</td>
<td>535 585</td>
</tr>
<tr>
<td>3. Allocations from UNRRA</td>
<td>13 747</td>
<td>10 223</td>
<td>202 469</td>
</tr>
<tr>
<td>4. Assets of OIHP</td>
<td>10 223</td>
<td>202 469</td>
<td>55 207</td>
</tr>
<tr>
<td>5. UNICEF</td>
<td>10 223</td>
<td>202 469</td>
<td>55 207</td>
</tr>
<tr>
<td>6. Miscellaneous Income</td>
<td>10 223</td>
<td>202 469</td>
<td>55 207</td>
</tr>
<tr>
<td>7. Publications Revolving Fund</td>
<td>10 223</td>
<td>202 469</td>
<td>55 207</td>
</tr>
<tr>
<td>8. Assembly Suspension Account</td>
<td>10 223</td>
<td>202 469</td>
<td>55 207</td>
</tr>
<tr>
<td>9. Singapore Fund</td>
<td>10 223</td>
<td>202 469</td>
<td>55 207</td>
</tr>
<tr>
<td>10. Unexpended balances from Interim Commission budget</td>
<td>1 546 758</td>
<td>1 037 420</td>
<td>1 322 241</td>
</tr>
<tr>
<td>11. Unexpended balances from prior years' budgets</td>
<td>1 546 758</td>
<td>1 037 420</td>
<td>1 322 241</td>
</tr>
<tr>
<td>12. Transferred from Working Capital Fund</td>
<td>1 546 758</td>
<td>1 037 420</td>
<td>1 322 241</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>3 353 534</td>
<td>5 136 893</td>
<td>6 280 427</td>
</tr>
</tbody>
</table>

### EXPENDITURE

<table>
<thead>
<tr>
<th>Description</th>
<th>1948</th>
<th>1949</th>
<th>1950</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Organizational Meetings</td>
<td>26 912</td>
<td>214 901</td>
<td>200 691</td>
</tr>
<tr>
<td>World Health Assembly</td>
<td>164 979</td>
<td>122 955</td>
<td>122 955</td>
</tr>
<tr>
<td>Executive Board</td>
<td>44 175</td>
<td>48 245</td>
<td>48 245</td>
</tr>
<tr>
<td>Regional Committees</td>
<td>5 747</td>
<td>29 491</td>
<td>29 491</td>
</tr>
<tr>
<td><strong>Total 1—Organizational Meetings</strong></td>
<td>26 912</td>
<td>214 901</td>
<td>200 691</td>
</tr>
<tr>
<td>2. Operating Programme</td>
<td>749 499</td>
<td>3 745 982</td>
<td>5 313 922</td>
</tr>
<tr>
<td>Central Technical Services</td>
<td>220 251</td>
<td>1 076 636</td>
<td>1 451 488</td>
</tr>
<tr>
<td>Advisory Services</td>
<td>498 593</td>
<td>2 199 456</td>
<td>3 154 082</td>
</tr>
<tr>
<td>Regional Offices</td>
<td>12 435</td>
<td>328 159</td>
<td>574 219</td>
</tr>
<tr>
<td>Expert Committees</td>
<td>18 020</td>
<td>141 731</td>
<td>134 133</td>
</tr>
<tr>
<td><strong>Total 2—Operating Programme</strong></td>
<td>749 499</td>
<td>3 745 982</td>
<td>5 313 922</td>
</tr>
<tr>
<td>3. Administrative Services</td>
<td>197 909</td>
<td>722 505</td>
<td>961 751</td>
</tr>
<tr>
<td>4. Expenses of Interim Commission</td>
<td>1 820 431</td>
<td>1 037 420</td>
<td>1 483 719</td>
</tr>
<tr>
<td>5. Building Fund</td>
<td>1 037 420</td>
<td>1 322 241</td>
<td>1 483 719</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>3 832 171</td>
<td>6 005 629</td>
<td>7 960 083</td>
</tr>
</tbody>
</table>

---

1. Established by resolutions WHA3.105 and WHA4.40

2. These represent unexpended balances of fellowships and operational supplies and equipment carried forward to the following year in accordance with the appropriation resolutions. The difference between the unexpended balances
FROM ALL SOURCES, 1948 – 1957

US dollars)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 516 096</td>
<td>6 943 486</td>
<td>7 566 698</td>
<td>7 580 165</td>
<td>7 889 113</td>
<td>8 524 767</td>
<td>11 517 988</td>
</tr>
<tr>
<td></td>
<td>2 899 069</td>
<td>4 997 233</td>
<td>4 604 064</td>
<td>4 253 435</td>
<td>5 142 903</td>
<td>6 121 044</td>
<td>6 180 663</td>
</tr>
<tr>
<td></td>
<td>202 475</td>
<td>30 010</td>
<td>22 560</td>
<td>22 091</td>
<td>17 500</td>
<td>154 580</td>
<td>67 000</td>
</tr>
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Note. Deficits in the regular budgets were covered by advances from the Working Capital Fund.
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# Abbreviations

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<tr>
<td>ACC</td>
<td>Administrative Committee on Co-ordination</td>
</tr>
<tr>
<td>CCTA</td>
<td>Commission for Technical Co-operation in Africa South of the Sahara</td>
</tr>
<tr>
<td>CIOMS</td>
<td>Council for International Organizations of Medical Sciences</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>IAEA</td>
<td>International Atomic Energy Agency</td>
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<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
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<tr>
<td>ICRP</td>
<td>International Commission on Radiological Protection</td>
</tr>
<tr>
<td>ICRU</td>
<td>International Commission on Radiological Units and Measurements</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organisation (Office)</td>
</tr>
<tr>
<td>INCAP</td>
<td>Institute of Nutrition of Central America and Panama</td>
</tr>
<tr>
<td>ITU</td>
<td>International Telecommunication Union</td>
</tr>
<tr>
<td>OAS</td>
<td>Organization of American States</td>
</tr>
<tr>
<td>OIHP</td>
<td>Office International d'Hygiène Publique</td>
</tr>
<tr>
<td>PASB</td>
<td>Pan American Sanitary Bureau</td>
</tr>
<tr>
<td>PASO</td>
<td>Pan American Sanitary Organization</td>
</tr>
<tr>
<td>TAB</td>
<td>Technical Assistance Board</td>
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<tr>
<td>TAC</td>
<td>Technical Assistance Committee</td>
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<tr>
<td>TRO</td>
<td>Tuberculosis Research Office, Copenhagen</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
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<td>United Nations Relief and Works Agency for Palestine Refugees in the Near East</td>
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<tr>
<td>UPU</td>
<td>Universal Postal Union</td>
</tr>
<tr>
<td>WFUNA</td>
<td>World Federation of United Nations Associations</td>
</tr>
<tr>
<td>WMO</td>
<td>World Meteorological Organization</td>
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