

# INTERNATIONAL HYGIENE

BY

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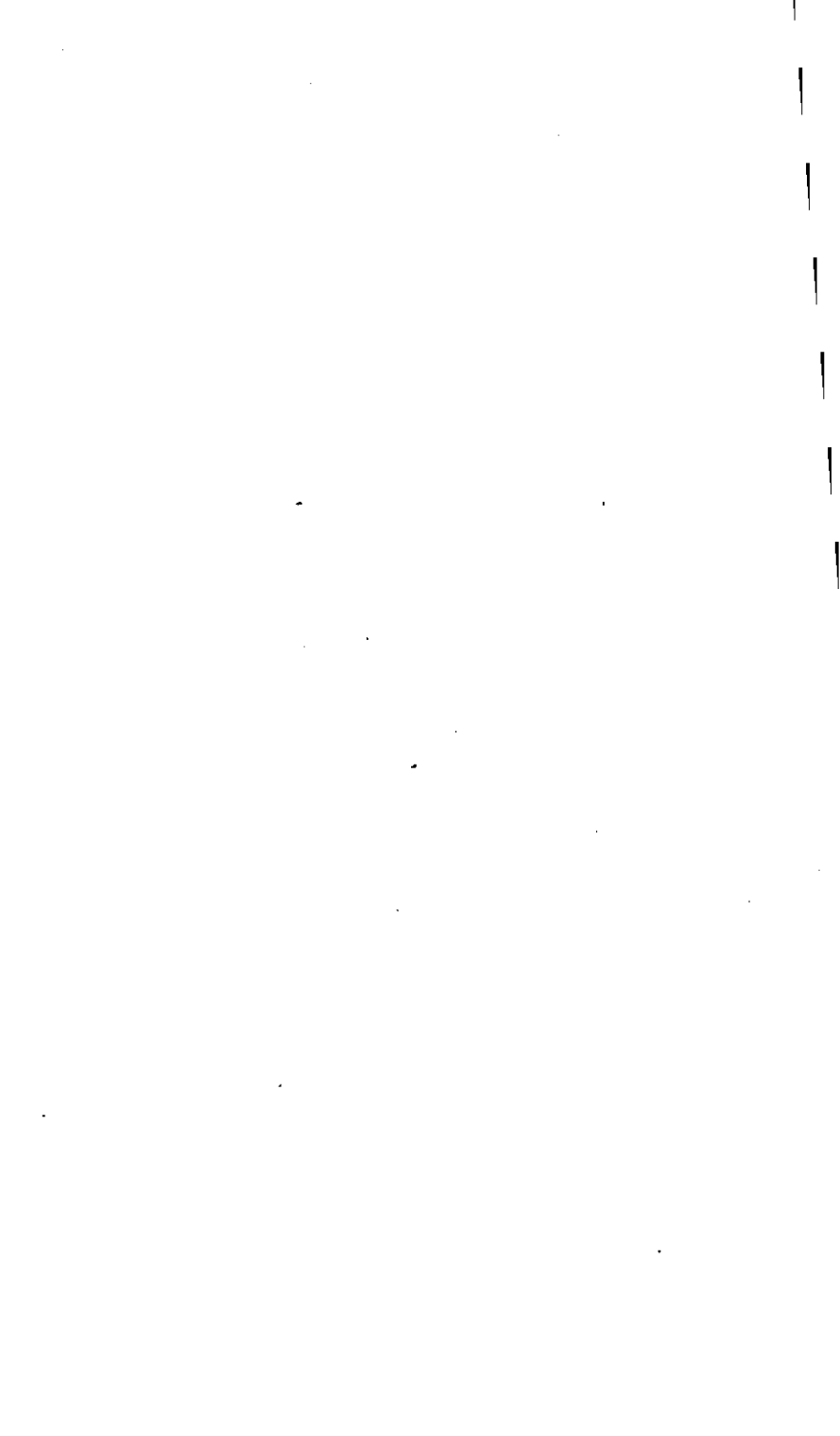
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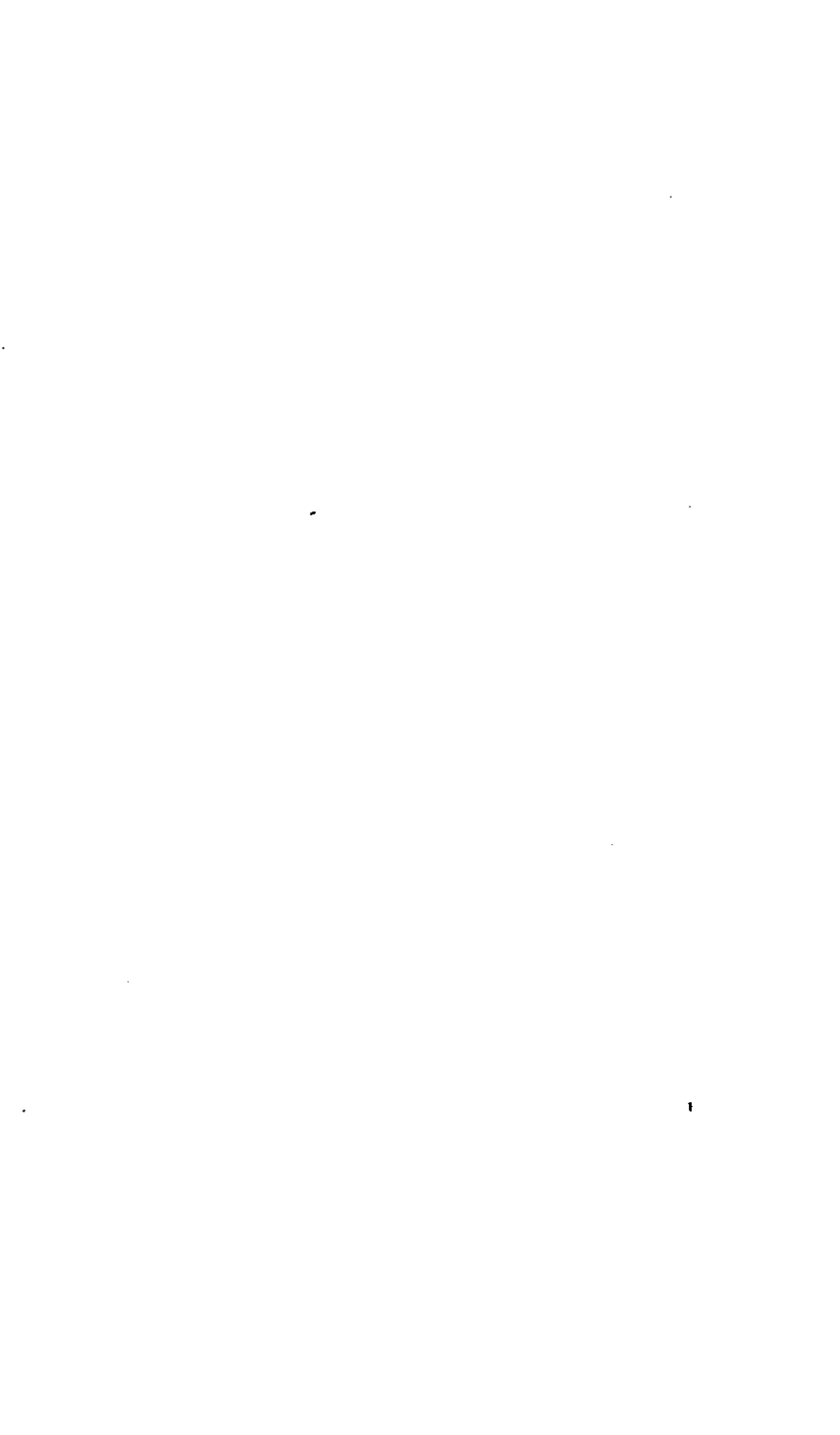
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HERRN GEHEIMRAT J. BREGER,  
MITGLIED DES REICHSGESUNDHEITSAMTES,  
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## PREFACE

**T**HE book has been written in the hope that it would help to bring home to people the extent to which the health of any one country is dependent upon the hygienic conditions in foreign countries.

The extent of the maritime traffic to this island country renders it liable to infections imported from all quarters of the globe. The path of many migrants from the mainland of Europe to the Far West lies through this island. England's position in the maritime world requires that her mercantile marine should be cared for as well, if not better than the sailors of any other nation. Venereal disease has its international aspects. A country which is so dependent upon the Dominions and its continental neighbours for its food supply must interest itself in hygienic conditions abroad. A new field of preventive medicine was opened up when efforts were made to prevent the abuse of opium ; it has now extended to the prevention of dangers from other habit-forming drugs. International efforts are being made to prepare various medicaments so as to ensure uniformity and enable a medical man of one nation to understand exactly the treatment carried out by a foreign colleague ; the recording of tests for venereal disease is being made intelligible internationally.

Industrial competition between nations, a source of much discord, will be made fairer when workpeople are treated alike all over the world ; any restriction on industry which makes for the health of the workers should be imposed equally on all nations. Industrial disease at times arises from conditions abroad.

For the maintenance of the public health of this country we have not the same need as other countries to rely on the help of the Red Cross ; we have to look abroad to appreciate the part played by the League of Red Cross Societies.

I hope that justice has been done to the value and extent of the health work carried out by the League of Nations working in close alliance with the *Office International d'Hygiène Publique*.

I am indebted to help from Sir George Buchanan, and from Dr. Rajchman, Dame Rachel Crowdy, Drs. Norman White and Budreau of the League of Nations Staff, to Sir Claude H. Hill, the Head-quarters Staff of the League of Red Cross Societies including Dr. C. Lillingston, also to Mr. M. K. Burge, Mr. Maurice Fanshawe, and Dr. R. E. Lauder ; much of the chapter on the hygiene of seamen could not have been written had it not been for the work of Dr. J. Howard Jones and Fleet Surgeon W. E. Home ; Miss E. J. Charlesworth has collected much of the information on emigration and afforded me much help generally.

C. W. HUTT.



# INTERNATIONAL HYGIENE

## CHAPTER I

### HOW INFECTIOUS DISEASE IS KEPT OUT OF A MARITIME COUNTRY

**T**HE first great cholera outbreak of the nineteenth century in 1831, with its death toll in Great Britain of upward of 30,000 people, led to the formation of a Consultative Board of Health for dealing with the emergency. 'This Board of Health was soon replaced by a new Central Board of Health which issued regulations and advice for the guidance of Local Boards established in the large towns.' The way was thus paved for the system of municipal and port hygiene which has grown up in this country, and has been the model followed in other countries.

The Ministry of Health supervises the sanitary administration of England and Wales—although it has no jurisdiction over Scotland or either part of Ireland, the importance of uniformity of procedure has always been fully recognized, and the legislation and arrangements as regards port medical work in all parts of the British Isles are very similar. One of the chief functions of port sanitary work in this country is to prevent infectious disease from spreading to the rest of the country.

The whole of the coastline and the shores of the navigable rivers are included either in port sanitary districts—the larger seaports—or in riparian sanitary districts, the municipal elective council of which is responsible for dealing with any

seaborne infectious diseases that may be introduced into the districts.

The system by which this country has been guarded from infectious disease from abroad has been gradually evolved from the Quarantine System. In the earlier part of last century Quarantine Acts were in force.

The quarantine practised in this country has been solely maritime quarantine, and it has been limited to three exotic diseases only, cholera, plague, and yellow fever. The Quarantine Acts of Great Britain were consolidated and modified in 1825, and detention and strict isolation for specified periods, of persons coming from ports considered to be infected, whether or not cases of disease had occurred on board ship, was enjoined. Quarantine against cholera was not enforced after 1858, as its futility as a precautionary measure had become evident, and Sir John Simon, writing in 1866, stated the view held by the Central Health Authority in these words :

‘ A quarantine which is ineffective is a mere irrational derangement of commerce ; and a quarantine, of the kind which ensures success, is more easily imagined than realized. Only in proportion as a community lives apart from the great highways and emporia of commerce, or is ready and able to treat its commerce as a subordinate political interest, only in such proportion can quarantine be made effectual for protecting it. In proportion as these circumstances are reversed, it becomes impossible to reduce to practice the paper plausibilities of quarantine. The conditions which have to be fulfilled are conditions of national seclusion.’

This country had long advocated the principle that measures against the importation of infection by sea should be based on the health of persons on board the incoming ship rather than upon the health of the port from which the vessel had sailed. Consequently the system of port sanitary administration was established on these lines under the Public Health Act, 1875, and subsequent legislation, though the enactments relating to quarantine were not repealed until the year 1896.

It is not contended that the introduction of infectious

disease through the ports can be prevented with certainty,<sup>1</sup> and reliance for dealing with any chance importation must always rest upon the internal sanitary administration of the country. The principle enunciated has been the basis of the system which has been in operation for over a quarter of a century, and which has proved eminently successful, not only in preventing the development of epidemics from imported infection, but indirectly of improving the general sanitary condition of the country. At the same time no unnecessary restrictions have been imposed on the movements of persons or on seaborne commerce. The procedure differs somewhat at the different British ports. At the Port of London the boarding station is off the hulk *Hygeia* which lies just off the shore below Gravesend and near the Port Sanitary Hospital.

Every 'foreign' ship on its way up the Thames (and consequently before docking) is hailed by an assistant Port Medical Officer. If there is or has been any illness the ship is boarded and inquiries made; any 'native' crew is paraded and rapidly inspected. Anyone suffering with dangerous infectious disease is removed to the Port Sanitary Hospital close by on shore.

At Liverpool a selection is made of the vessels coming from abroad and these only are boarded by officers of the Port Sanitary Authority; the Assistant Port Medical Officers board certain vessels on arrival in the river before they go into dock; these are vessels coming from those parts of the world where dangerous infectious disease is known to exist and those on which infectious disease has occurred during the voyage or is present at the time of arrival. All vessels are visited in dock by sanitary inspectors as soon as possible after berthing.

<sup>1</sup> It must be confessed that diseases with a long incubation period like small-pox constitute a difficulty under certain circumstances. If a passenger shortly before embarking had been infected by a case of small-pox in Spain, for instance, he would reach this country before there was any visible sign of the disease, and proceed to his destination without the possibility of any warning being issued.

At a port of intermediate importance, such as Southampton, the larger ships coming from abroad are boarded by Medical Officers, the smaller by the Port Sanitary Inspectors. The master of a ship from abroad is required to fill up a form similar to that given below; on a liner the surgeon gives the information required.

Boats put into Liverpool from foreign ports which are always, or practically always, infected, e.g. Indian ports almost always have plague. These ports are placed on a list which is given to pilots who are taken on board a considerable distance out to sea. The pilot hands the master of the ship the inquiry form as to the health of the ship.

A ship with cholera, yellow fever or plague on board flies a yellow-and-black flag; one arriving from an infected zone flies a plain yellow flag; at night certain lights are shown.

In some cases information as to the arrival of ships which may be infected is given by Shipping Companies.

In any event at all ports all ships coming from abroad are boarded by Customs Officers before they berth; infected and suspected vessels are required by the Customs Officers to be brought to at the appropriate place, an appointed mooring station fixed by H.M. Customs, the Port Sanitary Authorities and the Pilotage Committee.<sup>1</sup> At Southampton, for instance, all such vessels are required to bring off at Netley and there await the visit of the Port Medical Officer, or an accredited officer, who makes all necessary inquiries, paying attention to the possibility of mild or unusual forms of disease having occurred; a supplementary source of information is the list of the cases which have occurred during the voyage; these are entered in the appropriate register. Special sickness reports are filled in if the occasion arises; if necessary he examines the crew and passengers medically either on board

<sup>1</sup> Wilful breaches of the Regulations regarding cholera, yellow fever, or plague, or other Orders of the Ministry, may entail a penalty not exceeding £100, and in the case of a continuing offence a further penalty up to £50 a day.

the vessel or by arrangement when these persons have disembarked. In the meantime the names and exact destination of all the passengers and crew have been filled in on a list which is given to the Port Medical Officer. If the ship is found to be infected, a certificate is issued to that effect and the names and addresses sent on to the medical officer of health concerned, so that the contacts may be kept under surveillance at their destinations, until the incubation period of the disease in question has been completed.

In all cases where persons on a ship have been small-pox contacts they are urged to accept vaccination or re-vaccination before leaving the port, but there is no power of compulsion. Any contacts who may be regarded by the Port Medical Officer of health as specially dangerous are kept under strict observation for the required period in observation shelters or isolation hospitals until the danger is passed.

In the case of transports, information is required from the master or ship's surgeon or medical officer in charge of troops. All cases of notifiable infectious disease must be notified to the Medical Officer of Health by the medical man in charge of the patient. The forms used by the Port Sanitary Authority must also be filled up by the master or medical man concerned.

Up to recent years the medical inspection carried out by Port Medical Officers had as its object the carrying out of the Cholera, Yellow Fever and Plague Regulations; for some time now the scope has been extended to include the infectious diseases notifiable in this country.

The hands of Port Medical Officers have been strengthened by the issue of the Port Sanitary Authorities (Infectious Diseases) Regulations, 1920, the more important of which are :

Clause 4. The Medical Officer of Health may, and if so required by the Sanitary Authority or the Minister shall—

(a) Examine any person who is suffering from infectious disease on board a ship.<sup>1</sup>

<sup>1</sup> At New York a laboratory division as well as a boarding division is provided; all cases with fever or in any way suspicious must be

(b) Examine any person who is on board a ship, where he has reasonable grounds for believing or suspecting that infectious disease is or may be present on the ship, or that persons on board the ship have been exposed to infection from infectious disease during the voyage, or during a period of three weeks immediately preceding the arrival of the ship in the district.

(c) Examine any person on board a ship who is reasonably believed to be verminous.

(d) Detain for the purpose of examination either upon the ship or at some appointed place on shore any person whom he is empowered or required under this Article to examine.

(e) Cause any such person and the clothing of, or any other articles belonging to, such person to be cleansed and disinfected.<sup>1</sup>

passed by a laboratory officer before release. In many instances the Weil-Felix agglutination test for typhus fever is performed on board the vessel.

<sup>1</sup> The method of disinfecting clothing and baggage by steam is not entirely satisfactory: felt, rubber, leather, fur, and other materials frequently made up into clothing or bags and trunks which almost invariably have leather, paper and glue about them are damaged by steam.

The ideal method should kill all animal and insect life within a package that has neither been opened nor unlocked, and do it without damage to the contents. It should also be sufficiently rapid to allow clothing to be disinfected while the owner is taking a bath. At New York the vacuum cyanide method is used as a routine for delousing the clothing and baggage of immigrants: these articles are placed in a metal sterilizing chamber. As hydrocyanic acid gas penetrates fabrics very slowly unless aided by an initial vacuum the air is exhausted by a motor-driven pump and the gas is generated and passed into the chamber; when atmospheric pressure is restored the violent inrush of air forces the gas into the materials.

The efficiency and practicability of the method depend upon a proper balance of the three important factors: concentration of gas, degree of initial vacuum, and length of exposure. These have been determined by experiment; the amount of gas used is that produced from 12-24 oz. of sodium cyanide for the 84 cubic feet chamber, the initial vacuum is 26 inches and the exposure 30 minutes for clothing and 1 hour for baggage, the lids of trunks must be opened.

As hydrocyanic acid gas forced into fabrics is retained a considerable time after fumigation, before being returned to the immi-

(f) Prohibit any such person from leaving the ship, or only on conditions specified in writing by the M.O.H. which appear to him reasonably necessary. . . .

(g) Require the master to take, or assist in taking, such steps as, in the opinion of the M.O.H., are necessary to prevent the spread of infection by such person, and for the removal of conditions on the ship likely to convey infection. . . .

6. The master of the ship shall . . . notify forthwith to the M.O.H. any case of infectious disease on the ship, any circumstances on board likely to lead to infection, including the sanitary condition of the ship, and the presence of dead rats or mortality or sickness among rats in the ship . . . and comply with any directions or requirements of the sanitary authority or the M.O.H.

8 (c). The Sanitary Authority may provide or arrange for the provision of—

(1) Premises and waiting-rooms for the purposes of medical examination.

(2) Apparatus or means for the cleansing and disinfection of ships, persons, clothing, and other articles.

(3) Premises for the temporary accommodation of persons for whom such accommodation is required for the purpose of these regulations.

9. Gives power to the port sanitary authority to require the cleansing of the whole ship.

The Port Medical Officer also may act as examining medical officer under the Aliens Order of 1920, when clause 4 (b) above is likely to be useful.

In Liverpool, owing to the increase in the number of diseases grants the clothing bags must be hung up out of doors if possible, but at least in a stream of fresh air until the odour of the gas disappears. As a considerable interval—8 to 24 hours—elapses before the trunks are unpacked they need not be so exposed.

The clothing of immigrants with typhus, or exposed to typhus, is sterilized by the vacuum pressure steam process; shoes, hats, suit-cases, etc., which steam would injure, are subjected to the vacuum cyanide process.

See *Treasury U.S.A. Public Health Report*, Feb. 20, 1925.

notifiable in this country some of which, as they are with difficulty diagnosed by a doctor, a shipmaster could not be expected to diagnose, arrangements have been made whereby reports by wireless from the shipmasters are used to indicate the vessels that should be boarded by medical officers. It is recognized that local conditions and the expense involved render it impossible for every ship on arrival to be visited by a medical officer, whether it has sickness on board or not.

### PLAGUE

Plague is the greatest source of anxiety ; from the point of view of spread, it is more dangerous among rats than among human patients, who can be isolated. In ships from plague-infected ports careful inquiry is made as to whether any unusual mortality or sickness among rats has been observed on board during the voyage. Any rats on board must be prevented from getting ashore. If there is serious risk of the importation of rat plague the vessel must be breasted off from the quay, the dummy barges being so placed that rats cannot jump on to them from the bulwarks or through such openings as the hawse pipe ; efficient rat guards must be placed on all mooring ropes and wires. Rats can climb over ordinary disks, but they find it impossible to get over a plain sheet-metal rimless disk so constructed that it remains perpendicular to the rope at all times. Any unnecessary gangway, shoot or plank connecting the ship with the shore should be hoisted or removed ; any communication way necessary but not in continuous use should be guarded day and night by a man provided with a light when necessary ; there should be no ropes hanging down to fenders or swinging loose.

Undoubtedly rats are brought ashore in merchandise ; when there is any danger of the spread of rat plague, either thorough fumigation of the cargo must be carried out before it is discharged, or every package which is in the least likely to harbour rats must be searched on the quay immediately it is landed. Docks and adjoining warehouses are, however,



never free from rats: measures must be taken to ascertain their freedom or otherwise from rat plague.

In Liverpool rat searchers are employed by the Port Sanitary Authority. After a ship from a plague-infected port has berthed, they catch samples of the rat population of all parts of the ship; they also search for sick or dead rats in all parts of the ship; this search is repeated on several occasions during the discharge of cargo. Both sets of rats are examined for the presence of plague by the City Bacteriologist.<sup>1</sup> Along the dock quays and in the sheds and warehouses rats are searched for and trapped; for plague-preventive measures to be successful the occurrence of infection must be detected at the earliest possible moment; then energetic measures must be taken to destroy every plague-infected rat.

The bird-lime tray has proved as effective as any other form of trap. To prevent access of the rats to food and to diminish harbourage the more modern warehouses are made rat-proof, and the contents arranged in such a way as to make nesting difficult.

Sulphur di-oxide kills rats when it is properly employed, but it spreads slowly and needs some eight to twelve hours to act; it also damages machinery and tarnishes metal, and spoils clothing, upholstery and paint-work, and after its use a passenger vessel has often to be redecorated.

The quarantine regulations of the U.S.A. require all vessels trading with foreign ports to be fumigated throughout satisfactorily not less than once in every six months.<sup>2</sup> Seeing

<sup>1</sup> The examination of rats for plague includes a post-mortem examination for gross lesions and the inoculation of guinea-pigs with material from the liver and spleen.

<sup>2</sup> Certificates specifying the precautions taken to prevent the ingress of rats from shore to ship while in the port are issued in agreement with requirements of the U.S.A.; they exonerate ships from routine fumigation in instances acceptable to the U.S.A. Consulate. The view at Liverpool is that the routine six-monthly fumigation of ships has not been justified by the number of rats destroyed, except in a few cases; fumigation should only be carried out either where there are signs of the presence of a considerable number of rats on a vessel or a suspicion of rodent plague on board.

that British vessels are most conveniently fumigated in the home ports, the Ministry of Health arranged with the U.S. Government that certificates of fumigations made on this side will be accepted.

As the Medical Officers of the U.S. Public Health Service are empowered not to require fumigation of the first and second class accommodation, except for store-rooms, pantries and kitchens, the shipping companies are able to use sulphur di-oxide.

A number of vessels have been fumigated at British ports with hydrocyanic acid gas; the gas can rapidly penetrate among cargo where rats find shelter, it acts quickly, is less costly than sulphur di-oxide,<sup>1</sup> and does not damage metals, fabrics, or foodstuffs, nor is it absorbed by foodstuffs. But it is very dangerous when breathed in concentrations of more than 30 parts of the gas in 100,000 parts of air, and deaths have actually been caused (e.g. at Southampton) by its use for disinfecting ships.

There are various ways of generating hydrocyanic acid gas: the dumping method, the tipping method, and the solution method are all available; the liquefied gas can be used as a spray. At New York, hydrocyanic acid gas has been used for oil tankers, and for other vessels a mixture of 80 per cent liquid hydrocyanic acid gas with 20 per cent liquid cyanogen chloride in the form of spray. Zyklon (cyclon) has also been used somewhat generally; it consists of kieselguhr, a very absorbent infusorial earth impregnated with a mixture of 97½ per cent liquefied hydrogen cyanide and 2½ per cent tear gas.<sup>2</sup> The kieselguhr is scattered over the bottom of the

<sup>1</sup> Both these substances destroy insects, but hydrocyanide acid gas has the advantage of killing the eggs.

<sup>2</sup> Dr. A. A. Mussen reports that 'The tear gas acts as an intimation of danger, but is not present in such a concentration as to make it impossible for a person to enter a space under fumigation, nor could it always be depended upon to give sufficient warning to enable a person to escape before he had received a poisonous dose of hydrogen cyanide. When the fumigation is over and the spaces have been

hold from the deck, or scattered on the floor of the crews' quarters and other places, by an operator wearing a gas mask; this method is a decided advance in that it avoids bulk production, and consequently tends to prevent lethal concentration of the gas.

Special precautions are necessary: at Liverpool the work is carried out by men trained at the Government Rescue Station for miners (at Doncaster); oxygen-breathing apparatus is worn. The vessel is prepared beforehand, ventilators are closed, bilge boards lifted, dunnage wood properly stored and hatches covered. Before the gas is generated every one except the disinfectors must be off the ship. So much importance is attached to this that the master of the ship is required to give a certificate to this effect. When the disinfection is over, in order to remove the poisonous gas the hatches are taken off so as to allow air to enter; rats or birds in cages are lowered: until they remain unharmed, no one is allowed to return.

At New York the trapping of rats has proved a valuable adjunct to fumigation; vessels which are known to be badly rat-infested or cannot be fumigated without undue delay are trapped. Double-action snap traps set at the rate of 50 traps for each 1,000 tons of the vessel are used.

It has recently been shown in the U.S.A. that vessels can be rendered rat-proof; experiment was carried out with success in one of the largest passenger vessels, and now other ships are being rat-proofed. The rats must not be allowed to gain access to the vessel; there must be, above all, no places provided for them to hide in or nest in; they must not be allowed to obtain access to food or drink.

To achieve these ends all large openings must be permanently screened or closed. All small enclosed spaces must be abolished or blocked up with material which cannot be gnawed through. Any article which can serve as food for rats must be kept

ventilated for some time, it is not safe to conclude that because no lachrymating effect is experienced there is no danger from the hydrocyanic acid gas.'

in rat-proof containers in rooms which do not allow of the harbourage of rats and into which rats cannot penetrate from without. Food lockers in crews' quarters should be abolished ; the men should not mess in their sleeping quarters. A point is made of the necessity providing a sufficient number of screened containers for garbage and edible refuse into which all scraps and garbage should be put.

Limber and flooring boards should be kept in good order, and openings under 'screen' bulkheads where they pass from one compartment to another should be rat-screened. For collars about pipes where these pass through any partition sheet metal is useful ; it can be used for lining bins and in strips for pipe casings. Wooden and close pipe casings are objectionable ; if retained they must be rat-proofed and have doors fitted to them. Light or heavy wire screening stops or breaks up larger spaces. Forepeaks are difficult to fumigate ; they should be used for tanks. Contracts for new construction or structural repair should include the words 'all the work to be rat-proof.'

It has been suggested that this rat-proofing should be carried out in ships as an alternative to frequent fumigation, but in some of the older vessels it would be impossible to eliminate all the rat harbourage and the runs. The construction of vessels is only one of the factors favouring rat infestation. Regular grain-carrying vessels are obviously liable to be worse infested than oil tankers ; the size of the rat population at the port of call and the duration of the voyage are obviously factors. Rat-proofing increases the efficiency of fumigation : there is less chance of the rats escaping to parts of the vessel not being fumigated, or to which a strong enough concentration of the fumigant does not reach.

Valuable as is all the work done at ports in this country to prevent the entrance of the pestilential infectious diseases, fortunately, as far as the East, which presents the greatest danger, is concerned, the work of eliminating the risk of these diseases begins at a point remote from this country.

Patients are landed at the next of the chain of quarantine stations where all the necessary steps to limit the spread of the disease are taken. Aden, Suez and Port Said serve especially as filters to separate out the later cases, but occasionally small-pox is contracted at Port Said. Patients are from time to time landed at Marseilles and Gibraltar.

#### INFORMATION AS TO DISEASE IN FOREIGN PORTS AND COUNTRIES

An enormous amount of work is done in providing the Port Medical Officer with *information as to those vessels on which he is most likely to find infectious disease*. To do his work properly he must have knowledge of the existence of the chief infectious diseases at foreign ports as speedily and as accurately as possible. To this end, from 1919 onwards arrangements have been in force whereby the administrative officials of the British Empire overseas, and the consular service at ports in foreign countries report by telegraph the first known occurrence within their districts of plague, cholera, yellow fever, small-pox and typhus fever; after this they continue to send weekly reports, by dispatch, of cases and deaths from these diseases so long as the prevalence lasts. In addition, reports as to relapsing fever, dysentery, cerebro-spinal fever, acute polio-myelitis, influenza and pneumonia are made by dispatch; but if the outbreaks are exceptionally severe or otherwise remarkable, by telegraph. For those countries and places to which this official plan is not applicable, this information is obtained through the Health Section of the League of Nations, and from the Public Health Authorities of several countries, either directly or through *l'Office d'Hygiène Publique*.

The Ministry of Health also receive weekly or fortnightly returns of notified infectious diseases (by agreement for mutual exchange) direct from the Public Health Service of other countries. Information in the home and foreign Press, medical and lay, is also noted and used to supplement the

official returns if necessary. At times information is also received from other sources, including the Army, Navy, and shipping companies.

A weekly record of infectious diseases at ports, etc., at home and abroad is compiled from all these sources, and sent weekly as a confidential document to medical officers of health of ports and other areas, and to British Governments and representatives abroad; it has recently been extended, and now includes information relating to plague, cholera, yellow fever, small-pox, typhus fever, encephalitis lethargica, and influenza, as well as quarantine notices and occasionally other items of useful information. In compliance with requests from Dominion and Colonial Governments for prompt information of the occurrence of infectious disease in countries with which they are in shipping communication, the relevant items on this subject are abstracted from the record fortnightly for cabling to these Governments. Ports almost automatically collect additional information themselves. The Federal Government of the U.S.A. publish a weekly bulletin containing abstracts of consular sanitary reports from ports throughout the world and information derived from other sources. These abstracts are available in British ports, but are frequently a few days behind. Shipping companies, incoming vessels and the local Press often give information which is of use locally. The Bills of Health furnish a statement of what has been happening at the ports at which the ship has touched; although the information is known at the British ports before the ship arrives, bills of health are useful as permanent records in spite of some of them not being much use when presented on arrival (see p. 61).

From these attempts to obtain information as to the prevalence of certain infectious diseases at ports has developed an attempt by the Health Section of the League of Nations to obtain information as to the prevalence of all infectious diseases in all the countries of the world.

The Epidemiological Intelligence Branch receives current

official reports on the prevalence of notifiable diseases from nearly all countries where such information is available. They issue monthly epidemiological reports containing the most recent information regarding cases and deaths from certain diseases: <sup>1</sup> information regarding the prevalence of other diseases is given, from time to time, in a general review report.<sup>2</sup>

Before the late War Great Britain was desirous of obtaining such information; the United States of America also wished to know the prevalence of infectious disease. It was also thought that a certain amount of reluctance is felt by the Government of some nations in giving information to another nation as to the existence of serious infectious disease in its midst, but it would seem that there is not the same objection to sending the information to a neutral organization. Yet these Governments have no objection to the neutral organization publishing the information given.

These reports should in time be very valuable; they afford information on geographical distribution of infectious disease, its seasonal prevalence, distribution by age and sex and differences in mortality rate in different parts of the world which must ultimately be of service in its prevention. The meteorological information recently added should assist in the study of the relation of meteorological conditions to disease.

Epidemiological information to be useful often requires

<sup>1</sup> Plague, cholera, yellow fever, relapsing fever, enteric fever, cerebrospinal meningitis, epidemic encephalitis, acute polio-myelitis, influenza, scarlet fever and diphtheria, some of which are not notifiable in the several countries.

<sup>2</sup> In addition, weekly or monthly statistics on general mortality in numerous large towns throughout the world are given regularly in these reports; also, wherever available, rates of infant mortality and deaths from the principal diseases which undergo marked seasonal variations are given. Population figures are quoted from official sources: the letter 'E' indicating that the figure is an estimate, and 'R' that it is the result of a census.

Morbidity rates are not generally calculated, since readers might be induced to make comparisons which, in view of the existing differences in accuracy of notification, would not be justified.

to be early. When information of this character is collected through consular channels delays always occur owing to the number of agencies which must be approached.

Recently, in order to obtain more rapid information as to the prevalence of plague, cholera and small-pox, the League of Nations has started a Bureau at Singapore. The authorities of the countries along the coastline extending from the East Coast of Africa round the South of Asia to Japan and Australasia send telegrams giving the necessary information to the Bureau at Singapore.<sup>1</sup> No information can be sent from China as a whole, but certain ports such as Shanghai are able to send the information required. Reports are now received regularly from 112 stations.

The information is sent out by wireless in code from Saigon (Indo-China) and Bandoeng (Dutch East Indies), also from Bombay and Sandakan (British North Borneo) to all ports in the Far East, which are thus enabled to learn promptly that a certain port has become infected, or more rarely that a certain port need no longer be treated as infected. In addition, a confirmatory telegram is sent out from the Bureau weekly.

The Bureau has divided the Far Eastern countries into four groups: western, central, eastern, and southern; maritime communication between the ports of each group is largely self-contained, so that special telegraphic messages may be prepared from each instead of relaying the whole of the message to all the Far Eastern administrations. The existence of information as to the extent of infectious disease makes it now much more practicable than formerly for the responsible public health authorities in each country to follow the general trend of plague, cholera, small-pox or typhus throughout the world, and serves often to give them warning when these diseases are showing signs of taking on a new phase of world extension. This sort of information is really the most informative of all.

Fortunately further steps are being taken to make the information more complete. It is very desirable that ports in the

<sup>1</sup> It is proposed to establish a sub-centre at Melbourne.



Mediterranean and Black Sea should notify the first appearance of plague and cholera. Most of the Governments concerned have agreed to telegraph such an occurrence to Geneva. The French Government have suggested to the League that an epidemiological bureau should be set up in West Africa to co-operate with the African Public Health Services in the prevention of epidemic and endemic disease and to collect and distribute epidemiological intelligence. The suggestion has been studied by members of an interchange who took part in a collective study tour in West Africa.

Mention should be made of an organization which has done much to prevent the spread of infectious disease by shipping. This body, the Pan-American Sanitary Bureau, is the outgrowth of a series of international conferences of North and South American States which date back over a hundred years. Largely with a view to combating the ravages of such diseases as cholera and yellow fever at the sea ports, the United States summoned an international conference to meet at Washington in 1881. This was followed in 1889 by a conference of American States at which every American Republic was represented, and where, among other questions, the subject of ship sanitation and quarantine was discussed. At the second conference of the American States in 1901-2 the International Sanitary Bureau of the American Republics was created, its name being changed in 1923 to the Pan-American Sanitary Bureau. Since its foundation this bureau, which is a permanent executive board with its head-quarters at Washington, has been responsible for collecting and distributing information on public health matters, for giving expert assistance in the fighting of outbreaks of epidemic disorders, and generally carrying out the resolutions of the seven international conferences of the American States which it has organized since 1902.

The Pan-American Sanitary Conference which met at Havana in November, 1924, drew up a Sanitary Convention for use in Latin America known as the Pan-American Sanitary

Code. It is worth noting that this Code includes provisions intended to raise and maintain the standard of qualification of ships' surgeons at a high level, important both from the standpoint of quarantine officers and the travelling public.

### COPIES OF FORMS USED.

PLAGUE.	}	Local Government Board Regulations, 9th Sept., 1907. Article 26.
CHOLERA.		
YELLOW FEVER.		

### Southampton Port Sanitary Authority.

Information to be supplied by the Master of Vessels arriving within the Port of Southampton from Districts infected, or suspected to be infected, with PLAGUE, CHOLERA, or YELLOW FEVER.

### GENERAL PARTICULARS.

Name and Description of Vessel.....

Nationality.....

No. of Officers and Crew { European.....

Other .....

No. of Passengers, 1st class.....2nd class.....3rd class.....Total.....

No. of Troops.....

Port of Departure, with date.....

Ports touched at during voyage, with dates .....

.....

State where water was taken in, and at what date.....

.....

Date and time of arrival at Boarding Station.....

Time of Medical Visit.....

Is the Vessel a Passenger Steamer or Transport?.....

Is it intended to pay off Crew in Southampton?.....

Will the Vessel remain in Southampton, or is she proceeding to any other British Port? .....

Signed.....Master

Dated.....192

### NOTICE.

The Master of a Ship, or any other person, shall answer truly all such questions put to him by, and give all such information to any Officer of Customs, or Medical Officer of Health, as are necessary for any purpose of this order.

Any person who wilfully neglects, or refuses to obey or carry out, or obstructs the execution of the Order herewith referred to shall be liable to a penalty not exceeding one hundred pounds, and in the case of a continuing offence to a further penalty not exceeding fifty pounds for every day during which the offence continues.

PLAGUE.  
CHOLERA.  
YELLOW FEVER.)

Local Government Board Regulations,  
9th Sept., 1907. Art. 26.

**Southampton Port Sanitary Authority.**

**MEDICAL CERTIFICATE.**

Information to be supplied by the Medical Officer in charge of vessels (or Troops) arriving within the Port of Southampton from Districts infected or suspected to be infected with PLAGUE, CHOLERA, or YELLOW FEVER.

**GENERAL PARTICULARS.**

Name of Vessel.....

Description (Transport or otherwise).....

Have you had during the voyage any cases of :—

1—Glandular Swelling ?.....

2—Enteric Fever ?.....

3—Pneumonia ?.....

4—Elevated Temperature in which diagnosis is doubtful ?.....

5—Any case of Infectious Disease ?.....

5a—Any Cholera ?.....

5b—Any Diarrhœa ?.....

6—State here nature of any sickness or death which has occurred during the voyage and not referred to above.....

7—Have you any knowledge of any unusual sickness or deaths among rats on board the vessel ?.....

*I declare the above to be a true statement.*

Signed..... Surgeon.

Date.....192

**NOTICE.**

The Master of a Ship, or any other person, shall answer truly all such questions put to him by and give all such information to any Officer of Customs, or Medical Officer of Health, as are necessary for any purpose of this Order.

Any person who wilfully neglects, or refuses to obey or carry out, or obstructs the execution of the Order herewith referred to, shall be liable to a penalty not exceeding one hundred pounds, and in the case of a continuing offence to a further penalty not exceeding fifty pounds for every day during which the offence continues.

## SOUTHAMPTON PORT SANITARY AUTHORITY.

**Precautions for the prevention of the importation of Cholera, Yellow Fever, or Plague.**

**NOTICE.**—All Vessels arriving within the Port of Southampton from Ports infected with either Cholera, Yellow Fever, or Plague, are required to bring up off Netley, and there await the visit of the Port Medical Officer.

All persons intending to land must satisfy the Port Medical Officer in regard to their names and the addresses to which they intend to proceed.

In order to save time, the names and addresses of all passengers and crew should be filled in on this list, and handed to the Port Medical Officer in accordance with the provisions of the Public Health Act, 1896, and the regulations made thereunder by the Local Government Board.

Should passengers change their address after arrival, they are required by the regulations to notify such change to the Medical Officer of Health of the district of such new address.

**CAUTION.**—Any person who wilfully neglects or refuses to obey, or carry out, or obstructs the execution of any regulations made in pursuance of the Public Health Act, 1896, shall be liable to a penalty not exceeding £100.

R. E. LAUDER, M.D., F.R.C.S. Ed., D.P.H.,

*Port Medical Officer of Health.*

*Names and Addresses of Passengers and Crew per S.S. ....*  
*on voyage from.....to Southampton (sailed from.....*  
*on.....19 , and arrived at Southampton at.....*  
*on.....19 ).*

NAME.

ADDRESS.

## Southampton Port Sanitary Authority.

## SPECIAL SICKNESS REPORT.

- S.S. ....@.....arrived.....
1. Disease .....
  2. Full Name of Patient .....Age.....
  3. Address .....
  4. Name and address of nearest known relative .....
  5. Member of Crew or Passenger (if passenger, what class).....
  6. Occupation.....Date when taken ill.....
  7. Had the Patient been ashore at any Foreign Port?.....
  8. Date and Port of Embarkation, in case of Passenger.....
  9. How isolated on ship.....
  10. Where removed from prior to isolation .....
  11. Probable origin of disease.....
  12. Where removed to.....Date removed.....
  13. What became of bedding, hammocks, soiled linen, effects, etc. ....
- .....
14. Disinfection carried out .....
- .....
15. Date of disinfection.....
  16. Name and address of contacts .....
- .....
17. In case of Small-pox, if vaccinated, date, particulars of case and contacts .....
- .....
18. Number of crew and passengers vaccinated and result .....
- .....
19. Where water was taken in and dates.....
  20. Owners .....
  21. Agents .....
  22. Surgeon .....
  23. Inspector .....

## INTERNATIONAL HYGIENE

(Form for general use.)

## MEDICAL CERTIFICATE

TO

Southampton Port Sanitary Authority.

[FRONT.]

To the Master of the S.S.....  
 From what Port have you come?.....  
 Number of Crew?.....  
 Total number of Passengers?..... Total Landing?.....  
 Total number of Aliens?..... Total Landing?.....  
 Total number of Transmigrants?..... Total Landing?.....

## HEALTH.

Has there been any sickness of an infectious nature during the voyage or at the time of arrival, among either Crew or Passengers?

If there has been any Sickness, kindly state nature and result:—

Any Diarrhœa?.....

Any Enlarged Glands?.....

Signed..... Surgeon.

..... Master.

Time of Arrival..... Time of Visit.....

Date..... 192

[REVERSE.]

## Further Details where Sickness occurs.

In the event of sickness having occurred during the voyage state the nature of same, and any action taken as follows:—

Name.	Age.	Disease.	Date of onset of Disease.	Removed to	Action taken in regard to Disinfection.

Signed .....

Port Inspector.

## CHAPTER II

### LAND FRONTIERS AND INFECTIOUS DISEASE

**D**URING recent years we have been able to follow on the continent of Europe a struggle to prevent disease spreading across a land frontier; after the diseases had been confined within the country of their origin, steps were taken to tackle them in the areas from which they had spread.

The history of the fighting of the epidemics in Eastern Europe from onwards, deals with both these phases; it brings out the need for international sanitary conventions; it shows how with increased knowledge of the causes and modes of spread of disease these conventions must be brought up to date and amplified.

The framers of the Treaty of Versailles included a special clause designed to promote the health of nations, but before the machinery could be set up an overwhelming outbreak of epidemic disease occurred in Poland. In view of the need of immediate action the League of Nations in 1920 appointed an Epidemic Commission to aid and give international support to the measures taken in States on the western border of Russia, particularly Poland, to combat the advance of typhus and other epidemics.

For some time it had been known that the health conditions of Poland had been unsatisfactory. At the Peace Conference in Paris in 1919, it had been proposed to send to Poland a sanitary unit from the American Army, together with medical equipment. A report on the sanitary situation of Poland was presented to the *Office International d'Hygiène Publique*, in

October, 1919, by the interallied sanitary mission sent to Poland by the League of Red Cross Societies. But in 1920 the extent of epidemic disease in Eastern Europe was such that action was imperative in order to prevent their spread to the rest of Europe. Poland, a new country, poor, and hardly yet organized, was struggling with enormous epidemics of typhus and relapsing fever. These diseases were imported from Russia by the thousands of Poles who had been forcibly expatriated during the War; returning home from Siberia across the Volga region where famine was raging, a journey of some six or seven months, they arrived in Poland destitute and debilitated, ill, or even dying. The conditions on the journey were all in favour of the spread of the disease; on the slow Russian railways they were packed into cattle trucks, without any facilities for securing cleanliness. Infection spread with fatal ease; at every station dead bodies were lowered from the trains. Returning as the refugees were to all parts of Poland, soon there was no village free from typhus.

The Polish Government were still in the throes of forming a uniform system of sanitary legislation from the three different systems existing in the former Russian, Austrian and Prussian Poland. But to cope with the immediate problem, the Administration appointed at the beginning of 1920 a High Commission to organize the campaign against the epidemics. Hospitals were established, chiefly on the eastern frontier; disinfection columns were organized; at rail and road heads on the eastern boundaries, stations were established, where immigrants were bathed, deloused,<sup>1</sup> vaccinated and kept in quarantine before being passed on to the interior. Bathing stations were also constructed in other parts of the country.

The League of Nations provided material help in the form of food, clothes, and transport, also by the provision of medical stores which would have had to be purchased in countries abroad with the disadvantage of a low rate of exchange;

<sup>1</sup> Typhus and relapsing fever are louse-carried diseases.



monetary subscriptions were invited from the constituent Members of the League and an Epidemic Commission sent under Dr. Norman White. The Commission was given the task of strengthening the weak points in the Polish '*cordon sanitaire*'; they set up a line of sanitary camps all along the Polish frontier wherever roads or railways entered the country; no refugees were allowed to pass through without examination and disinfection of their belongings; any already infected were taken into hospitals and quarantine stations. The medical and ancillary staff were engaged locally. Fifty hospitals of fifty beds each were equipped, the situation seemed to have been met, everything was going well, although the work of the Commission had had to be cut down because the funds available were nearly exhausted, but the number of new cases was lessening when all of a sudden the scene was changed.

In November 1921 famine spread to the Ukraine and the whole of the population was severely attacked by epidemics, cholera also broke out and travelled westward. In December 1921 and January 1922 a wave of refugeeism swept the famine areas, many desperate peasants moving north-west; taking to the bypaths and forests they easily crossed over the long Polish frontiers in the gaps between the quarantine stations. At the same time repatriation of Polish prisoners of war was going on: although there was an agreement in the Polish-Russian Treaty of Riga that repatriation should not exceed the rate of 4,000 a day in the crisis of famine, it was impossible to force this rule. The situation in Poland was exemplified by the following report from Baranowicze, the chief quarantine station: 'In the first week of December 1921 of the 540 dealt with at the station, all the arrivals had to be admitted to the hospital. One hundred and twenty of them died in hospital, 59 were brought in dead. Of the 400 members of the personnel 114 are at present down with typhus.'

The movement of refugees meant the increase of typhus and relapsing fever. Already the League of Nations had

recognized the necessity for obtaining information on health conditions in Russia. In September 1921, on the recommendation of the Health Committee, the Council of the League decided to carry out a brief inquiry in Russia. In consequence, the Epidemic Commission was able to get into touch with the Health Administration of the Soviet Government and took charge of the Health side of Dr. Nansen's Relief Administration. Dr. Farrar, the first British representative on Dr. Nansen's staff, died of typhus in December 1921. He was succeeded by Dr. Haigh, who reported on conditions in several Russian towns.

Owing to the activities of the Friends' Relief Committee some information was available as to conditions in the Volga basin where the diseases first broke out. They were deplorable: the Committee reported that 'in the typhus hospitals at Buzuluk (Samara) men, women and children are lying in one ward, six and eight in each bed. There is no change of bedding, disinfection is impossible, as the patients have no clothes to change into on admission. Patients are lying on filthy mattresses, sometimes dead and living are to be found in the same bed. . . . Burial of the dead is practically impossible. The bodies are stripped of any clothing fit for further use and put in sheds.'

Again:

'The hospitals are absolutely without equipment or drugs, and many must have been closed if it had not been for the help we were able to give. The patients had to bring their own dressings, otherwise they were not admitted. The nurses are without medical knowledge of any kind, and the people for the most part receive no treatment, but die in an undescrivable state of dirt and disease.'

Dr. Haigh journeyed from Western to Central Russia and then on to the Ukraine. He reported that *Minsk* was continually infected by epidemics caused by the movement of refugees flying from Russia towards the Polish frontier, which were not controlled by the police or any other body. Rarely was an attempt made to separate the unclean from the clean, so that lice infected with typhus were able to pass from those already infected to the clean and so

pass on the disease. Any attempt made to cleanse the dirty failed through lack of wood, sulphur, soap, etc. He recommended that 'the refugees should be registered on arrival and no refugee allowed to pass into the towns or into clean houses, unless they possess certificates stating that they have been bathed and that all their kit has been disinfected.'

The Russian soldiers proceeding to the Polish front also spread disease. They were suffering with relapsing fever even more than typhus. Some of the *échelons* were heavily infected and were not cleansed *en route*. The necessary supplies of clothing, especially underclothing and socks, were not forthcoming. A further danger was produced by refugees making for Poland, who had taken refuge in the woods extending along the whole of the White Russian frontier. They were without any medical help and their movements were under no control. Sanitary arrangements for controlling enteric diseases—including proper water-closets—and the supply of drinking-water were inadequate, if they existed at all. The chief offenders were the railways, which had the greatest responsibility.

At *Smolensk* the requirements included a large bathing-train for the soldiers, capable of dealing with 1,000 patients daily, with delousing rooms attached; also barracks to house refugees to the number of 1,000 to 1,500, and emergency isolation accommodation for 800. It was difficult to guarantee the supply of wood to the bathing trains; this in a country of forests!

At *Vitebsk* (Feb. 1922) there had been a shortage of food at one time, the repatriated only received  $\frac{1}{4}$  lb. of bread daily; at the time of the report, the Central Organization could give  $\frac{1}{2}$  lb. of bread and some meat soup. The refugees spread infection among the clean *échelons*; they mixed with the soldiers and begged from them.

The Central Government Organization was quite efficient and was doing very good work with the means at its disposal.

The transfer of children from the famine zone had been a very difficult problem, and there were at the time 9,000 housed in the district, many suffering from enteritis. Infectious cases were not excessive. They needed every form of help, and could not be fed properly owing to the lack of funds.

*Orsha*, 24/2/1922. For safety from enteric diseases, measures

for cleansing the railway tracks were urgently required, otherwise 'flies will become a plague and a further source of infection. It is most important to provide proper closets and to enforce their use.'

*Viasma, 2/3/1922.* The railway station buildings generally contain a fair number of refugees, some of whom lodge in neighbouring barracks. It is difficult to clean the waiting-rooms, which are generally full. The chief infection is relapsing fever, with a few cases of typhus; shortage of fuel has made it difficult to heat the hospital buildings and to arrange for proper bathing and disinfection.

The railway sanitary service had adequate materials and labour; excrement was collected and disposed of by flat trucks, and the dead collected from the lines and trains; 300 bodies were found in January. The sick were collected from the station and taken to a well-organized and clean receiving station near by, which is worked by the Central Government Organization; from this station they are removed, if necessary, to the Epidemic Hospital, installed by the People's Health Commissariat in a school, the overflow goes to another hospital in a barracks; convalescents pass on to a larger barracks in the town.

A graphic picture was drawn by Dr. Haigh of the conditions produced by famine in the Ukraine. In many areas hospitals had to be closed, in others they were so overwhelmed that the patients admitted for hunger conditions had to be placed in the same ward and often in the same bed. In addition to the shortage of food there was a complete lack of material and drugs and fuel. The refugees crowded into railway stations for shelter and remained there for days waiting for trains. The South Station at Kharkov was filled with families in flight for the Volga; the floors of the waiting-rooms at night were a mass of sleeping bundles, no way could be made through them. During the day the refugee families camped out in the rooms, at night homeless students came to sleep there; no cleansing was possible, and the place became a steady source of infection with louse-borne disease both for people travelling by railway and the inhabitants.

Adequate sanitary control at important railway junctions was urgently necessary to remove cholera patients from the trains.

Independent testimony, if any were wanted, was provided by Prof. Muehlens (Germany), who in March 1922 reported that 'the

disaster which is already absolute and complete in the Volga areas, is also beginning to overtake the Ukraine.'

Apparently healthy people leaving the affected area may be even more dangerous than the sick who are confined to bed and are freed from infection before they are allowed to mix with other people.

Other reports indicated that the lowered resistance of the population owing to famine led to a considerable increase of disease due to social conditions, notably tuberculosis. Governmental assistance was withdrawn from Russian medical institutions, which henceforth had to raise their own funds; in consequence half of them had to close down. The death-rate amongst doctors and medical personnel had been very high, between 10 and 12 per cent for medical personnel and between 15 and 22 for doctors. In the government of Kharkoff, out of 263 doctors 47 (or 17.9 per cent) had typhus.

Dr. Haigh paid a tribute to the work of the Russian authorities, 'which was carried on with very limited resources in money and kind in the face of a sudden epidemic brought into their midst by an uncontrolled swarm of refugees flying from famine. Their devotion to duty was splendid and resulted in a heavy casualty list of victims to typhus and relapsing fever. Failure to localize the epidemic and to keep it within their own frontiers was due chiefly to lack of means and of medical and sanitary supplies and the impossibility of control of the movement of refugees by the Central Government. There was no direct and local inspection by the officers of Government Departments and the Central Evacuation Organization to inform themselves of the real state of affairs. The League of Nations inspection was the first and was months too late. Indirect factors were lack of food and the disorganization of all life by the re-introduction of free trade and a perpetual lack of fuel in a country of forests.<sup>1</sup> If any measures against the present or any future epidemics in Russia are to be effective the outside world must help.'

<sup>1</sup> There were, however, other difficulties; in Russia there exists a vivid contrast between a body of skilled doctors, small in proportion to its vast population, and a generally low level of hygiene. The situation was then complicated by one of the results of the Second Russian Revolution which 'threw open the doors of the Universities to any one who could read or write, with disastrous results as regards

An outline drawn up by Dr. Mackenzie, of the Friends' Relief Committee, indicated briefly the requirements for the Buzuluk region in similar outbreaks.

I. *Anti-typhus work.*

(a) Establishment of efficient quarantine stations at Buzuluk for refugees arriving from Tashkent. This will include a small reception hospital.

(b) Renovation and where necessary the institution of bathing-houses in Buzuluk and the larger towns.

(c) Institution, staffing and equipment of a public laundry in Buzuluk and the larger towns—provision of hot-water troughs for washing, etc.

(d) The further equipping, renovation, etc., of the Epidemic Hospital for the isolation of cases of infectious disease arriving by train or occurring in the town.

(e) Institution of a disinfecting column for houses, so that all contacts of cases removed to hospital can be deloused and disinfected.

(f) Assistance in the transport of sick by loan of horses.

(g) The renovation or provision of an infectious block to be attached to the hospitals in the larger towns.

(h) The provision of an isolation point in each village for the immediate reception of sick prior to removal to nearest hospital for infectious cases.

(i) A flying column of feldschers and nurses that can be trans-medical education, particularly as no examinations were being held at the end of the appointed curriculum.'

This astonishing condition had recently been done away with; but between an extreme shortage of drugs, due to the naval blockade, and a shortage also of doctors, the Russian Health Ministry and the Government organization regulating the movements of the population were unable to cope with the situation.

Dr. W. Horsley Gantt, who worked with the American Relief Association in Russia, says: 'The public health organization which the Soviets inherited from the Tsarist régime was almost *nil*, and there was thus a strong contrast between Russia and such countries as Germany and Finland. These two countries also were devastated by war, revolution, famine and disorder, and epidemics appeared in them at the same time as in Russia, but, thanks to their highly organized public health systems and the general education and cleanliness of the people, typhus was soon checked.'

ported to any area which is threatened by an extensive typhus epidemic. This will enable the local hospital to cope with the cases and also check the spread of the disease to other areas.

(j) Provision of bathing accommodation, etc., for the refugees at the station at Buzuluk.

2. *The equipment of hospitals generally.*

Provision of sheets, blankets, drugs, instruments, and especially bacteriological equipment.

3. *General sanitary work.*

(a) Doctors and feldschers for supervision of sanitary work in town, especially in the bazaars.

(b) Assistance in cleaning-up campaign.

(c) Propaganda work—especially in connection with typhus fever, etc.—lectures.

4. *Organization of typhoid and small-pox inoculation campaign.*

5. *Children's Homes.*

(a) Institution of training centre for Children's Homes.

(b) Provision of sheets, blankets, etc.

(c) Assistance in the reconstruction and renovation of Children's Homes and the provision of bathing and sanitary facilities.

6. *Bacteriological laboratory.*

The provision, with staff, equipment, etc., of a bacteriological laboratory for the *ooyezd*, to be situated at Buzuluk.

7. *Training of nurses.*

Assistance to girls to train as nurses at the University Hospital at Samara, who will return to work in Buzuluk.

8. *Assistance to students.*

Assistance to medical students in the *ooyezd* and feldschers whose course has been interrupted by the Revolution, and who are unable to complete their training owing to poverty.

In January 1922 the recrudescence of disease caused the Polish Government to apply to the League of Nations to summon an International Health Conference in Warsaw. The League Secretariat accordingly organized a Conference in March, which was attended by the representatives of twenty-seven nations, including Germany, Hungary, Soviet Russia, the Ukraine, and Turkey.

After some consideration of the health reports of the countries concerned, the Conference concluded that a defensive campaign along the Russian frontiers would merely prolong the situation and cost more in the end than an offensive against the main position of the epidemics. They accordingly drew up a plan for attacking the diseases on railways, waterways, and in the Donetz Basin. It estimated that if £1,500,000 were provided an effective control could be gained over the situation.

These proposals were sent to the League of Nations for transmission to the Genoa Conference, who approved the plan, and recognizing that the countries chiefly concerned could not make the necessary efforts by themselves, asked the European Governments represented at the Conference to appeal to their legislatures for the money required, but very little help was afforded and voluntary societies had to do what they could to fill up the gap.

The need for sanitary conventions between the various countries concerned became apparent: a committee was appointed to work out the principles on which they should be based. It was generally agreed that certain modifications were necessary to the International Sanitary Convention of 1912 with regard to land frontiers.

In view of the differences between the public health organizations and the epidemiological and other conditions in individual countries in Europe, the Committee considered that while health agreements between neighbouring countries should as far as possible conform to uniform principles it was impossible to lay down a model type of agreement for all contracting states, and held that it would be advantageous to adopt two or three types of conventions. If differences should arise as to the application of the agreements, the contracting countries were recommended to call in experts for the purpose of arbitration and mediation. The Plenary Conference subsequently recommended that the Health Section of the League of Nations should be entrusted with this duty of arbitration and mediation



without prejudice to the right of any State to have recourse to a different procedure.

Poland and Czecho-Slovakia at once entered into negotiations based on such draft sanitary conventions, an example followed by other Central and Eastern European States.

The conventions deal with the exchange of information about the incidence of disease, define infected districts, outline preventive measures on land and water frontiers and detail the measures of inspection, disinfection, observation and quarantine to be applied. By the terms of these conventions, health administrations are authorized to deal directly with each other and with the Health Organization of the League instead of through diplomatic channels as formerly.

The new plan for preventing epidemics crossing land frontiers is more flexible and better adapted to the circumstances of everyday life than the old system, which was limited to posting at certain chosen points along the frontier officials who were required to carry out regulations, some of which, at least, were out of date.

Under the new arrangements in the neighbourhood of frontiers efforts are to be limited to establishing a zone where the severity of medical inspection can be redoubled and where a patient suspected of the disease in question can be placed under close observation, notified and sent to hospital and thus prevented from journeying to the interior of the country to spread his malady.

Exchange and observation stations, scattered along the principal points of the sanitary zone and directed by doctors expert in the diseases in question, are to follow up suspected cases, and inspect travellers journeying by all the means of communication. During the discussion at Warsaw the terms 'sanitary barrier' (*cordon sanitaire*) and 'quarantine' were condemned. It was pointed out that 'sanitary barrier' meant nothing, for it is not possible to set up a barrier along thousands of miles of frontier. 'Quarantine' can never be regarded as scientifically complete unless accompanied by a bacteriological

examination, which would mean the establishment of more elaborately equipped medical stations. The terms used should be 'sanitary zone', and 'exchange and observation station'.

The better supervision instituted required a larger and a trained personnel; steps were taken to meet this want.

In Warsaw, courses for medical officers of the Public Health Service were arranged, monetary assistance being provided by the League of Red Cross Societies. Both lectures and practical work were arranged; the syllabus included instruction in methods and the technique of epidemiological investigations, administrative methods, international agreements and conventions and the treatment and etiology of infectious diseases. Visits were made to the sanitary zone on the eastern frontier of Poland, the quarantine station for returning refugees at Baranowicze, and the rest station and hospital at Bialystok. A course of epidemiology for nurses was carried out early in 1923, and later one for sanitary inspectors. At Moscow and Kharkow courses of instruction for medical men were arranged by the Russian Health Authorities, assisted by the League of Nations Epidemic Commission.

Side by side with the League of Nations and in close co-operation with it, the League of Red Cross Societies, took an active part in Polish health relief work. Hospitals and orphanages were established, dispensaries and infant welfare stations and district children's health committees organized.

Much of the actual work consisted in the distribution of food and clothing among the children, the visiting of peasant homes and the fighting of typhus fever. The children were bathed once a week at a centre; while they were in the bath their clothing was looked over to see if vermin was present or not: if so it was disinfested. Where cases of typhus fever had occurred efforts were made to get the house cleaned up. All the contacts were bathed and their clothes fumigated if necessary. The workers protected themselves by inoculation against small-pox, typhoid fever and cholera; they had frequent baths, and after contact with a case of typhus examined their clothing, and especially their underclothing, for vermin; they changed their clothes immediately after risk of infection.

In Russia, an epidemic of malaria followed on the heels

of typhus; malaria has for many years been prevalent in Russia, but in 1922 the disease spread over the whole of the country, even to the Arctic. New strains of the malaria parasite were introduced by the movements of armies and refugees; the famine in the Volga region forced the population to journey from their homes in search of food to Turkestan, Bokhara, Siberia, and the Caucasus; on returning they brought back with them the most severe form of malaria. The disease spread widely, whole villages were stricken, in many districts as much as 40 per cent of the population were attacked. Many deaths occurred; as the winter came on, the death-rate increased and the epidemic steadily invaded fresh districts.

Dr. M. D. Mackenzie, who was working in Russia, thought that the explanation of the spread of the disease with such rapidity in the depths of a Russian winter was that the houses of the peasants were built of logs and are heated by brick stoves, with the result that though the outside temperature is  $-30^{\circ}\text{C.}$ , the temperature of the moist hot air in the hut is almost tropical. In each hut is a butt for drinking-water, and mosquitoes remaining in the huts from the summer lay their eggs there. The larvae had developed and the *anopheles* could be readily found all through the winter in the dark corners of the peasants' houses. Also the firewood, which is brought in from the marshes covered with snow, may from time to time contain eggs of mosquitoes laid in the cracks. As the snow melts in the hut, the bundles, being dripping wet, act as excellent breeding grounds for these eggs. After the arrival of firewood an increase of mosquitoes was regularly noticed by peasants.'

Undoubtedly the scanty food of the population seriously diminished their resistance; the wide spread must be attributed to the destruction of the technical sanitary organizations. The peak of the epidemic was reached in 1923, when over six million cases were reached: this figure is said to represent only one-third of the actual number.

The refugee problem also occurred in Southern Europe.

The Russian revolution of 1917, followed by the defeat of the White Army in 1920, caused one and a half million Russians, drawn from all classes of the population, to leave their country and escape into Central and Southern Europe.

Early in 1921 the condition of the large number of refugees from the Crimea who had fled to Constantinople attracted the attention of the League of Nations; they appointed Dr. Nansen as High Commissioner to co-ordinate the efforts being made on their behalf. The starving had to be relieved, inquiries had to be made as to the possibilities of work in various countries, Governments had to be asked to relax their regulations limiting immigration, and the refugees provided with 'identity' certificates to give them a legal status, and the way had to be opened to enable any desiring to return to Russia to do so.

Eventually the refugees were evacuated from centres such as Constantinople and distributed among those countries, including the U.S.A. and Canada, which were willing or could be persuaded to find at least temporary employment for them.

Early in 1922 the operations of the Greco-Turkish War caused a panic among the population in the area affected and a large number of Turkish refugees fled to Constantinople. After the defeat of the Greek army in the autumn of 1922 an influx of Greeks and Armenians into Constantinople occurred: they brought small-pox with them. Other Greeks, inhabitants of Asia Minor, fled to the coast in order to get back to Greece.

Dr. Nansen effected the repatriation of a large number of Turkish refugees back to Asia Minor; medical supplies of all kinds were sent to the Turkish Red Crescent through the League of Nations Epidemic Commission. Meanwhile more than 900,000 refugees had arrived in Greece, including 300,000 from Eastern Thrace and at least 50,000 Armenians.

Their condition was appalling: many were emaciated and starving, with practically no clothes to their backs, without tents or huts of the most rudimentary kind to protect them

from the cold climate ; almost everywhere there was a complete ignorance and absence of sanitation. The High Commission obtained clothing ; the Greek Government did their best to provide food and shelter, and as soon as possible made strenuous endeavours to absorb part of the new population into their agricultural districts. A model settlement providing for over 15,000 refugees was founded in Western Thrace by the High Commissioner ; later a Refugees Settlement Commission was formed to assist the Greek Government.

But before all this could be done epidemics of small-pox, cholera and enteric fever broke out among the refugees. The Epidemic Commission inaugurated a vaccination campaign ; a body of some eighty Greek physicians, medical students and health inspectors was organized and about 550,000 refugees inoculated against the three prevalent diseases.

### EPIDEMICS IN EASTERN EUROPE

#### RUSSIA.

	No. of cases (official figures where available).		
	Typhus fever.	Relapsing fever.	Small-pox.
1913 . . .	105,637	28,773	—
1914 . . .	—	—	94,000
1918 . . .	141,638	16,662	57,000
1919 . . .	2,240,858	227,927	166,340
1920 . . .	2,667,500	1,030,624	98,176
1921 . . .	545,587	628,199	85,285
1922 . . .	1,556,342	1,675,120	47,332
1923 . . .	245,876	253,130	40,000
1924 . . .	126,946	49,586	28,553

#### *Cholera.*

1919 . . . . .	41,289
1920 . . . . .	22,100
1921 . . . . .	205,000
1922 . . . . .	93,232
1923 . . . . .	159
1924 . . . . .	10

*Malaria.*

1914 . . . . .	3,170,547
1922 . . . . .	1,623,000
1923 . . . . .	6,000,000

*Plague.*

1923 (Jan. 1-July 31) . . . . .	135
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Typhoid fever and dysentery showed no great increase during the war and famine years. The number of cases occurring are, however, given to indicate the low standard of hygiene prevailing in Russia :

	Typhoid fever.	Dysentery.
1913 . . . . .	374,862	445,955
1914 . . . . .	355,000	—
1918 . . . . .	109,000	5 9,000
1919 . . . . .	252,000	137,000
1920 . . . . .	424,000	324,000
1921 . . . . .	308,000	197,000
1922 . . . . .	391,815	365,691
1923 . . . . .	142,012	239,231
1924 . . . . .	166,399	338,567

## POLAND.

*Typhus Fever.*

	Number of Registered Cases.
1919 . . . . .	231,306
1920 . . . . .	157,612
1921 . . . . .	45,262
1922 . . . . .	42,785
1923 (Jan. 1-July 1) . . . . .	9,251

*Relapsing Fever*

1920 . . . . .	5,613
1921 . . . . .	13,766
1922 . . . . .	41,211
1923 (Jan. 1-July 1) . . . . .	1,779

*Small-pox.*

1919 . . . . .	1,864
1920 . . . . .	3,948
1921 . . . . .	5,078
1922 . . . . .	2,399
1923 (Jan. 1-July 1) . . . . .	345

*Cholera.*

1919 . . . . .	35
1920 . . . . .	205
1921 . . . . .	12
1922 . . . . .	125

(of which 121 were among repatriated at the frontier station of Rowno.)

## AERIAL TRANSPORT

Aerial transport will undoubtedly assist in the spread of disease. When ordinary means of transport are used infectious disease can be detected during the relatively slow journey of the passenger : he can be isolated and the spread prevented. But difficulty occurs even now, in the case of diseases like small-pox, in which a long period (12 days or more) occurs between the day on which the patient contracted the malady and the day on which the illness first manifests itself. An outbreak occurred in London in this way : a man was infected with small-pox in Spain, the first signs of the disease only appeared several days after he had been in this country. The rapidity of air transport will be a factor in spreading diseases of even shorter incubation periods than that of small-pox.

Aerial transport renders possible the introduction for the first time of diseases into countries which have escaped up to the present owing to their geographical position or the existence of adequate preventive measures which have hitherto proved sufficient. India, for instance, does not suffer from yellow fever, but if it were introduced the conditions favour-

able for its spread are all there, the climatic and meteorological conditions are favourable, the *stegomyia* mosquitoes to act as hosts are abundant. To-day the journey from the nearest endemic source by the usual means of traffic is so long that anyone in the incubation period of the disease would develop the disease *en route* and thus be dealt with; also no infected mosquito can survive the journey. But if an airship line were instituted between India and Africa—taking hours instead of days—the danger might become very real.

Arrangements will be required to ensure that aircraft cannot land passengers at airports from centres of infection, before the Government has been informed of the existence of the dangerous infectious disease in the country of departure; for this purpose wireless must be employed. Air Commodore D. Monro has given an account of the action taken in Egypt in connexion with the aeroplane communication between Iraq and Egypt; cholera was present in Iraq in 1924.

The aeroplane journey between Baghdad and Cairo takes less than 24 hours; in less than the incubation period of the disease, therefore, the 'contact' or 'carrier' could be in Egypt. In consequence all persons arriving from Iraq by aeroplane were detained until the necessary bacteriological examination and agglutination reactions had been carried out for detection of carriers—a matter of five days. Any person in whom the vibrio of cholera was found was sent into the cholera wards at the Suez Hospital.

That sanitary supervision of air traffic is of real importance is shown by the fact that the last outbreak of rabies in dogs in this country was caused by the bringing over of a dog from the Continent in an aeroplane.



## CHAPTER III

### INTERNATIONAL SANITARY CONVENTIONS

**L**EGISLATION relating to infectious disease in ports is drawn up in accordance with International Sanitary Conventions which have been formulated at International Sanitary Conferences from 1851 onwards. Until 1903 the conferences were held in a spasmodic fashion ; in that year the Italian Government proposed a conference in Paris for the purpose of collecting into one agreement the existing conventions. At this meeting it was proposed to found an *Office International d'Hygiène Publique*. An agreement between the different Governments was drawn up and eventually signed at Rome in 1907 ; it provided for the establishment of head-quarters, funds and staff, for the issuing of a monthly bulletin and for a permanent Committee, which except during the War has since held meetings at least once a year, bringing together representatives of the public health work of their respective Governments to discuss questions of international importance.<sup>1</sup>

The aim of these Conventions is to get a uniform way of dealing with imported infectious disease throughout the world ; the whole object is to hinder as little as possible commerce between nations, or, to put it more particularly, the business of a port, and yet to safeguard the workers in the port and the people living in the towns and the country generally from infectious disease brought in from abroad.

A very trenchant criticism of the defects of these Conventions in the past has been made.<sup>2</sup> The international adoption

<sup>1</sup> See also p. 205.

<sup>2</sup> See 'An Address on International Organization and Public Health', by G. S. Buchanan, C.B., M.D., *Lancet*, I, 1921, p. 415.

of these principles, though secured by international agreements, has, however, not seldom stopped at the signature of these agreements. Some countries have regarded sanitary conventions as merely giving minimum requirements, and in practice have superseded them by laws and regulations greatly in excess of the principles of the agreements to which they are signatory. Other countries, including certain of the British colonies, have stayed out of the Conventions and retained old-fashioned quarantine laws. All these Conventions depend in large measure on a system of formal notification to other countries of the first occurrence of plague or cholera in an affected country, but their requirement has often been defeated by the burden of its own formality. Under the Conventions the health department of one country does not notify the health department of another, but the information proceeds through diplomatic channels and Foreign Offices, for which, naturally enough, any report of plague or cholera carries with it visions of disaster, restrictions, reprisals, and other fantasies which attend the unknown, and thus leads, if not to suppression of facts, at least to delay and to studied ambiguity in their presentment which defeats the object of the notification. And perhaps the greatest difficulty with these Conventions is their absence of elasticity. The Convention of 1912, drawn up after long conferences and discussions, was only ratified in 1920. Though in many ways a satisfactory code and in advance of that of 1903, it was already in several respects out of date.

The opinion was expressed that the next International Sanitary Convention should be framed on broader and simpler lines, leaving details to be filled in by schedules and supplementary agreements. Eventually these views were accepted; in order to carry out the new obligations of the new Convention of 1926 it will be necessary in future for practical quarantine questions of an international character to be brought regularly before the half-yearly meetings of the Permanent Committee of the Office, the members of which have the necessary

authority to make recommendations to the participating Governments.

The first 57 Articles of the new Convention are concerned with port sanitary work. The principle adopted in the 1912 and previous Conventions consisted in a classification of the ships according to circumstances and the result of medical examination as infected, suspected, or healthy. The action to be taken in the case of each class of ship was laid down. This system has been continued, but it had now become necessary to treat each disease separately according to its natural history ; the new Convention contains separate requirements for the procedure in regard to cholera, plague, and yellow fever respectively. Previous sanitary conventions have been based in theory on the principle of the official reporting of particular areas or ports as infected and on the limitation of the measures prescribed by the Convention to arrivals from infected ports. The suggestion that there should be an international agreement to regard every port as being infected when a given number of human cases of plague or a given number of plague-infected rats had been ascertained to occur within a given time was not accepted ; it was held that the advances of our knowledge point precisely in the opposite direction. It has been shown that the automatic declaration of an area or port as infected at a given date and as having ceased to be infected at another date would not be warranted, as in the case of cholera for example, by our present knowledge of cholera carriers, or in the case of plague by our knowledge of the way in which outbreaks of rat plague may continue when human cases have ceased to occur and vice versa. Great weight was attached to the practical experience that the formal labelling of a port as infected is inevitably regarded in many quarters as a slur upon the reputation of the port and so not infrequently leads to concealment from other countries that disease is occurring. In the new Convention, therefore, an effort has been made to get rid as far as possible of provisions based on the formal declaration that a particular area or port

has been infected and in compensation efforts have been made to improve the official notification of the existence of dangerous disease at ports.

To secure immediate information to Governments when an outbreak of one of the diseases in question occurs for the first time in a new area, the Convention requires that this occurrence is to be notified direct to the *Office International* in Paris, who will have the duty of deciding whether the information shall be circulated confidentially or published generally or broadcasted. The form of the declaration on this matter which Governments are required to make to other Governments by means of their consular services has also been simplified. The signatory Governments are also required to reply to any inquiry addressed to them from the *Office International* for information on any subject affecting the transmission of infectious disease from one country to another. The *Office International* in its turn is authorized to make arrangements with other international health organizations, such as the Pan-American Sanitary Bureau and the League of Nations in order to avoid duplication of efforts. The aim, therefore, of the Convention is to secure that the responsible authorities shall be supplied with the fullest possible information obtained from various sources, in order that the port sanitary authorities of each of the countries may decide for themselves what to do, and in particular to determine from time to time which arrivals need to be specially watched. Port sanitary authorities, however, have the right to medically inspect any ship, whatever its port of departure or call; the sanitary measures and procedure to which a ship may be subjected on arrival are to be determined by the actual conditions found to exist on board and by the medical history of the voyage.

The Convention is an improvement on the previous one in that it encourages such preventive action as vaccination at the port of departure and the provision of satisfactory health equipment at the principal seaports. A register of the health organization of the principal ports of each country will be

prepared by the *Office International* on information supplied by the several Governments. The fact that a ship arrives from a port which is well equipped in a sanitary sense does not thereby *entitle* it to any special advantages at the port of arrival, but as a matter of fact it is agreed that measures taken with regard to any ship's passengers and crew at ports which are well equipped shall be taken into the fullest consideration in order that any subsequent action taken in other ports should be reduced to a minimum.

The visit of Dr. F. Norman White to port health administrations in the Far East has done much to crystallize medical opinion with regard to these points. The Paris Convention of 1912 concentrated rather on the port of arrival than on the port of departure, a fact which raised great difficulties in the Far East where the conditions are far different from those in Europe. The Convention was based on the principle that each country is responsible for its own public health. In consequence each Government has to take the necessary measures to ensure good sanitary conditions in the ports of its country. Such a principle can easily be applied in Europe, a highly developed continent with a vast network of railways and canals and a comparatively short sea-coast, causing the traffic to be concentrated at a few fixed points and thus facilitating the control of the health of the ports. But the position in the Far East is quite different. Most Far-Eastern countries have long sea-boards; there are very few railways or means of internal communication, all the traffic goes by sea; in consequence there are a very large number of ports of all sizes. In the Far East, too, the centres of infection are so near that it is felt to be impossible to ignore the state of health at the port of departure to the extent permissible under the terms of the Paris Convention of 1912.

The need for dealing with infection at the point of departure is shown by the following example:

At Singapore, the harbour is divided into two parts, Tanjong Pagar and the Roadstead. Considerable transshipment of rice takes place in the Roadstead; this rice comes from depots situated on the banks of the Singapore river, where rat plague is often present. The rice is taken without any precautions in lighters to ships, by

which it is conveyed to various small ports none of which possess any prophylactic equipment. To prevent the spread of plague by the rice harbouring rats the simplest method is the destruction of the rats by fumigating each rice-loaded lighter before transshipping its cargo to the seagoing vessels.

Although the new Convention does not go so far as this, certain measures are laid down in Article 13. The competent authority is required to take efficient measures to prevent the embarkation of persons with symptoms of plague, cholera, yellow fever, typhus or small-pox, and any dangerous contacts; in the case of plague, to prevent the access of rats to the ship; in the case of cholera, to take steps to ensure that the drinking-water and food are not infected, and that any water used as ballast is disinfected if necessary; in the case of yellow fever, to prevent the access of mosquitoes to the ship; in the case of typhus, to disinfect before embarkation any suspected persons; and in the case of small-pox, to submit to disinfection any old clothes and rags before they are compressed.

Dr. Norman White suggests that ports should be divided into first, second, and third class ports. A port should be characterized as second class if it possesses: a qualified and adequate health staff, a trained staff and means for the capture and scrutiny of rats, an adequately equipped bacteriological laboratory, an infectious diseases hospital, a satisfactory water supply, and the machinery and legislation necessary for dealing with vital statistics, including the registration of cases of, and deaths from, dangerous communicable diseases. Ports not possessing all these facilities should be held to be third class ports. If in addition to this equipment an adequate apparatus is provided for fumigation of large vessels at anchor and a quarantine station suitable for detention and observation of deck passengers and disinfection of their effects, the port should be characterized as first class.<sup>1</sup>

<sup>1</sup> In view of the prevalence of water-borne diseases in the East it appears essential that every port with claims to be considered even second class should have sufficient water of a quality above suspicion for the supply of the shipping that uses the port.

At the present time quarantine stations are installed at nearly all the important ports of the Far East, with the exception of Hong-Kong and the ports of British India. A quarantine station is an essential for any large Oriental port. No port at which coolies or pilgrims land or embark can afford to be without one; it is difficult to see how any port can deal satisfactorily with outbreaks of cholera, small-pox and the like occurring on board vessels arriving in the harbour unless it possesses accommodation for the ship's complement, even if only for a short period of time.

The accommodation and equipment required at a quarantine station varies according to the nature of the trade of the port in question and other local circumstances, but generally speaking it should include: sufficient accommodation for the detention and observation of, say, 500 deck passengers and crew; adequate disinfecting plant for the disinfection of clothes and effects of passengers and crew; sufficient bathing accommodation; some hospital beds for the isolation and treatment of infectious disease, with temporary bacteriological equipment for use in case of need; and residential staff quarters. In tropical and sub-tropical climates the quarantine station must be freed from mosquitoes.

A description of the Singapore Quarantine Station, the largest in the world, is of interest. It is used for the detention of deck passengers removed from actually infected vessels and any disinfection required. The immigration to Singapore from China alone is over a quarter of a million a year. Situated on the beautiful island of St. John's, four miles to the south of Singapore, it is about one furlong long and half a mile broad. The hospital section, accommodating 6,000 patients, is entirely cut off from the part of the island where the suspects and contacts are housed; there is a separate isolation hospital for each of the chief infectious diseases. A large installation for distilling sea-water is provided, although lighters bring fresh water daily; rain-water used for washing is stored. There is a disinfecting section which contains three large steam machines, a formalin machine, and sulphur chamber.

Connected by trolley lines with the landing jetty is a shed to store the possessions of 5,000 coolie passengers.

The Singapore station is largely used for immigrant coolies ; at Batavia the station (situated on the islands of Kiuper and Onrust) is mainly used to provide accommodation for pilgrims returning from the Mecca pilgrimage, numbering between 20,000 and 30,000 every year. All pilgrims returning to the Dutch East Indies are first taken to some quarantine station ; if there is no serious infectious disease among them they are only detained to give an opportunity of thoroughly cleansing the ship, but if there is any such disease, they are kept in quarantine for the appropriate period before being allowed to return to their houses, which may be anywhere in the Archipelago.

All pilgrims starting for Mecca from the Dutch East Indies are vaccinated against small-pox and inoculated with a typhoid-cholera vaccine. At the last port of call for outward-bound pilgrim ships (usually Sabang, the extreme northern port of Sumatra) they are submitted to final inspection to ensure that they comply with the conditions laid down for such vessels in the International Sanitary Convention.

Dr. Norman White outlined a set of measures founded on this classification of ports ; they did not receive unanimous approval, but evidently served as a basis of a discussion at the meetings of the Permanent Committee, and may eventually lead to mutual agreements between pairs of countries concerned in port administration in the Far East.

### CHOLERA

Cholera has been the subject of international sanitary conventions for many years. The four successive Conventions of Vienna 1892, Dresden 1893, Paris 1894, and Venice 1897, dealt mainly with this disease ; safeguards were erected against the transmission of cholera from the East, where the disease was ever present, to the West, where when introduced in the past it had produced alarming outbreaks. Measures which since have proved very useful were laid down for the medical examination of passengers and crews leaving Far Eastern



ports, the protection of Egypt and of the Mecca pilgrimage against cholera infection, and the regulation of the quarantine services of the Suez Canal.

The new Convention has revised the quarantine restrictions for ships passing through the Suez Canal, and thus strengthened the hands of the Sanitary Maritime and Quarantine Board of Egypt. Quarantine measures for the Persian Gulf have also been prescribed. The system of protection of the various main routes to Mecca has also been revised ; with this not only are the authorities of British India and Dutch East Indies now concerned, but also the new administrations for Syria, Palestine, Irak and Transjordan.

Arrangements have been made to deal with the acute danger of the introduction of cholera infection by means of returning pilgrims into the new cotton-growing areas of the Sudan ; the efficiency of quarantine at Suakim, hitherto of minor importance, has acquired a new importance.

The new Convention encourages protective anti-cholera inoculation at the ports of departure at which cholera is prevalent. In the Far East cholera vaccination <sup>1</sup> is held to be of very great value ; the freedom of Java of late years from cholera is considered to be due to the abundant vaccinations which have been carried out. In French Indo-China cholera vaccination is made obligatory in any locality declared to be infected. Much vaccination has been carried out in Korea and the Philippines. Extended trials, however, of the degree and duration of the immunity conferred by different methods of vaccination and the different types of vaccine used should be made ; British India affords many opportunities for such inquiries. Cholera vaccination nowhere has encountered the least opposition from the native population, probably due to the absence of any reaction after the inoculation.

<sup>1</sup> In cholera the human being is all important : although it is most advisable to exclude ' cholera suspicious ' cargo and water derived from an infected locality from departing vessels, the chief measures have to be directed against the human source of the disease.

The new Convention does not authorize 'observation' of healthy 'carriers'. If they are submitted after disembarkation to any particular procedure, this will be the result of obligations which are equally imposed by the laws of the country of arrival on all the inhabitants. In view of the special risks to which Japan is exposed by the arrival of cholera carriers after short voyages from the mainland the Japanese delegation did not subscribe to this article.

In several Eastern countries it has been found that epidemics of cholera are occasionally heralded by outbreaks of gastroenteritis which simulate cholera; adequate bacteriological examination has frequently failed to detect the vibrio in the excreta, although later, using the same methods, the organism can be obtained in all cases without difficulty.<sup>1</sup> In the Convention it is set out that patients presenting clinical symptoms of cholera, but in whose case no cholera vibrio have been found shall be subjected to the same measures as are required for bacteriologically proved cholera until two bacteriological examinations, made with an interval of not less than twenty-four hours, have failed to reveal the presence of cholera vibrios.

### PLAGUE

The great plague epidemic which began in 1894 extended to Bombay in 1896, and obtained a permanent footing in India, has become widely disseminated. Ports have been conspicuously concerned with its spread; human plague has occurred in many ports along the Mediterranean and South American coasts, and rat plague at a very much larger number. It was soon found that it was not sufficient for the port authority to examine the passengers and crews arriving from infected areas and to provide isolation and surveillance of the sufferers and their contacts, measures adequate in the case of cholera, nor

<sup>1</sup> No sufficient explanation has yet been put forward; the same phenomenon occurs in the case of outbreaks of other intestinal epidemic diseases, notably dysentery.

did it suffice to await the occurrence of human plague on the ship before taking measures for the destruction of rats. It came to be realized that ports became infected, one after the other, by the transfer on board ship of plague rats, the accompaniment of human plague cases, either on the ship or on the shore, being a quite uncertain factor.

Port sanitary authorities all over the world have a direct concern in the suppression of rat plague on ships, in preventing the access of rats from ship to shore, and in keeping down the rat population of wharves, docks and warehouses, and in schemes for dealing with the discharge of cargo likely to harbour rats in such a way that the rat cannot escape to infect the rat population ashore.

The Convention of 1912 placed too much initial importance on the human case of plague as if it were the primary agent of infection. The provisions for internotification of plague between countries were restricted to human plague. The classification of ships as infected, suspected, or healthy, had the same defect; the most dangerous ship of all, the one which swarmed with rats suffering with rat plague, was classified as a 'healthy' ship and not as 'infected' ship, if no human cases had occurred during the voyage. The Convention, however, accorded powers of rat destruction in exceptional circumstances on 'healthy' ships; the defective definition caused the pendulum to swing, often unjustifiably far, in the opposite direction—so that any healthy ship from an infected port, whether it needed it or not, might have found itself treated as an exceptional case requiring immediate fumigation, total or partial,<sup>1</sup> before obtaining pratique.

Again, the 1912 Convention recognized that, apart from plague infection, there is need for measures to keep down the rat population in ships, and a clause in the Convention recommended the signatory Powers to require the destruction of rats on ships generally every six months. But this useful

<sup>1</sup> Partial fumigation is no longer in accordance with International Sanitary Conventions.

practice, in the absence of a sufficiently definite understanding between countries regarding its application, itself gave rise to many anomalies. Those countries adopting it tended each to exact its own requirements and specifications as to the methods of rat destruction in foreign ports, which must have been adopted in order that the home port might be satisfied about the last deratization; if these requirements or specifications were not exactly complied with, or if rats were found on the arrival of the ship, the deratization in the foreign port went for nothing and the ship had to undergo a new deratization, possibly within a few weeks of the last.

Practical experience is against the theoretically excellent sanitary practice of automatic deratization; it is now generally held that ships with no ascertained human plague or rat plague on board, although they have come from or touched a port infected with rat plague, should not be required to take steps to destroy any present. Consequently in the new Convention the provisions for six-monthly deratization of ships were altered; inspecting officers can be empowered, if satisfied, to exempt ships from being so treated at the end of each six months. A full inspection of the ship is authorized so that the medical officer can be satisfied as to the state of affairs; if there is no evidence of rat plague or of unusual mortality among rats and the ship is healthy, the requirement of rat destruction is not entirely forbidden, but is only to be asked for in exceptional cases and for well-founded reasons, which must be communicated in writing to the ship's captain.

Particular ports are designated by the Governments of different countries as sufficiently equipped to undertake the survey of ships for rats and secure efficient rat destruction on ships. Any effective method<sup>1</sup> may be used; fumigation with cyanide or any other toxic gas is not compulsory.

Ships will ordinarily be deratized when empty or under-

<sup>1</sup> In the Pan-American Sanitary Code uniform standards are fixed in the use of sulphur di-oxide and the hydrocyanide acid and cyanogen chloride gas mixture.

going their customary overhaul; the deratization will not be recognized as such more often than once in six months, save for the allowance of an extra month in certain circumstances. A certificate of deratization is to be issued specifying the method used and the number of rats killed.

A ship with plague-infected rats was formally defined as an 'infected' ship, and a ship with an unusual mortality among rats as a 'suspected' ship, also measures were authorized to prevent the rats reaching the shore, directly or through merchandise.

The form of fumigation certificate suggested in Dr. Norman White's report would contain information under the following heads: port and date; name of vessel; net tonnage; name of master; whether fumigated empty or in freight; preparation of the ship; limber boards raised; pipe casings opened; specific mention of each hold, engine-room, hold, shaft alley, bunker, forepeak, fore-castle, store-room, galley, living-room, and any other space likely to harbour rats; the fumigant employed, how generated, and its concentration in the various enclosed spaces; steps taken to destroy rats in lifeboats and other deck hamper; by whom inspection was made after fumigation; and the number of rats found dead and their location.

The Permanent Committee did not consider that the existence of rat plague should be notified in exactly the same way as the existence of human plague. It had been found that the circulation of figures specifying the number of plague-infected rats found weekly at a port has caused much confusion in interpretation and in administration; when plague becomes established among rats in a port rat plague frequently continues for months, or even years. It is extremely difficult even for an active port sanitary administration to ascertain its progress and to apply the tests necessary to ascertain if the plague bacillus is maintaining its virulence in the rat. In consequence, therefore of the difficulty of ascertaining these facts it was arranged in the Convention that each country should undertake to do its best to ascertain the conditions of rats in its

ports as regards plague and to communicate the results in the form of special reports made at reasonable intervals to the Central Office in Paris so that that Office may be able eventually to issue, for the guidance of port sanitary authorities, statements which show, not only the ports in which rat plague has been found, but also which places make the examinations necessary to detect rat plague and follow it up. In addition to this, the first discovery of rat plague in a port is required to be reported to the Central Office by cable or telegraph.

The provisions in the new Convention with regard to *yellow fever* have been brought up to date; the requirements of the 1912 Convention in regard to yellow fever did not satisfy, and were not practised by, any of the countries in the yellow fever zone; they were considered insufficient by the Governments of India, who made important proposals as to new provisions which could be accepted and worked by countries threatened by yellow fever. Although this disease has never been introduced into Asia, the mosquito capable of transmitting the disease, *Stegomyia fasciata* (*Aedes aegypti vel argenteus*), is prevalent throughout the warmer parts of the East, especially along the sea-coasts.

Fortunately much can be expected from restrictive measures scientifically applied; to their application the striking diminution of yellow fever in the tropical zones of Central America is due.

A ship is to be considered as suspected if it arrives after a voyage of less than six days from a port which is either infected or has close relations with endemic centres of yellow fever, or after a longer voyage if there is reason to believe it has brought *Stegomyia fasciata* from such a port.

A ship may be claimed as healthy even if it arrived from a port infected with yellow fever if during its stay in port it has been kept at a distance of not less than 200 metres from inhabited land and at such a distance from *pontons*<sup>1</sup> as to make the access of these *Stegomyia* mosquitoes improbable, or

<sup>1</sup> Pontoons, bridge of boats, hulks.

if just before it has been subjected to a satisfactory fumigation to destroy the mosquitoes.

In the case of suspected ships the sufferers are to be disembarked and any in the first five days of the illness are to be so protected from mosquitoes as to prevent them becoming infected. In the case of infected ships, in addition to these measures any others who disembark are to submit to observation or surveillance for not more than six days. Precautions as above are to be taken to prevent the access of *Stegomyia* mosquitoes.

Steps are to be taken to destroy the mosquitoes in all stages of their development, preferably before the discharge of cargo. If the cargo is discharged before the mosquitoes are destroyed the men employed are to submit to observation or surveillance for six days after they have finished working at this job.

Quarantine officers of the United States Public Health Service, stationed in places where the *Stegomyia fasciata* mosquito may exist, are required by their Government to submit semi-monthly reports of the presence or absence of these mosquitoes, together with the state of the weather and other conditions which may affect their propagation. These reports are tabulated in the Bureau of the Public Health Service at Washington so that the infectability of a given place with yellow fever may be ascertained with a considerable degree of accuracy.

With regard to *typhus* and *small-pox*, the new provisions of the Convention give effect and international sanction to the procedure authorized to be taken in this country by the Ports (Infectious Diseases) Regulations of 1920. Ships with small-pox or typhus fever are not classified as infected, suspected, or healthy. The ship gets immediate pratique; the measures of surveillance, vaccination, and delousing of contacts required by the Convention are adequate.

#### THE RED SEA AND THE MECCA PILGRIMAGE

The ordinary classification of ships as healthy, suspected, or infected, used in the Convention elsewhere, does not apply to

the Red Sea. Ships there are divided into ordinary and pilgrim ships. All ships are examined at Suez. The *ordinary* healthy ship coming from the south and travelling to the Mediterranean is allowed to pass through the Suez Canal in quarantine.

If the healthy ship coming from the south is going to touch anywhere in Egypt, the procedure is more complicated. If the port of departure is infected with plague, unless the ship has been on the voyage six complete days, the passengers who disembark and the crew will be submitted to surveillance until the end of the six days. If the port of departure is infected with cholera the ship may receive free pratique, but any one disembarking if four full days have not elapsed will be submitted to surveillance to the end of the period, or at the discretion of the port sanitary authority to observation on board or in a quarantine station.

Suspected ships with a doctor on board will be admitted into the Suez Canal in quarantine. If the ship is touching anywhere in Egypt when plague or cholera is in question the powers are extended so that observation may be substituted for surveillance.

Ships infected with plague or cholera are required to anchor at the Wells of Moses, or any other spot required by the port sanitary authority. If there is an outbreak of cholera on board the boat may be sent to El-Tor for vaccination of its complement and, if necessary, treatment of the sufferers.

During the Mecca pilgrimage, if plague or cholera is present in the Hedjaz, ships free from these infections coming from the Hedjaz, or any Arabian port on the Red Sea, are to be treated as suspected ships. If they are proceeding to Egypt they may be required to submit to a period of observation at a place fixed by the Sanitary Maritime Board.

If suspected cases have occurred, observation at the Wells of Moses may be required.

With regard to pilgrim ships, the Convention lays down



that at the port of departure all precautions should be taken even if the port is healthy.

If there are any cases of plague, cholera, or any other infectious disease in the port, the pilgrims are to be observed before disembarkation ; if cholera is in question, anyone accepting vaccination need not undergo observation. On all pilgrim ships the arrangements for feeding and providing water and the sanitary equipment, including a disinfecting stove, must be satisfactory ; the ship must carry a doctor, preferably with a special knowledge bearing on the requirements and approved by the Government of the country of departure ; adequate medicaments must be provided.

Measures to be taken during the voyage are laid down ; on arrival in the Red Sea, healthy ships carrying pilgrims coming from the south are to lay to at Camaran.

There the ships are visited by the port doctor ; if everything is satisfactory, and all the pilgrims have been vaccinated against cholera and small-pox, the ship may proceed to Djeddah, otherwise pilgrims are disembarked ; they are to take a bath or bathe in the sea ; any of their soiled linen or other article may be disinfected if required ; on suspected ships, in addition, the accommodation occupied by the sick persons must be disinfected.

Bacteriological examinations may be made, but in the case of both these classes of ships the pilgrims are not to be delayed for any reason for more than forty-eight hours in all.

In the case of infected ships the sufferers are taken to the isolation hospital. The other passengers are disembarked ; they are kept housed in as small groups as possible so as to limit the spread of any infection. Disinfection is carried out ; it may be partial as regards the ship ; the port authorities may allow the omission of the landing of the cargo. The period of observation is to be continued to the appropriate time after the occurrence of the last case. On arrival at Djeddah the boats are visited by the doctor and dealt with according to the conditions found.

Healthy ships coming from ports to the north of Suez affected with plague or cholera may pass through the Suez Canal in quarantine. If they wish to touch at Egypt they must proceed to Alexandria or Port Said, where the appropriate measures laid down by the Convention will be taken.

If no case of plague or cholera has been notified in the port of departure or its environs, and no case has occurred during the voyage, the ship is at once admitted into the port unconditionally. If these conditions do not hold the boat must proceed to El-Tor, where the procedure detailed above is carried out.

All pilgrim ships *returning* to the north, or any other Arabian port on the Red Sea, must proceed to El-Tor; any such ship passing through the Suez Canal does so in quarantine.

No non-Egyptian pilgrim may leave the ship at any Egyptian port except with special authorization from the Sanitary Maritime Board.

The Egyptian pilgrims disembarking must submit to observation for three days and to any necessary disinfection and disinfestation.

If plague or cholera has been notified in the Hedjaz or the port of departure, or has been in the Hedjaz during the pilgrimage, the boat is submitted to the same procedure as that described at Camaran for infected ships. Advantage is taken of the division of the pilgrims into sections to release them after the freedom of the section, but an additional period of observation of three days may be required in the case of Egyptian pilgrims.

If the presence of plague or cholera has not been notified in the Hedjaz or at the port of departure, and these diseases have not been present in the Hedjaz during the course of the pilgrimage, the ship is submitted at El-Tor to the procedure carried out at Camaran for healthy ships, but the pilgrims must not be delayed for more than seventy-two hours. In the case of pilgrim ships on which no cases of plague or cholera have occurred during the voyage from Djeddah to Yambo

and to El-Tor and the port doctor, visiting after re-embarkation, is satisfied that there are no such cases on board, such a ship is permitted to pass through the Suez Canal in quarantine, provided she has one or more approved doctors, the disinfecting stoves are in proper order, and the number of pilgrims is not in excess of those allowed by the port given as the next. A ship which during the voyage from El-Tor to Suez has a suspicious case on board may be sent back to El-Tor. Ships coming from the Hedjaz or an Arabian Red Sea port and proceeding to a port on the African coast of the Red Sea are to proceed to a quarantine station indicated by the Government concerned, where they submit to the same quarantine arrangements as at El-Tor. When infection has occurred during the pilgrimage ships returning to places south of the Strait of Bab-el-Mandeb can be required at the request of the consular authority of the country to which the pilgrims are returning to lay to at Camaran to submit to medical inspection.

Pilgrims journeying by caravan towards the north are required, whatever the sanitary state of the Hedjaz may be, to pass through one of the quarantine stations situated on their route, where they are dealt with in the same manner as if they had been travelling by boat. The Governments of the countries through which the Hedjaz railway passes are required to take steps to organize sanitary surveillance of pilgrims on the journeys to the holy places and to take prophylactic measures to prevent the spread of epidemic infectious diseases on the lines of the Convention.

The Sanitary Maritime Board of Egypt is entrusted with the duty of keeping all Governments concerned and the *Office International* informed on the sanitary condition of the Hedjaz and the Mecca routes; an annual report is also to be sent to the same bodies.

### BILLS OF HEALTH

Bills of health have been the subject of much adverse criticism of late years; many ships' officers complain of the

loss of time involved in obtaining consular visas at the different ports and the cost. Some of the bills of health used are futile, but countries like the United States and Australia, with more elaborate bills of health, specifying not only the condition of the port from which the ship departed or at which it has touched, but also the sanitary incidents of the voyage and the occurrence of illness on board, consider that advantage and simplification of their quarantine work results from the use of the bills of health. The Convention recommends that bills of health should be issued free, that fees for consular visas should be reduced by reciprocal arrangement so as not to represent more than the cost of the service in question, that the bill of health should be set out in at least one of the languages recognized in maritime commerce, and that special arrangements should be made between countries with a view to arriving at the gradual abolition of consular visas and ultimately of bills of health themselves.

A model form for a Bill of Health has been suggested by Dr. Norman White, which it is thought should preferably be issued in book form.

#### BILL OF HEALTH

Issued at the Port of..... Fee.....paid.

#### DESCRIPTION OF SHIP

Name.....

Flag.....Reg. tonnage.....

Surgeon.....

Captain.....

#### *Past History.*

First port of present voyage.....

Date of leaving port.....

Intermediate ports touched at.....

Infectious diseases on board during current voyage to date.....

No. of cases.....No. of deaths.....

Typhus .....

Bubonic plague.....

Primary pneumonic plague.....

Cholera .....

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Small-pox .....  
 Yellow fever.....  
 Number and causes of any other deaths.....

**Present History.**

Arrived on.....  
 Berthed at wharf (not) fendered off and (no) rat-shields applied.....  
                     roads  
 Cargo, nature of.....  
 (Not) Disinfected in this port.  
 (No) Provisions taken on board in this port.  
 (No) Water.  
 Number of crew (including captain) on leaving this port.....  
 Number of passengers on leaving this port : 1st class.....  
                     2nd and 3rd.....Deck.....  
 Leave on.....in a good sanitary state.....  
                                     indifferent

Destination .....

**Health of this Port.**

No. of prescribed cases during week. Total from January 1st ending.....19..... to date.....  
 Typhus .....  
 Bubonic plague.....  
 Primary pneumonic plague.....  
 Cholera .....  
 Small-pox .....  
 Yellow fever.....

**Rats.**

No. examined during week ending.....  
 No. infected with plague.....  
 Date of discovery of last plague-infected rat in port or harbour area, including stores from which produce is exported.....  
 I certify that the above particulars are correct to the best of my knowledge and belief.  
 Dated.....19.....

*Port Health Officer.*

**LAND FRONTIERS**

In the ordinary way there is no examination for health purposes of all travellers passing land frontiers ; only persons suffering from symptoms of the diseases mentioned in the Convention are to be retained at the frontiers. Each country,

however, may restrict the points of entry to certain designated points which are to be provided with sanitary stations. Travelers who have been in contact with a case of pneumonic plague may be detained for seven days, including the day of arrival; contacts with typhus fever may be deloused. Travellers from a locality notified internationally as being infected may after arrival at their destination be submitted to a surveillance not exceeding specified periods, which include the day of arrival: for plague, six days; cholera, five days; yellow fever, six days; typhus, twelve days; small-pox, fourteen days.

Permission is given to retain at the frontiers railway carriages which have been occupied by a sufferer with plague, cholera, typhus fever or small-pox, in order to disinfect them. As regards yellow fever, railway carriages used in countries where this disease occurs should be protected so as to prevent the transport of the *Stegomyia* mosquito. In the U.S.A., in accordance with the Pan-American Sanitary Code, passengers and trains at border stations are not detained unless they are known or suspected to be from infected territory, although, as a precautionary measure, cars found to contain *Stegomyia fasciata* mosquitoes are fumigated.

Persons travelling together and presenting individually or collectively insufficient sanitary guarantees in regard to their destination or otherwise, may be submitted to measures in excess of those applicable to ordinary persons.

Article 66 states that it is for Governments of the countries concerned to make the necessary sanitary measures to regulate passenger traffic by lakes and other inland waterways.

## CHAPTER IV

### FOOD

**G**REAT BRITAIN relies on outside sources of food supply to a greater extent than any other large community in the world: food is imported from all over the world. Enormous supplies of food essentials imported enables large quantities to be available; this makes for cheapness.

The marked improvement in the health of this country during the last forty years is due in considerable measure to the improvement in the food supply. Cheapness allows even the poor to vary their food: the change adds zest to the appetite, and in this way the body is adequately nourished and physique improved. The relation between the quantity of nourishing food and tuberculosis has been shown to be reasonably intimate. Supervision by Health Authorities ensures that the cheap food is also in satisfactory condition and free from disease.

A country which is so dependent upon its continental neighbours and its Dominions for food supply must interest itself in the hygiene of the food abroad.

The aim of supervision of imported food is to ensure that :

1. The products are in all respects sound and fit for human consumption.
2. Products which at one time were considered satisfactory have not deteriorated and become unsound and unfit.
3. Less desirable substances are not being substituted for those being purchased.
4. The addition of objectionable substances, e.g. preservatives, shall be prevented.

5. As far as possible the products shall be composed of materials which are definitely stated.

6. In those prepared foods in which certain unavoidable but at the same time objectionable contaminations may gain access in the course of manufacture, such contaminations shall be present in minimum and harmless amounts.

### MEAT

For many years importance has been attached to meat as a source of disease. The work of Dr. Sydney Martin for the First Royal Commission on Tuberculosis (appointed in 1890), on feeding animals with meat derived from tuberculous cows, showed how real was the danger of eating tuberculous meat, or meat contaminated with tubercle bacilli during its dressing. Later Dr. W. G. Savage's work on food-poisoning has shown the dangers resulting from eating meat derived from cows or pigs suffering with disease caused by infection with Gaertner's bacillus or an allied organism, or similarly infected in the slaughterhouse or during the dressing of the carcass.

Meat is one of the most important of all the foodstuffs imported. Apart from live animals sent to be slaughtered in this country some fresh meat is sent here from the neighbouring parts of the Continent, but a very large proportion of imported meat is brought in cold chambers from such distant places as South America, Australia, and New Zealand, and to a less extent from South Africa.

The meat is kept in chambers at a certain low temperature: various devices are used, the most convenient perhaps being the circulation of cold brine. Food placed in cold storage must be in a clean and sound condition; putrefaction is masked by freezing, and only fresh material should be admitted, otherwise mustiness will result. Any refrigerated food removed from store for sale, and thawed, should not be readmitted.

Refrigerated meat may be either frozen and chilled. Frozen meat is exposed to a temperature of 15° F., chilled meat to



a temperature of one or two degrees below freezing. Only beef is chilled; all mutton and some other meats are frozen.

Chilling cannot be used if the meat has to be brought from countries more than three or four weeks away; if chilled for longer than this, objectionable changes can no longer be retarded. For this reason meat from the Argentine is brought in the chilled condition, and all Australian meat must be frozen, seeing that chilled meat from that country on arrival has already almost reached the time limit: it cannot be marketed, sold and consigned sufficiently quickly.

A process used to treat chilled meat to enable it to be conveyed over longer distances without decomposing has given rise to much difficulty. The meat was exposed to formalin vapour; it was, however, found that the formalin was absorbed by the surface of the meat, and in consequence the consumer was offered food containing a substance most harmful to the digestive processes.

Difficulty has also occurred from the growth of moulds<sup>1</sup> on refrigerated meat: these are commonly black or white moulds, but blue or yellow moulds are also found. The black moulds grow into the superficial layers of the meat, the others are merely on the surface. Mould contamination is specially liable to occur when the meat has been improperly handled or stored prior to its being placed in the refrigerating hold. The spread of mouldiness is greatly encouraged by any faulty conditions in transit, particularly by failure to maintain the temperature at a uniform level. While the presence of these moulds do not in themselves constitute a reason for condemning the meat, the growth of the mould may be due to causes

<sup>1</sup> The organisms associated with mould on meat are numerous; they are principally varieties of *Penicillium*, *Mucor*, *Phycomyces*, *Verticillium*, and *Oospora*, and include a specialized and very frequently occurring form, *Cladosporium herbariorum*, causing 'black spot'. Coloured growths may be due to bacteria, e.g. *Bacillus prodigiosus* ('red spot') may also be associated with mould. There is little or no evidence which suggests that these moulds or their products are poisonous either in the raw or cooked condition.

which also favour the decomposition of meat, and meat showing conspicuous mouldiness requires special attention to detect signs of commencing decomposition or 'taint'. Scraping may be insufficient to remove the mould, and especially 'black spot', and trimming away the affected parts of the meat must be resorted to.

Some reference is necessary to the disease known as *Onchocerciasis*, which occurs in Australian cattle; worm nodules are found in the meat. When the disease is reasonably limited it is found especially in the brisket and in the region of the stifle joint. By an arrangement between the inspecting authorities in this country and Australia the brisket is removed from all forequarters and by means of approved incisions the region of the stifle joint is thoroughly explored. Although the disease is not transmissible to man, any such meat affected would be repugnant to the ordinary consumer; it is in consequence condemned. The efforts made have for some years succeeded in keeping such meat away from England, but at Liverpool in 1925 a considerable portion of several small consignments of Australian briskets and buttocks of beef, originally intended for Malta, were found to contain the worm nodules.

#### ORIGIN OF OFFICIAL CERTIFICATES

For some years prior to 1906 various malpractices and anomalies existed in regard to imported meat; lymphatic glands were removed from carcasses of Dutch pigs so as to prevent detection of tuberculosis or other disease conditions, while on the other hand pork certified by veterinary inspection under Government authority to be derived from animals free from disease, including tuberculosis, and accompanied by an official certificate, was being brought into this country from Holland. Representations were accordingly made by the Local Government Board to the Dutch Government.

Subsequently the frequent discovery of tuberculosis in carcasses of pigs imported from Belgium, and its representation to the Belgian Government, led to the adoption by the Belgian authorities in 1909 of a system of labelling pork which had

been passed as satisfactory by veterinary surgeons working under regulations supplemented for the purpose of complying with the British regulations.

Other anomalies entailing risk of importation of diseased meat resulted from the growing traffic in imported pork which had been cut up and packed in boxes in such a way that inspection was rarely practicable. Obviously it was unfair to allow such meat to come into this country, while pigs slaughtered in this country and found to be diseased were liable to be condemned, and in some circumstances the owner or consignor of the meat prosecuted. Chemical preservatives were also being added to meat; consignments of ox-tongues and pigs' maws examined at ports were found to be preserved with formaldehyde and the owners required to re-export the articles. Boric acid and sulphites were found in imported tripe, tongues and kidneys. Under the new meat inspection laws of the U.S.A. it was open to British importers of American products to demand the addition of preservatives to food to be exported to this country. Advantage was taken of the installation of cold storage on the large meat-carrying vessels to develop a formidable trade in frozen boxed meat of all kinds made up largely of scraps, trimmings, and other portions of meat which could not be identified with definite parts of the carcass.

In consequence of all these difficulties the Foreign Meat Regulations of 1908 were brought out. They constitute the legal sanction in this country for the system of official certificates issued by foreign Governments; the certificates may take the form of a label, mark or stamp, or some other indication, which is affixed to the package by a duly authorized person in the country of origin and is a guarantee from the Government that the meat was derived from an animal free from disease and that the method of preparation was such as to satisfy the official requirements.

It must be recognized that the detection of disease and the rejection of meat on account of diseased conditions are matters

which properly belong to the slaughterhouse, where the carcass can be inspected along with the viscera ; it is all to the advantage of the British consumer that the meat shall have been so inspected in the country of origin. Before a country is placed on the list of those whose official certificates are recognized, detailed information as to the methods of inspection and control officially required and practised in the country concerned is supplied, and veterinary and other expert officers of the central meat inspection services have visited this country to confer with the Chief Medical Officer. It is recognized that the criteria laid down for the condemnation of meat in the importing country will be followed by the officials of the exporting country. In the course of official visits abroad at the ports the Medical Officers of the Ministry of Health are shown all the arrangements for inspection of meat for export. Although occasionally meat with official certificates attached has to be condemned after arrival in this country these instances are of rare occurrence ; when the matter is reported to the authorities of the country of origin the duty of adequate inquiry exists.

The system of official certificates is by no means one-sided ; other countries with well-developed systems of food inspections have required that evidence should be furnished that imported foods have been subjected to a control or supervision in the country of their origin comparable to that required in the case of home prepared foods of a similar kind.

Under an Ordinance of the Swiss Federal Council meat and meat preparations imported into Switzerland have to be accompanied by a certificate signed by an authorized veterinary inspector in the country of origin attesting that the meat or meat preparation in question has been derived from an animal found, both before and after slaughter, to be free from contagious and infectious diseases. The Local Government Board made arrangements satisfactory to the Swiss Authorities whereby traders who export meat foods to Switzerland could obtain the required certificates. Inquiries are made of the

manufacturers and analyses carried out where necessary. Similarly meat foods exported from this country to the United States and Argentina must be certified; inspectors from the Ministry visit firms for whom a system of certification has been established and confer with the certifying officers (usually the Medical Officers of Health of the area) as to the sufficiency of the precautions taken by the manufacturers. It is interesting to note that the flesh of horses is exported from this country to France after it has been certified fit for human consumption, by a veterinary surgeon appointed by the Board of Agriculture; in some cases the organs must be sent with the carcass.

### SUBSEQUENT PROBLEMS AND LEGISLATION

After the issue of the Foreign Meat Regulations of 1908 much improvement resulted. Amending Regulations were found necessary in 1909; they dealt with scrap meat or trimmings of carcasses which contained bone but were otherwise open to the same objections as boneless scrap meat, the importation of salted pigs' tongues, the examination of which was sometimes rendered useless by the removal of the lymphatic glands which would have betrayed evidence of disease, and of diseased salted pigs' maws.

Subsequently difficulty arose in connexion with frozen offal sent from South America, the United States, New Zealand, and elsewhere. The organs were frozen in a solid mass, the interior of which when thawed from time to time showed evidence of disease or decomposition. This was remedied on representations being made to the importers; livers, hearts, plucks, tongues, and similar organs, are frozen separately before packing: the organs retain their natural shape and can be inspected individually in the frozen state. The possibility of putrefactive changes is lessened by removing the blood and loose connective tissue and ensuring that the thickness is such that the whole mass is chilled before putrefaction can take place.

In 1909 the importation of certain foreign meat necessitated the Local Government Board making inquiries in France and China. Carcasses of pigs were being imported from France in considerable numbers; on being thawed out and examined 8.4 per cent of the carcasses were condemned and surrendered for destruction, in nearly all cases on account of the presence of tuberculosis. It was arranged by the importer that, in any future consignment, examination for disease at the packing-house should be carefully made; later, evidence was forthcoming to the effect that this was strictly carried out. In the case of the Chinese pigs, owing to the alarm raised by the Press it was necessary to satisfy the public that these pigs were not scavengers living on whatever garbage they could pick up. Inquiries were made in China on behalf of the Board by Dr. Reginald Farrar, who happened to be there on another errand, when as a matter of fact it was found that the pigs imported were of an entirely different breed to the common razor-backed pig of China, the pig which is allowed to scavenge freely in China. The pigs in question were raised in a certain district of China where the pig-trading industry is a large one, and were fed on rice.

Some difficulty was experienced by meat-inspecting authorities in this country in deciding upon the fitness for food of carcasses of veal from calves which were so immature as to suggest that the animal was killed at birth or might even not have been born. These carcasses were principally imported from Holland; eventually the Dutch Minister of Agriculture required the inspecting officials to prohibit the export to this country of the carcasses of calves which when without the head, skin, and intestines, are less than  $21\frac{1}{2}$  kilos (47 lb.). The rule, although arbitrary, seems to eliminate calves to which objection may be taken on the ground of immaturity.

The position in this country has been strengthened recently by the issue of the Public Health (Imported Food) Regulations, 1925. To cope with modern conditions of transport, power is given to deal with food imported by a train ferry service

or by aircraft. It has been made a definite offence to import any article of food which at any stage of its preparation has been condemned in another country.

The importation of certain kinds of meat is prohibited; these include:

(1) Meat comprising the ribs and abdominal walls from which the lining serous membrane has been detached, the presumption being that if this membrane had been allowed to remain it would have betrayed the existence of disease, notably tuberculosis.

(2) The carcass of a pig with head attached if certain <sup>1</sup> lymphatic glands have been removed.

(3) The carcass without the head or any other part of the carcass if certain lymphatic glands <sup>2</sup> have been removed.

(4) The head of a pig if the submaxillary glands have been removed.

Removal of these glands takes away the ready means of determining the existence of tuberculosis.

(5) Tripe (defined as any edible part of a stomach), tongue, kidney, or other edible offal to which has been applied either (i) formalin or a solution or preparation containing formic aldehyde, or (ii) a compound containing fluorine or boron, or (iii) salicylic, formic, sulphurous or benzoic acids or any derivative of these acids.

Some foreign meat is conditionally admissible; this meat must be accompanied by an official certificate attached to the container. This includes lard, dripping, edible tallow, and similar rendered fats.<sup>3</sup> At Liverpool in 1925 several notices requiring firms to send their goods back were served on firms, chiefly in connexion with imports of lard compound which had on analysis been found to contain hog fat. The large imports of lard from China were temporarily suspended;

<sup>1</sup> Submaxillary, prescapular, precrural or popliteal glands.

<sup>2</sup> Prescapular, precrural or popliteal glands.

<sup>3</sup> Official certificates are recognized for these for Australia, Canada, Denmark, Holland, Italy, New Zealand, Sweden, Switzerland, U.S.A.

eventually an official certificate was recognized for lard imports from Hong-Kong.

The line to which tallows are edible and which are not varies largely as to the capacity of the refiners, but if 'officially certificated' apparently it must be admitted as fit for human consumption. Unfortunately the centre of a cask of tallow may be very rancid although the outside is sound.

Other conditionally admissible meat includes a severed part of the carcass of a pig (including the severed head and the whole carcass without the head) which has not been salted, cured, pickled, dried or smoked, or otherwise prepared, and from which no submaxillary, prescapular, precrucial or popliteal gland has been taken out, and all other edible parts of the pig except the intestines prepared in the form of sausage casings.<sup>1</sup>

Imported milk other than condensed and dried milk has been the subject of recent legislation.<sup>2</sup> No one is allowed to receive such milk from any place outside the British Isles unless he has previously been registered by the Sanitary Authority into whose district the milk is being imported; all such milk shall be in such a condition that on a sample being taken it shall be found to contain not more than 100,000 bacteria per cubic centimetre and to be free from tubercle bacilli.

### CANNED FOODS

An enormous amount of tinned food is imported into this country; on the other hand, a certain amount of canned food is manufactured in the United Kingdom and exported. A special degree of supervision is required in the case of tinned food. In canned meat, for example, only the carcass is used, and no one can reliably detect from looking at the contents of a tin whether the animal from whom it was derived was

<sup>1</sup> Official certificates for these are recognized for Argentina, Australia, Belgium, Brazil, Canada, Denmark, Holland, Latvia, New Zealand, Sweden, U.S.A., and Hungary.

<sup>2</sup> Public Health (Imported Milk) Regulations, 1926.



healthy or not. The changes resulting from the heating of the contents of the tin during the process of manufacture make it difficult to detect the use of products in a state of incipient putrefaction ; this is especially true of fish. Tins of meat or fish not very uncommonly contain the toxins of bacteria of the *Salmonella* group, a danger which cannot be detected by any simple means. Tinned milk may be derived from diseased cows, a fact which even bacteriological examination of the contents of each tin may fail to detect, if the sterilization has been efficient. In the case of fruit and vegetables there is the possibility that the food has not been sufficiently cleaned before tinning ; if contaminated with earth the tinned food may contain the virus of botulism, although very little change may be perceived even when the tin is opened and examined. Preserved foods are often stored for a very long time, during which they may deteriorate or absorb tin or even lead from the vessel.

The United States of America produce the largest quantity of tinned foods. The Foreign Meat Regulations (1908) already mentioned required that a mark or label accepted as an ' official certificate ' should attest that the preparation of the meat has been carried out under satisfactory conditions, and special attention has been given to the nature of the arrangements made with this object in the countries for which certification has been accepted.

Following on the Chicago meat scandal the United States Meat Inspection Act of 1906 was passed, which gave extensive powers to the Central Government (Federal) Authorities with regard to the inspection of meat and meat products. The slaughtering, packing, rendering and preparation of meat in establishments which sell or ship their products abroad is inspected by the 2,500 veterinary, laboratory and lay inspectors of the Bureau of Animal Industry.

Dr. J. R. Mohler, the Chief of the Bureau, writes :

' Only meats which have been " Inspected and Passed " and so marked and which are handled in accordance with the regulations

may be admitted into establishments where meats are canned for export. All meats are subject to identification and inspection at the time of admission and are re-inspected from time to time to ensure that only those which remain sound and wholesome and are handled in a sanitary manner are utilized for human food.

'All establishments which "can" export meats are required to have Federal inspection as prescribed by law and the regulations. These establishments are under the immediate supervision of Federal inspectors, who personally perform the inspections and see that there is due and satisfactory compliance with the regulations governing the sanitation of establishments and equipment, the cleanly handling of meats throughout, including storage, packing, processing, labelling, etc.

'The Federal Meat Inspection Service has seven laboratories located at advantageous centres throughout the United States for the purposes of maintaining laboratory supervision over the operations of establishments where meats are prepared and canned. The laboratory inspection of canned meats is directly connected with the inspection within the establishments. It begins with sampling all materials used in the preparation, curing and handling of meats, and includes examination of all curing substances, spices, condiments, etc. Every ingredient and all substances and materials used are subject to laboratory examination. The water supplies of establishments are examined at regular intervals to insure purity and potability. Samples of the finished canned meats are also examined from time to time to ensure wholesomeness, proper sterilization and processing, correctness of the statement of net weight and correctness of labelling.

'No meats are permitted to be exported unless the meats or containers thereof bear marks of Federal inspection, and to all of the principal foreign countries they are accompanied by export certificates issued by the Secretary of Agriculture and countersigned by the inspector showing the meats to be from animals that were free from disease, and that they have been inspected and passed as sound and wholesome as provided by the law and regulations.'<sup>1</sup>

In this country control can be exercised over tinned foods

<sup>1</sup> W. G. Savage, *Canned Foods*.

at the ports of entry by powers derived from the Public Health (Imported Food) Regulations, 1925. The Medical Officer of Health is empowered to examine any article of food which has been landed within the district, and if necessary on board ship. Samples may be taken, the consignment can without the consent of the owner be held up for forty-eight hours. Any article of food which in the opinion of the Medical Officer is diseased or unsound or unwholesome or unfit for human consumption may be detained or seized and carried away and destroyed after an order to this effect has been made by a Justice.

Ships discharging cargo at the docks-side are dealt with by the Port of London Sanitary Authority, cargo discharged at a wharf-side or discharged by barge from the ship in the river or from within the dock is dealt with by the Local Authority in whose area the wharf at which the cargo is landed is situated.

The Customs Officers notify the Health Authorities of any consignment of canned goods they think should be examined. The inspections of the Food Inspector of the Local Authority are largely supplemented by those made by the trade for their own purposes; a proportion (usually 10 per cent) of tinned goods is examined, so as to ascertain the allowance that is to be made for defective tins which would be thrown back on the importers' hands by the retail buyer. The results of these examinations are usually available for the food inspector of the local Health Authority. If the percentage of rejected tins is high for the article in question the whole of the consignment is sorted usually by the staff of the wharfingers, and all unsatisfactory tins surrendered to the Sanitary Authorities. No difficulty is ever raised about there being no legal sanction for the detention of the consignment for the purposes of such an examination.

A certain number of samples of food are sent by the Port Medical Officers to be examined by the analyst. Many of these examinations are made to ascertain the presence and

amount of chemical preservatives and colouring matter, and in the case of tinned foods the presence and amount of tin. Articles of food containing much acid, such as tomatoes, are still liable to dissolve the tin, but the form of tin container generally used to-day is a marked improvement on older forms; the use of lacquer and the avoidance of soldered surfaces have prevented the presence of tin in such food.

In the past a considerable difficulty has arisen with regard to a particular colouring matter in food, viz., copper sulphate, added to give a bright green colour to such articles as peas, haricot beans and spinach, which are practically always imported in tins. Under the Public Health (Preservatives in Food) Regulations, 1925, this use of copper sulphate is now forbidden, only certain scheduled colouring matters which have been proved to be harmless are allowed. The Regulations also lay down which chemical preservatives may be used in certain foods and the amount. The services of the analyst have also been required lately in connexion with the presence of arsenic on apples and pears imported from abroad, and especially from the U.S.A. In these countries the fruit blossom and the forming fruit have been sprayed on several occasions with solutions containing such substances as lead arsenate; this has been done in order to prevent the growth of eggs of the codlin moth in the fruit; subsequently there has not been enough rain to wash away the arsenic. At Liverpool in 1925 all consignments of apples and pears arriving in the port were sampled and the samples examined by the City Analyst.

Communications were sent from the Port of London to the officials abroad who would be empowered to deal with the difficulty at the orchard.

Fruit, especially from the Western Hemisphere, is being more and more brought over in vessels specially constructed for the trade. From the Continent ordinary vessels are used, but deterioration is not uncommon. Skilful packing and the use of special packages does much to ensure arrival of

the fruit in a satisfactory condition. Imported fruit has to be examined for general soundness in the first place; apart from special named conditions such as the 'Brown Heart' of apples, fruit may arrive in a mouldy condition; at times it has suffered from frost.

### DRIED FRUIT

Commercial interests are fortunately very alive to adverse criticism. In 1925 Dr. Haden Guest, M.P., in a series of articles in the daily Press, described the miserable conditions of fruit packers in Smyrna, and how the sultanas and figs for export were packed by workers who trampled on the fruit with filthy feet. The condition of health of some at least of the workers was obviously not satisfactory. Official action was promptly taken; the United States Government sent two Health Department officials to investigate the conditions, and the Angora Government ordered from Germany special mechanical presses for hygienic packing, which dried fruit exporters would be compelled to use.

### SHELL-FISH

A considerable quantity of shell-fish is imported, especially mussels and oysters. Mussels come to London from South Holland especially, but also from North Holland; the Fish-mongers' Company are responsible for the supervision of this traffic. Through their bacteriologist they are informed as to the condition of the mussel beds abroad, where care is taken to prevent contamination with sewage; bacteriological examinations of the shell-fish are made from time to time. In 1925 at Liverpool, owing to the report of an outbreak of typhoid fever occurring in New York State through the eating of American Blue Point oysters, supplies arriving here were examined, but no typhoid or dysentery organisms were found.

## DISPOSAL OF CONDEMNED FOOD

Apart from damage to meat cargoes due especially to faulty refrigeration large quantities of grain suffer damage on account of sweating, access of sea or bilge water or fire.

Care is taken in dealing with food at ports and wharves that the sound portion of the food in a condemned package or portion of a cargo shall not be lost. Damaged grain and unsound fish are sorted at the wharf. In the case of fruit it often happens that a considerable portion is found unfit for transit to a distant market but is capable of being used for food if rapidly disposed of. This is allowed to be sold to hawkers for subsequent sale subject to sorting; it is taken away to be sorted by the hawkers.

Difficulty has arisen in connexion with the disposal of condemned food. A striking instance of the lengths to which some importers will go is shown by the following incident. A consignment of eighty casks of egg-yolk shipped from China arrived in London in an unsound condition and was condemned by the Southwark Health officials: the importer insisted that he would be within his rights in re-exporting the egg-yolk to Germany to be used as food. The Southwark Borough Council refused their permission; eventually the egg-yolk was re-exported to Germany after the importer had agreed to the addition of terebinte which would effectually prevent its use for human consumption.

Ordinary condemned meat and tinned meat are, whenever possible, released under suitable guarantees for utilization as poultry food, for size making, fat extraction, or for making into manure; milk may be used for pig and cattle feeding and to a less extent for poultry feeding: considerable quantities, however, are destroyed.

A small proportion of condemned tinned fish is used for pig feeding or manure, but most of it shares the fate of condemned fruit and is destroyed. All tins to be destroyed are usually pierced. It is necessary to follow up condemned

consignments in order to see that they are actually dealt with in the way the purchaser has guaranteed. At Liverpool, a list of firms possessing suitable premises and equipment for dealing with unsound foodstuffs is kept by the Health Department and is circulated to the trades concerned; only these firms are allowed to receive the unsound food which has been condemned.

## CHAPTER V

### DRUG HABITS

**A** NEW field of preventive medicine has recently been entered upon. Of late years efforts have been made in a collective way to prevent the taking of drugs such as opium, morphia, heroin, and cocaine. It is thought that addiction to morphia <sup>1</sup> or heroin is rare in this country, and growing rarer; this opinion is based on inquiry of representatives of the several types of medical practitioners who would be most likely to come across drug addicts. But Great

<sup>1</sup> *Morphine* is extracted from opium by the manufacturing chemist, who breaks up the gum and treats it with acidulated water, which dissolves the alkaloids, leaving behind a large quantity of inert material. This acid solution of the alkaloids, on subsequent treatment, yields a precipitate of crude morphine from which the liquid part is filtered away and treated later for the recovery of codeine. The crude morphine is greyish brown in colour. When dissolved in dilute sulphuric acid and the solution treated with decolorizing agents, a mass of fluffy white crystals of morphine sulphate is formed, from which nearly all the commercial morphine preparations—pills, tablets, cough syrups—are made. Morphine sulphate is prepared for the market in cubes the size of small lumps of sugar; these masses of matted white crystals constitute the form most frequently used in the dope traffic.

*Codeine* is prepared from opium in a similar manner to morphine. Most of it goes into the preparation of cough mixtures and remedies for headache. The use of codeine, however, does not lead to addiction; it should not be placed among the dangerous drugs.

*Heroin* (diacetyl morphine) is now extensively used by addicts as a substitute for morphia, from which it is derived by introducing the element of acetic acid into the morphine molecule. In its legitimate field it is found largely in cough mixture, asthma cures, and other medicines for the nasal and bronchial tracts. Preparations of gum opium, morphine sulphate, salts of codeine, and heroin are commonly called 'opiates.'



Britain has responsibilities for such countries as India, where a large proportion of the plants are grown from which the dangerous drugs are derived and is thus vitally concerned in the problem of the control of the dangerous drugs. There is no doubt, however, that drug addiction is more common abroad—the problem is world wide. Opium smoking, very widely found in Asia,<sup>1</sup> in the last fifty years has spread to the ports and great cities of Europe, such as London, Hamburg, Toulon, Marseilles, Rochfort. In Paris in 1914 there were said to be more than 1,200 secret smoking dens.

In the United States of America the yearly consumption of opium *per capita* was stated in 1919 to be 36 grains as opposed to 1 grain in Italy, 2 grains in Germany, 2½ grains in Portugal, 3 grains in France, and 3½ grains in Holland.

An attempt was made to estimate the number of drug addicts in the U.S.A. In a small city, Jacksonville, Florida, the health officer in 1913 reported the existence of 887 addicts, 1.31 per cent of the population. Allowing for a lesser proportion in rural areas the Committee were of the opinion that the total number of drug addicts in the U.S.A. probably exceeded one million. Inquiries of the police authorities of municipalities indicated a decline of the habit.<sup>2</sup>

The worst period was about 1919–20, when the prevalence of drug habits led the authorities in two or three States to set up special hospitals and special administrations to deal with it. Dr. Bermann estimates drug taking in the U.S.A. to be at least three times as prevalent as in Cordoba.

Dr. Bermann considers that the abnormal psychological conditions engendered by the War even in such remote countries as the Argentine gave a great impetus to the increase of drug taking which had been noticeable before 1914. In Cordoba, a town of 200,000 inhabitants, as well as in Buenos Aires, the evil is widespread among the upper classes. It

<sup>1</sup> Johnson states there are 400 million opium smokers in the world.

<sup>2</sup> See Report of Special Committee of Investigation on Traffic in Narcotic Drugs, Treasury Department, United States Internal Revenue, 1919.

has become a fashionable vice widely diffused by the social clubs, and has been calculated to affect in these towns from two and a half to three per thousand of the population.<sup>1</sup> There has, however, recently been a considerable diminution, although the vice is still prevalent in the underworld of prostitution and debauchery.

The report of the Advisory Committee on Traffic in Opium presented to the Council of the League of Nations in March 1927 includes an alarming report from the Chief of the Cairo Police, who stated :

“ The figures show that Egyptians are rapidly becoming a race of drug addicts, with disaster staring them in the face unless public opinion and the authorities combine to stop the traffic. In spite of the prosecution of 5,600 individuals during the year, the enormous profit to be made by selling cocaine and heroin continues to produce new traffickers, and on an average sixty arrests a week are still made in Cairo.” Egypt produces no cocaine or heroin : the whole of the supplies must therefore have been derived from illicit sources.

#### HOW IS THE HABIT ACQUIRED ?

The recent English Departmental Committee on Morphine and Heroin Addiction considered that addiction might be acquired by injudicious use of the drug in a person who had not previously shown any manifestation of nervous instability, and that conversely due care in administration may avert this consequence even in the unstable.

The medical witnesses thought that the use of the drug in medical treatment was the commonest cause of the addiction. Self-treatment for relief of pain<sup>2</sup> and recourse to the drug in cases of emotional stress have undoubtedly been common causes, especially among those whose occupation enabled them to obtain the drug otherwise than by prescrip-

<sup>1</sup> See *Toxicomanias*, by Dr. Gregorie Bermann.

<sup>2</sup> De Quincey first took opium for severe toothache ; Coleridge's habit originated from rheumatic pains.

tion. In some instances the addict<sup>1</sup> had acquired the habit through the influence of other addicts either by way of direct initiation into the practice or through example. There is a certain group of persons, especially found in the 'underworld', who take the drugs in the first instance through mere curiosity or search for pleasurable sensations.

Data assembled by the Narcotic Investigation Committee of the U.S.A. show that the habit of using opiates or cocaine is acquired chiefly through association with addicts, from the use of medical prescription, and to a less extent through self-medication with these drugs or patent or proprietary preparations containing them.

The addicts of the underworld commonly get into the way of using these drugs by following the example of their companions who use heroin and cocaine as snuff; it is therefore an easy matter to treat a companion to a sniff of the 'dope'. These drugs are also used by 'white slavers' to secure and hold their victims and by prostitutes to entertain their callers. A few first indulge as a social diversion. The order of the frequency of the drugs used by addicts was found to be morphine, heroin, opium (all forms), and cocaine. Laudanum and paregoric are reported as being used in about equal amounts, but to a lesser extent. The use of heroin had greatly increased of late years, probably owing to the ease with which it could be taken as a snuff. Prohibition of alcohol is not thought to be the cause of so much of the increase of drug-taking in the U.S.A. as many believe.

In France the morphine habit is thought to commence from the giving of a medical prescription to deaden severe pain, caused, it may be, by renal colic, tabes, chronic rheumatism, facial neuralgia, migraine, or gout. At first the doctor makes the injections, then the patient continues them, and

<sup>1</sup> An 'addict' is a person who, not requiring the continued use of a drug for the relief of the symptoms of organic disease, has acquired as the result of repeated administration an overpowering desire for its continuance, and in whom the withdrawal of the drug leads to definite symptoms of mental or physical distress or disorder.

in a few weeks cannot do without them: the habit can be formed in a fortnight. Probably half such cases occur among doctors, chemists, midwives and nurses who are easily able to obtain morphine. In other cases it dates from a time of sorrow, an unfortunate love affair or professional disappointment—an injection of morphine seems to be the only way of making life tolerable—it is a modified form of suicide. Psychopaths suffering from ennui, 'spleen', asthenia, hypochondria, obsessing or diffuse anxiety, try its use.

Some take to it from imitation of others; it is vaunted by writers; fashion and *snobisme* are responsible in women in Society, and even more in the 'underworld'.

### OPIUM IN INDIA AND CHINA

The evolution of the opium poppy occurred in the country which is now called Asia Minor; the Arabs, forbidden alcohol by Mahomet, were the first eaters and smokers of opium. The production of opium spread from Asia Minor to Persia and then to India, by migrations of the various peoples. In the fifteenth century the Arabs introduced these habits to the Chinese, who in their turn spread them throughout the whole of the Far East.

In India the great mass of the Hindus and Mohammedans regard opium eating as a permissible indulgence. As many, however, partake of opium in secret, the extent can only be estimated; the number who indulge is possibly from one to five or six of the whole population. The majority commence opium eating to ease aches and pains or relieve mental anxiety; the habit is commonly begun between thirty-five and forty-five, when life in India begins to be on the wane and the premonitions of age begin to be felt. The drug is often taken for a cough, catarrh, or dysentery, or it may be taken as a substitute for alcohol to withstand cold and exposure or as a stimulant; the drug may be resorted to for aphrodisiacal purposes; very few commence the habit as a luxury.

## THE EFFECT OF OPIUM

Sir William Roberts, giving evidence to the Royal Commission, said :

'Opium has a double action on man. It acts as a therapeutic agent, as an anodyne and hypnotic, and it also operates as a euphoric agent, as an exhilarant and restorative, after the manner of alcohol and tobacco. These two actions are not only not identical, but they are also not always concurrent—that is to say, that persons may be sensitive to the anodyne and hypnotic effect of opium and yet not be sensitive, or only slightly sensitive, to its exhilarant and restorative effects. The therapeutic effects of opium are much alike—tolerance apart—in all persons and in all climates, but it would seem as if only a select portion of the population were susceptible to its euphoric effects. Tobacco smoking offers an apt illustration of this point. Tobacco smoking is pretty generally diffused among Englishmen ; yet there are a great many who never smoke at all, or who only smoke occasionally, in company : they are abstainers, simply because they experience no enjoyment from the practice. However much they wish and however long they try, these persons cannot become tobacco smokers in the proper sense of the term, because they lack sensibility to the euphoric effects of tobacco. Opium, as regards its euphoric properties, seems to be even more selective than tobacco. In India the susceptible persons are numerous—including, perhaps, the majority of the adult males in certain districts and among certain races—and amounting to a considerable number throughout the country. In Europe, on the other hand, the susceptible persons seem to be exceedingly few. Medical men are in the habit of prescribing opium every day, yet they have practically no knowledge, except from hearsay, of the wonderful and reviving effects of the drug, of which so much is heard in India. Had there been the same susceptibility to these effects in the West as in the East there is no obvious reason why Europeans should not have borrowed opium from India, as they had borrowed tea from China, coffee from Arabia, and tobacco from America.'

A small dose not infrequently acts as a stimulant ; there is a feeling of vigour, a capability of severe exertion and an endurance of labour without fatigue. A large dose often exerts a calming influence with a dreamy state in which images and ideas pass

rapidly before the mind without fatigue and often in disorder and without apparent sequence. Time seems to be shortened as one state of consciousness quickly succeeds another, and there is a pleasant feeling of grateful rest. This is succeeded by sleep, which, according to the strength of the dose and the idiosyncrasy of the person, may be light and dreamy, or like normal profound sleep, or deep and heavy, passing into stupor or coma. From this a person may awaken with a feeling of depression or languor or wretchedness, often associated with sickness, headache, or vomiting. The deadening of the vital functions which overtakes the opium eater who habitually exceeds his tolerance involves the sexual function and leads to impotence.

The injurious effects of opium appear much sooner and more markedly in the case of the Indian poor than the rich, because the latter are able to provide themselves with abundance of good and rich food such as milk, ghee (clarified butter) and sweetmeats, easily digested and fattening foods which keep the tendency to leanness and constipation in check.

Opium smoking in China is a relatively harmless habit, in India, owing to the conditions under which it is carried on, a degrading vice. The use of opium in the way of smoking, either as madak or chandu smoking, is a subordinate habit in India, limited to the cities and large towns. It is almost universally admitted to be injurious and demoralizing and is generally reprobated. In view of the evils attending the habit, smoking in licensed premises was forbidden throughout British India in 1891. Although opium is abused to a certain extent in the great cities of India (and the East) the vast majority of Indian opium eaters take it moderately. Medical men in the service of the Government, giving evidence before the Opium Commission, considered that the temperate use of opium in India should be viewed in the same light as the temperate use of alcohol in England. Opium is harmful, harmless, or even beneficial, according to the measure and discretion with which it is used. The conclusion come to by a majority of the members of the Royal Commission on Opium in India was that opium in moderation did no great

harm; and to ensure moderation, they recommended a policy of close control. In deference to popular opinion and the religious scruples of the bulk of Indians, they thought it desirable that the opium habit should eventually be suppressed, and trusted that close control would, by attrition, bring about this result.

### THE CONTROL OF THE OPIUM INDUSTRY IN INDIA

In India the manufacture, possession, transport, export and sale are controlled at every stage by stringent regulations under the Opium Acts. The opium industry is a Government monopoly; the poppy crops are grown under Government supervision, and the factories where it is prepared belong to Government servants. The prepared product is sold from Government opium shops, from which consumers who are so privileged can buy opium at a certain fixed price. The Government does not sell opium directly to the people; a selected 'licensee' undertakes this under the supervision of a Government officer, usually an Excise Inspector; the number of shops at which it may be purchased has been gradually reduced. As is the case with all monopolies, opium may assume a money value far in excess of its intrinsic worth and be sold for its weight in silver. In fixing the price of opium the Government is confronted with a choice between two courses: either to sell opium cheap, and so extinguish the smuggler, or to prohibit it entirely and thereby convert India into a happy hunting ground for the avaricious and rapacious fortune hunter. It takes a middle course and sells opium at such a rate that facilities for obtaining it are reasonable, without on the one hand rendering it cheap and easily obtainable; or, on the other, making it prohibitive. The issue price has been increased threefold since 1910. The limits of legal private possession have been reduced.

By propaganda and education the necessity of caution and temperance in the consumption of raw opium has been instilled into the Indian mind. The policy pursued is one

of eventual suppression ; this has been supported throughout by public opinion. Progress has been made : the annual consumption has declined from 1,031,040 lb. in 1910-11 to 609,408 lb. in 1923. The present annual *per capita* consumption is 0.093 grams per head of the population, or roughly only double the strict medical ration laid down by the League of Nations for Western nations ; the Government of India has now undertaken the task of restricting within a period of ten years the output of Indian opium to the amount required for medical and surgical needs on a Western basis.

### OPIUM IN CHINA

Until recently at any rate the opium problem in China was almost entirely concerned with the smoking of opium. It is possible that opium smoking is not so widespread in China as is commonly thought ; an authoritative statement was made in 1910 that not more than 3 per cent of the population ever smoke opium at all. Low opium dens exist, there are some extreme cases of the evil effects of opium smoking seen in missionary hospitals for native patients, but opium by its very price is beyond the reach of the blue-coated masses. Opium smoking is less injurious than opium eating, the intemperate or immoderate opium smoker is less liable to the toxic effects of opium than the man who eats it raw.

It is the gum opium produced in China and India that is used for smoking ; it comes from the white poppy. It has a lower morphine content than the gum yielded by the black poppy grown in Asia Minor. The Asia Minor or so-called Smyrna gum, on account of its relatively high percentage of alkaloid, is preferred by the manufacturer of medicines.

In the preparation of opium for smoking the gum opium is boiled with water, filtered several times and boiled down again to a treacly consistency. During these processes much of the narcotine, caoutchouc, resin, and other harmful parts were removed, and the quantity of alkaloids in the finished product lessened ; those remaining capable of pro-



ducing marked physiological effects are morphine, codeine and narceine. Morphine in its unmixed state can be sublimed, but codeine and narceine are said not to give a sublimate. But even if not sublimed in the process, morphine would be deposited in the bowl of the pipe before the smoke reached the mouth of the smoker. The bitter taste of morphine is not noticeable when smoking opium, and it is therefore possible that the pleasure is derived from some product formed during combustion. Certainly the opium most prized by smokers is not one containing most morphine.

The process of smoking opium in the opium dens is substantially as follows: A small mass of the material about the size of a pea, the 'pill', is taken up on a small metal rod. This lump is rotated in the flame of a small lamp, usually filled with pea-nut oil, until the redundant moisture is driven off and the mass partly incinerated. It is then placed in the bowl of the opium-pipe, held just over the flame of the lamp, and the smoke from the 'pill' inhaled. The preparations for smoking occupy ten to fifteen minutes, the actual operation of smoking about thirty seconds.

Bayard Taylor, in his book on India, China and Japan, narrates his first and last experience of the effects of opium smoking. He says: 'To my surprise I found the taste of the drug as delicious as the smell is disagreeable. It leaves a sweet rich flavour like the finest liquorice upon the palate, and the gentle stimulus it conveys to the blood in the lungs fills the whole body with a sensation of warmth and strength. The fumes of the opium are no more irritating to the windpipe or bronchial tubes than common air, while they seem imbued with a richness of vitality far beyond our diluted oxygen.

'Beyond the feeling of warmth, vigour, and increased vitality softened by a happy consciousness of repose, there was no effect until after finishing the sixth pipe. My spirits then became joyously excited with a constant disposition to laugh; brilliant colours floated before my eyes, but in a confused and cloudy way, sometimes converging into spots like the eyes, in a peacock's tail, but oftenest melting into and through each other, like the hues of changeable silk. Had the physical excitement been greater they would have

taken form and substance, but after smoking nine pipes I desisted through fear of subjecting myself to some unpleasant after-effects. Our Chinese host told me that he was obliged to take twenty pipes in order to elevate his mind to the pitch of perfect happiness. I went home feeling rather giddy and became so drowsy, with slight qualms at the stomach, that I went to bed at an early hour—after a deep and refreshing sleep I arose at sunrise, feeling stronger and brighter than I had done for weeks past.'

The smoking of opium is evidently not always harmful. Dr. Ayres, Colonial Surgeon at Hong-Kong, giving evidence before the Royal Commission, stated: 'I am no advocate for opium smoking. My experience of it is that it may become a habit, but that the habit is not necessarily an increasing one; nine out of twelve men smoke a certain number of pipes a day without desiring more. I think the excessive opium smoker is in a greater minority than the excessive spirit drinker or tobacco smoker. In my experience the habit does no physical harm in moderation. The cases of excessive smoking occur in men who can afford to spend large sums on the vice. I have conducted my observations with much interest, as the effects of opium eating were well known to me by my many years' experience in India, and I have been surprised to find the opium smoker differ so much from the opium eater. I am inclined to believe that in the popular mind the two have got confused; opium smoking bears no comparison with opium eating. The latter is a terrible vice, most difficult to cure and showing rapidly very marked constitutional effects in the consumer.' Another witness, Mr. Winchester, British Consul at Shanghai, a resident in China for twenty-six years, would not recommend any man to smoke opium under any circumstances. While there is a stage of opium smoking in which unquestionably the effects are very deteriorating to the physical constitution, his impression was that a certain amount of opium was not so. He felt sure a Chinaman might continue to use opium as we use wine or beer in this country without ever being

induced to use it to excess. He knew men in China, advanced in life who had smoked opium all their lives and who were perfectly competent to fulfil all the duties of their position. Other creditable observers hold that it is a fallacy to think that a man who has begun opium can never leave it off. It is when an opium smoker has increased his doses of opium until he has established a craving for the drug that he is a lost man: if he has done this he hurries on to premature old age. The Chinese recognize a state called *yin*, or insatiable craving; this is reached by very few. One fact militating against the excessive use of opium in China, a country where male children at any rate are regarded as the greatest treasure, is its effect in hindering procreation. There is a considerable amount of evidence that the smoking of opium, if not carried to excess, is actually beneficial to those engaged in hard manual labour. In Formosa especially feats of endurance are performed by the well-paid chair coolies, two of whom will carry an ordinary Chinaman, with his box of clothes, twenty miles in from eight to ten hours in the hottest days in summer; this, it is stated, can only be done by smoking considerable amounts of opium.

But although there have been many opinions expressed based on experience apparently favouring the continuance of opium smoking, when carefully analysed they will be found to be essentially criticisms directed largely against the exaggerations of the harm done by opium smoking, and evidently the bulk of opinion in the governing circles throughout the world is in favour of the discontinuance of its use.

#### CONTROL OF OPIUM IN CHINA

In 1773 the British East India Company began to deal in small parcels of opium. In 1796 the opium trade was forbidden by the Chinese Government, but the prohibition was regarded by the people as a matter of form<sup>1</sup> rather than

<sup>1</sup> Up to quite recent years every incoming magistrate made a point of issuing a proclamation threatening the severest penalties to anyone who should open an opium den.

a matter of law. The import of the drug had considerably increased, and in 1838, owing to the increasingly large export of silver brought about by the trade, a more serious attempt was made to check the traffic.

In 1839 Lin Tsë-Lsü, sent as Commissioner to Canton to bring the trade to an end, seized 20,291 chests of opium and destroyed it in public. The 'Opium War' followed, but this was in reality the result of a long series of tyrannical actions affecting the lives and properties of British merchants. At the Treaty of Nanking, 1842, the opium question was left unsettled, but after a second war, England and France against China, the import of opium was legalized by the Treaty of 1858.

Opium smoking continued to be carried on under the nominal ban of the Government, but with the actual connivance of the officials, many of whom were habitual smokers. It was said that China, which for many centuries had been an excessively drunken nation, had turned voluntarily to the quieter and much more harmless pleasures of opium.

In 1881 Sir Robert Hart, Director of Customs to the Chinese Government, stated that the Chinese who have studied the opium question were opposed to a traffic which more or less harms smokers. They did not find in the receipts produced any sufficient reason for welcoming the growth of the trade or for desisting from the attempt to check the consumption of opium. In 1908 the Manchus made an attempt, serious for a time, to get rid of opium altogether. But the consequences were unfortunate; anti-opium pills which contained opium were widely sold, subcutaneous injections of morphine rapidly increased. The International Opium Commission of Shanghai in 1909 came to the conclusion that the question should be dealt with by increased control and not by prohibition; when a conference of the Powers, initiated by the United States, met at The Hague (Dec. 1911-Jan. 1912), the British Government, in accepting the invitation to attend, expressed the conviction that the illicit traffic in morphia and cocaine

in India, China, and other countries, was becoming an evil worse than opium smoking, and that the evil was certain to increase as restrictions on the production and use of opium in India and China became more stringent.

The newly established Chinese Republic in 1912, however, took the vigorous action of attempting to stop not only the import of opium but also opium growing in China.

The President, Dr. Sun Yat Sen, made the taking of opium an offence punishable by death. Thousands were put against a wall and shot by firing parties. Crops were uprooted and trampled on; men were beaten senseless in the midst of their ruined fields, numerous collisions occurred between the military and farmers. The export of Indian opium to China was abolished, but with the unfortunate result that the Japanese were enabled to drive a roaring trade in the drug. Much opium was cultivated in Korea. In China itself the cultivation increased by leaps and bounds in most of the provinces. In Kweichow the Provincial Assembly officially permits cultivation.

In April 1919, Dr. Wu Lien-teh stated that 18 tons of morphia were coming annually into China (28 tons in 1919) : most of it was distributed by Japanese agents. The Peking correspondent of *The Times*, in the issue of March 27, 1920, wrote : ' Official records show that during the first ten months of 1919 there was imported into America 250 tons of crude opium, which represents 35 tons of morphia, and 1 ton being sufficient for the annual medicine needs of all the Americans from Alaska to Patagonia, it is notorious that practically the whole of the opium entering America reaches China in one form or another.'

Commenting on the Geneva Conference of 1922, Wang Chang Lui said that China's attitude, as upheld at Geneva by Mr. Chu, was that, though China fully shared in the desire of the Western Powers to suppress the illegitimate production and consumption of the drug, such suppression was an internal question for China itself; international interference would

be misinterpreted by Chinese public opinion. The provinces where the poppy was cultivated were outside the Central Government's control. As soon as all China was united under the Central Government the suppression of the drug throughout the country would follow.

In May 1925, when famine occurred in China in the province of Kweichow, it was stated that 'money cannot buy food, but there is plenty of opium for those who seek to forget their misery. The traffic is carried on openly, bandits and opium are evils that afflict the whole of China. During the last few weeks enormous quantities of opium have been imported at Woosung for distribution in the interior. Many Chinese organizations have protested to Peking. It is alleged that officials receive regular monthly bribes from the opium traders.'

The position to-day is that China is producing anything from 80 to 95 per cent of the world's opium; many hold that until China has taken effective steps to restrict the cultivation of the poppy, any further prohibition of opium smoking would merely be an inducement to smugglers to bring in Chinese opium.

#### OPIUM IN BURMAH AND MALAYA

Opium smoking was prohibited in Burmah from 1893 to 1900, but smuggling occurred to such an extent that resort was made to the registration and rationing of the Chinese smokers. In the last four years the issues of Government opium have been increased by 50 per cent; the decrease of the ration has, however, been too rapid and a great increase in smuggling has occurred. The same effect has occurred in the Federated Malay States; progress has, however, been made in the reduction of the use of opium. In the Straits Settlements the *per capita* consumption has decreased from 314 grains in 1911 to 231 grains in 1921, in the Federated Malay States from 295 grains in 1911 to 128 grains in 1921.

'Throughout these territories the opium trade is a Government monopoly, and sale and distribution are controlled

at every stage. Smokers are registered and steps are taken to recover the dross after smoking. The question of the dross is particularly important. The dross is the ash left after smoking and contains much more morphine than a man can smoke in two or three days. Very often the Chinese swallow this dross with marked deleterious results, and under a system of registration and licensed smoking-houses it is possible to take steps only to issue smoking opium against return packages of dross, which are thus destroyed by the Government. Both these advantages would, of course, disappear under prohibition.' <sup>1</sup>

### OPIUM IN INDO-CHINA

In Indo-China the State is the official purveyor of opium: the law sanctions these usages, obtaining one-sixth of its budget from the sale. The use of opium has become extremely widespread among the Europeans as well as among the natives.

Prof. Jeanselme advises progressive measures for the prohibition of opium in the French colonies, as the total and immediate prohibition could only result in the growth of fraud, the disaffection among the natives and the ruin of the colony. These measures would forbid the opening of new smoking dens, and cancellation of expiring licences; teaching in schools of the dangers of opium; the creation of hospitals for the cure of addicts, and the dismissal from Government posts of all white and native opium smokers.

### COCAINE

Until recently the coca tree was only grown in Peru and Bolivia; but plantings from this source were established in Java, and now the leaves from Java are a factor in the supplies of the world. Smaller amounts come from plantings in Ecuador, Colombia, Brazil, Argentina, the West Indies, Ceylon, Zanzibar, and Australia.

Quantities of coca leaves are shipped all over the world for

<sup>1</sup> T. J. O'Connor, M.P., *National Review*, Dec. 1926.

the purpose of extracting the cocaine, but large amounts of crude cocaine are also prepared for export in the countries where the drug originates. This crude cocaine is bought by manufacturing chemists, in order to refine it and convert it into the hydrochloride. Cocaine hydrochloride is a white crystalline substance which dissolves readily in water and is an ideal substance for working up into tablets for use in the hypodermic syringe.

Large quantities are powdered and made into snuffs, usually by mixing with sugar of milk or acetanilide.

The Germans discovered a method by which cocaine can be manufactured synthetically. It is a State-aided industry, extensive in its operations; 90 per cent of the cocaine imported into Burmah and India before the War came from Germany, mostly from a single firm in Darmstadt.

To the Peruvian Indian the habit and use of coca is one of the prime necessities of life; he is never seen without a leather pouch containing coca leaves, and a small box of powdered, unslaked lime, to be mixed with the chewed leaf. At least three times a day he rests from his work to chew coca.

It is said that these Indians, who regularly use coca, require but little food, and when the dose is increased, are able to undergo the greatest fatigues almost without food. But we are told that the confirmed coca chewer, or Coquero, is known at once by his uncertain step, his sallow complexion, his hollow, lack-lustre, black-rimmed eyes deeply sunk in the head, his trembling lips, his incoherent speech and his stolid apathy. His character is irresolute, suspicious and false; in the prime of life he has all the appearance of senility, and in later years sinks into complete idiocy. Avoiding the society of man he seeks the dark forest, or some solitary ruin and remains there for days together, indulging in his pernicious habit. While under the influence of coca, his excited fancy riots in the strangest visions, now revelling in pictures of ideal beauty and then haunted by dreadful apparitions. Secure from intrusion he crouches in an obscure corner, his eyes immovably fixed on one spot; and the almost automatic motion of the hand raising the



coca to the mouth and its mechanical chewing are the only signs of consciousness which he exhibits. Sometimes a deep groan escapes from his breast, most likely when the dismal solitude around him inspires his imagination with some terrific vision, which he is as little able to banish as voluntarily to dismiss his dreams of ideal felicity. How the Coquero finally awakens from his trance, Tschudi was never able to ascertain, though most likely the complete exhaustion of his supply at length forces him to return to his miserable hut.'

Outside South America it is by means of the hypodermic needle and by snuff that the 'coke' addicts are satiated.

By sniffing cocaine up the nostrils it reaches the brain quicker and the effect is more lasting than if swallowed or administered by hypodermic injection. Persons addicted to the habit say they have tried eating and injecting the drug, but that the effects are not the same; they do not give the same satisfaction and pleasure as when the drug is sniffed.

The cocaine habit has spread with alarming rapidity all over the civilized world. But it is an unmixed vice. There is no excuse for it, not even the excuses that the opium and morphia habits sometimes have; and the person who takes it, does so wilfully and deliberately. Cocaine has a greater power over its votaries than either opium or morphia; the after distress is keener; and a slave to it is a slave indeed. And the harm it does, and the certainty with which it eventually kills, is truly appalling.

Cocaine produces a form of dementia which is expressed in a persecutorial or suicidal mania. The cocainist will commit violent excesses, and even murder, when he is in his delirium: some commit suicide. If they do not lay hands on themselves, they gradually subside into a state of mental and bodily stupor. Eventually they become entirely oblivious to themselves and their surroundings, unable to eat or drink, and incapable of paying attention to natural functions of the body. Great weakness and prostration occur; death usually results.

## THE LEAGUE OF NATIONS AND DANGEROUS DRUGS

The Peace Treaty of Versailles contained clauses relating to the ratification of the International Opium Conference of 1911-12. By the Convention the Contracting Powers undertook to enact laws for the control of the production and distribution of raw opium, and to limit the number of ports through which trading in opium should be permitted. They promised to take measures for the gradual and effective suppression of the manufacture and use of prepared opium, also to prohibit its import and export except as regards those Powers which were not ready to prohibit it as soon as possible. Holland was to carry out the secretarial work and to endeavour to obtain the ratification of the Opium Convention. On the formation of the League of Nations, Holland asked the League to take over the work: by then thirty-seven nations had ratified the Convention. An Advisory Committee was set up to submit an annual report on the carrying out of the agreements on traffic in opium. In 1921 it was decided to ask each Government for an annual report and information<sup>1</sup> as to the manufacture and trade in opium and other dangerous drugs, including any illicit production. It was arranged that inquiry should be made by the Health Section of the League, or a similar body, as to the average medical and scientific requirements of dangerous drugs for internal consumption by each country.<sup>2</sup> In 1922 the Advisory Committee appealed to Switzerland,<sup>3</sup> a drug-manufacturing country, and Persia, an opium-producing country, to ratify the Convention of 1912. They approved a system of export and import licences

<sup>1</sup> Apparently only Great Britain has readily furnished particulars as to the quantity of drugs manufactured in their country.

<sup>2</sup> This was undertaken by the Opium Commission of the Health Section, who obtained data from several countries, including Great Britain; the view held is that these requirements, calculated in raw opium with 10 per cent morphine, could be fixed at 450 milligrams per head in those countries with highly organized medical service, but to this must be added another quantity of opium consumed in the form of codeine or alkaloids.

<sup>3</sup> This they did in 1924.

whereby a consignment of drugs cannot be imported or exported by one country to another without official licence at both ends of the transaction, stating that the consignment is to be used for medicinal and scientific purposes.

The Assembly restated their conviction that the most effective method of putting a stop to the illicit traffic in drugs was to control production, limiting it to the amount required for medical and scientific purposes. In 1923 the American delegation to the Advisory Committee advocated very forcibly the need for a more stringent control of the production or manufacture of harmful drugs. In view of the enormous profits made by the smuggling of drugs attention was drawn to the need of severe punishments for smuggling.

The Geneva Convention on the Drug Traffic was drawn up at the first conference in 1925, whereby those countries which grew opium agreed to reduce within five years the amount they produce until there is practically no danger of smuggling; the League is to decide when this point has been reached, and then the countries where opium is smoked agreed to prohibit opium smoking within fifteen years, and in the meantime to make regulations to control the sale of opium.

It will be seen that the effect of this Convention is to postpone the operation of the requirement of The Hague Convention to suppress the traffic in smoking (or 'prepared') opium. The Conference failed to adopt in the Convention the principle advocated by the American delegation of the limitation of the production of opium or dangerous drugs to the medical requirements. The second conference in 1925 set up a Central Board of Control at Geneva to control all buying and selling of drugs between one country and another; every nation is to send to the Board yearly an estimate of the amount of drugs required; any transaction between two nations is to be reported to the Board. In this way the importation of drugs beyond the national needs will become obvious to the rest of the world.

At the Advisory Committee in 1926 it was reported that

the Geneva Convention of the previous year has not come into force as it still lacked the necessary number of ratifications. Only Great Britain and her Dominions have as yet ratified the Convention. The Committee announced that the quantity of drugs manufactured was considerably in excess of medical and scientific requirements; here again this country has played the game by limiting the production to its internal requirements. Serious illicit traffic in drugs was reported, consignment under forged labels was not uncommon, smuggling by post in the Far East called for repression. Turkey had at length ratified The Hague Convention of 1912.

The 1927 report of the Advisory Committee is described by themselves as a 'formidable document'. Large seizures are reported; these 'striking and alarming facts show the appalling extent and the very widespread ramifications of the illicit traffic.

'The Committee have no desire to minimize the gravity of the situation; on the contrary, they hold that a clear statement as to the enormous volume and wide extent of the illicit traffic, and a vivid appreciation of what that traffic means in terms of human suffering, misery, and degradation are essential to progress and reform.

'They would, however, again emphasize, with all the insistence at their command, that the performances of the nations lag very far behind their contractual obligations.'

They urge, as the most valuable single step which can at present be taken, the immediate ratification and rigid enforcement of the Geneva Convention of 1925 by all the nations.

### THE POSITION IN THIS COUNTRY

In this country, in accordance with the terms of The Hague Convention, the Dangerous Drugs Act <sup>1</sup> was passed in 1920;

<sup>1</sup> *Dangerous Drugs* under these Acts include raw (powdered or granulated opium), medicinal opium (raw opium which has been artificially dried), opium prepared for smoking and dross or other residue,

this gave powers to make regulations to control the manufacture, sale, possession and distribution of these drugs. The principal regulations were issued in 1921, and in May 1923 the Dangerous Drugs and Poisons (Amendment) Act was passed. In March of the same year a memorandum on the duties of doctors and dentists under the Act of 1920 was issued by the Home Office. Regulations were issued in 1926.

In April 1923, a Departmental Committee was appointed to investigate the therapeutic value of possible substitutes for cocaine and the risk of such substitutes being suitable for drugs addicts. Borocaines have been discovered; these are much less toxic and probably will not give rise to addiction.

In September 1924, a Departmental Committee was appointed to inquire into morphine and heroin addiction, and specially to consider the circumstances under which these drugs may be supplied to persons suffering from addiction and the precautions necessary to avoid abuse. The Committee pointed out the types of cases of addiction in which administration of morphine or heroin may be regarded as legitimate medical treatment. Consultations in certain cases were recommended.

morphia, crude morphine, diamorphine (also called diacetyl morphine, but commonly known as heroin), coca leaves, crude cocaine, alkaloid, and their respective salts and any preparation, admixture, extract, or other substance containing not less than one-fifth per cent of morphine or one-tenth per cent of cocaine, ecgonine or diamorphine.

(A list of the substances, exempted from the operations of the list, are given in Schedule II of the Regulations of 1921.) Any new derivatives of the substances or any other drug of whatever kind which is or is likely to be productive if improperly used of ill effects substantially of the same character or nature as or analogous to those produced by morphine or cocaine can be added to the list by His Majesty. The new International Opium Convention makes provision for the addition to the list of dangerous drugs. The Opium Commission of the League has suggested the inclusion of eukodal and dicodid, derivatives of morphine and codein. Certain preparations which contain a narcotic, but so combined with other substances, e.g., emetics, that they would not be used as narcotics, may be excluded.

At the first Opium Conference of the League of Nations (1925), special recommendations were promulgated which made the importation, sale and distribution of opium a monopoly of the Government. At the Second Opium Conference of the League of Nations (1925), special recommendations were made whereby all preparations containing heroin<sup>1</sup> of whatever strength and the tincture and extract of Indian hemp should come under the operation of the Dangerous Drugs Act and Regulations; these have not yet been made law in this country.

The veronal group of drugs (i.e. diethyl barbituric acid and other alkyl, aryl, or metallic derivatives of barbituric acid, such as veronal, medinal, dial, proponal, luminal, and their preparations or compounds) often lead to addiction. They are toxic, producing cerebral symptoms and an abnormal mental condition. Death from poisoning from this group of drugs is relatively common. A common sequel of veronal addiction is suicide from an overdose. This group of drugs should only be supplied on medical prescription, and the prescription should be retained by the pharmacist as in the case of the 'dangerous drugs'. Special regulations under Section 1 of the 1869 Pharmacy Acts should be framed by the Pharmaceutical Society for the sale of these drugs.

The system of notification of addicts which exists in certain countries was given full consideration, but not recommended for adoption in this country.

Drug addiction, the Departmental Committee held, should with few exceptions be regarded as a manifestation of a morbid state, and not as a mere form of vicious indulgence. It is in this spirit that the legislation in this country has been framed.

<sup>1</sup> A suggestion has been made that heroin should be abolished and its manufacture prohibited. But heroin has therapeutic effects which are not supplied by morphine or other drugs: it is often more effectual in the relief of severe nerve pain; it does not produce constipation. In some cases where morphine is not tolerated (it may cause vomiting or excitement) heroin acts as a perfect hypnotic. For these reasons heroin should be retained as a therapeutic remedy.

It contrasts markedly with the Regulations in America and some other countries where drug addicts are regarded as wilfully vicious persons, and are notified to the authorities before drugs can be supplied to them. Doctors there even have to obtain a special licence to prescribe the dangerous drugs.

For the purposes of manufacture, import and export the British pharmacist is subjected to a very rigid control and needs a special licence. The Regulations made under the 1920 Act involve most careful registering of every prescription coming under his scope and all sales and purchases. The onus of detecting forged prescriptions largely rests with the pharmacist. A prescription may only be dispensed if the person dispensing the prescription is acquainted with the signature of the medical practitioner, registered dentist, or registered veterinary surgeon by whom the prescription purports to be given, and has no reason to suppose that the prescription is not genuine or if he has taken reasonably sufficient steps to satisfy himself that the prescription is genuine.

The medical practitioner who dispenses remedies included in the Acts is required to keep a record of the medicines supplied by him. In the case of medical practitioners who prescribe, but do not dispense, special conditions are laid down as regards the writing of the prescription; it must be signed with his usual signature and his address given. A practitioner's authorization to prescribe dangerous drugs as well as to possess and supply them can be withdrawn. This matter and infringement generally of the Regulations by medical men can now be dealt with by a specially constituted medical tribunal.

#### DIVERSION OF CONSIGNMENTS

An important new Regulation was made in 1924 to deal with the diversion of consignments in transit, a method in common use by illicit traffickers for eluding the export control provided for in The Hague Convention.

The Regulation prohibits, except under licence from the Home Secretary, any opium or dangerous drugs while in transit through the United Kingdom from being diverted to any destination other than that to which they were originally consigned. The destination to which they were originally consigned is defined in the Regulation as the destination stated in the licence permit or other authority for the export of the consignment granted by the Government of the country of export.

A close watch is kept, so far as lies within the power of His Majesty's Government, on the not inconsiderable number of persons suspected of being engaged in the illicit international traffic. In a considerable number of cases in which information had reached the British Government of proceedings by traffickers in other countries, useful information has been given to the Governments concerned. In several cases this information has led to the punishment of offenders.

The details of two cases of illicit traffic illustrate some of the methods employed by these people :

' In the first case fourteen cases of opium from Yugo-Slavia were shipped from Salonica and transhipped at the Piraeus for London declared as destined for Jamaica. As no import certificate for these cases had been issued by the British or Jamaican Authorities, inquiries were made of the Greek Government whether the consignment had been exported under licence. No licence appeared to have been issued for the export of the consignment, the Greek Government suggesting that the fourteen cases had passed through Salonica in transit from Yugo-Slavia. The opium had in fact been purchased on behalf of—— from a merchant of Salonica and it would seem that opium from Yugo-Slavia which is sent to Salonica for sale or bought by the Salonica merchants is not subject to control and that no licence is required for its export. Upon the arrival of the cases in London —— instructed an agent to have them transhipped to Kingston, Jamaica, upon a fresh bill of lading reading " to Kingston in transit ". On their arrival at Kingston ——'s agent there declared them to be for transhipment to San Domingo. They were duly dispatched upon a vessel consigned to San Domingo, but the



Customs Authorities of that Island, in reply to inquiries, stated that they had not arrived.

' In the second case seven cases of opium arrived in London from Salonica (again without any import certificate having been issued) for transshipment "to Kingston in transit". As the consignment was known to be ——'s, special precaution was taken and the cases were not permitted to be shipped until ——'s agents had entered into a bond of £3,000 that the opium would be landed at the country of destination, which was declared to be Mexico. —— had instructed his agents in the United Kingdom to enclose the cases of opium in outer cases, but no such interference with the consignment was permitted whilst in Great Britain. The Jamaican Authorities in their turn caused ——'s agent in Kingston to enter into a bond of £2,667 7s. 4d. for the landing of the opium in Mexico. The opium was exported on the s.s. *Riviera*. Shortly before this vessel cleared Kingston the Customs officers discovered upon her seven empty cases and a number of tin canisters corresponding exactly with the cases and tins containing the opium. These were confiscated, and the master of the vessel was fined a sum of £100 for making a false declaration. The cases which had contained the opium, when landed at Puerto, Mexico, were found to contain clay and gravel. Before its arrival at Puerto, the s.s. *Riviera* had been examined by the Customs at Mariel in Cuba and no opium had been found. It is to be presumed that before entering the port of Mariel the seven cases were unloaded probably into launches and taken ashore where the contents were exchanged for rubbish, and later when she left Mariel she picked up the seven cases and proceeded to Puerto, Mexico, in order to procure a landing certificate and recover the bonds amounting to £5,600, which the British Authorities had required prior to permitting transshipment at Liverpool and Jamaica.'<sup>1</sup>

' Exports to countries which are understood to have adopted the system of import certificates are not allowed except on production of such certificates. The attention of the Government has again been called to the unfair conditions under which British exporters are placed owing to the fact that

<sup>1</sup> Home Office Report to the League of Nations, 1924, from which the next abstract is also taken.

some countries do not apply the same requirement.<sup>1</sup> Applications for licences to export the drugs to countries which have not adopted the import certificate system continue to be carefully scrutinized, and the licence is only granted if it appears, from the information available, that the total quantity of the drug reaching the country in question is not excessive and that the particular consignee has a proper and legitimate use for the consignment ordered.'

### THE MEDICAL REQUIREMENT OF THE DRUGS

An investigation was made in 1924 by the Home Office of the prescriptions given under the National Health Insurance Acts in England and Wales.

'A total of 1,215,834 prescriptions was examined, and the amounts of dangerous drugs and of codeine and other derivatives of opium ordered in them were ascertained. In addition, arrangements were made for 191 insurance doctors, having charge of 429,209 insured persons, to keep special records, over a period of four months, of the amounts of these drugs which they administered to their insured patients, as distinct from the amounts which they prescribed. These two investigations together made it possible to form an estimate of the amounts of the drugs (*a*) prescribed and (*b*) administered per *insured* person per year: and from the sum of these two figures to estimate the total requirements of the drugs in general medical practice throughout the country. A memorandum embodying the results of these investigations was circulated to the members of the Second Opium Conference at Geneva.

'The importance of these investigations lies in the fact that, so far as is known, they represent the broadest inquiry of

<sup>1</sup> As a matter of fact the import certificate system agreed upon at Geneva in 1925 has only been adopted by two or three nations. Under this system manufacturers are licensed and export is only permitted against an import certificate signed by a responsible Government minister of the country to which the drug in question is being consigned.

an accurate character hitherto made into the normal use of dangerous drugs in general medical practice.

'The estimate of the total annual consumption in general medical practice (excluding hospital and other special forms of treatment in the British Islands, exclusive of the Irish Free State, i.e. for a population of 44·2 millions) was as follows :

Opium . . . . .	4,705 lb. or 2,138·6 kilos.
Morphine . . . . .	9,820 oz. ,, 279·0 ,,
Diacetylmorphine . . . . .	3,758 ,, ,, 106·8 ,,
Cocaine . . . . .	626 ,, ,, 17·8 ,,
Codeine . . . . .	1,132 ,, ,, 32·2 ,,
Dionine . . . . .	15 ,, ,, 4 ,,
Cotarnine . . . . .	7 ,, ,, 2 ,,
Apomorphine . . . . .	2½ ,, ,, 1 ,,

'These quantities, expressed in terms of amount per head of the population, give the following figures :—

Opium . . . . .	·7452 grains or 48·89 milligrams
Morphine . . . . .	·0972 ,, ,, 6·31 ,,
Diacetylmorphine . . . . .	·0372 ,, ,, 2·42 ,,
Cocaine . . . . .	·0062 ,, ,, 40 ,,
Codeine . . . . .	·0112 ,, ,, 73 ,,
Other opium derivatives: entirely negligible.	

('N.B.—These figures exclude hospital and dental treatment, treatment in confinement cases, and treatment by specialists; and they also, of course, exclude purchases by the public without a doctor's prescription of medicinal preparations containing dangerous drugs in so diluted a form as to bring them outside the scope of The Hague Convention.')

The investigation made of the consumption of dangerous drugs in hospitals and similar institutions in 1925 led to the following estimate of the total consumption: Opium, 668 lb.; morphine, 1,215 oz.; diamorphine, 473 oz.; cocaine, 1,617 oz.

It did not prove possible to make an exact estimate of the consumption of cocaine in dentistry, but the figures probably lie somewhere between 3,300 oz. and 6,500 oz.



COCOA LEAVES :																	
None.																	
COCAINE :																	
Attempting to import . . . . .	2	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—
Unauthorized possession . . . . .	6	—	—	—	—	—	1	—	1	3	—	1	—	—	—	—	—
Unauthorized procuring . . . . .	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
Attempting to procure . . . . .	3	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—
Offering to supply or procure . . . . .	4	1	—	—	—	—	—	—	—	2	—	1	—	—	—	—	—
Offences in relation to prescriptions . . . . .	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Failure to enter supply in register . . . . .	2	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
MORPHINE :																	
Unauthorized possession . . . . .	6	—	—	—	—	1	2 <sup>a</sup>	—	—	—	—	1 <sup>b</sup>	—	1	—	1	—
Unauthorized procuring . . . . .	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Failure to enter supply in register . . . . .	2	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—
Failure to keep register . . . . .	3	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—
HEROIN :																	
Unauthorized possession . . . . .	2	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
Total . . . . .	68 <sup>c</sup>	4	5	3	1	1	11 <sup>b</sup>	1	2	9	14	7 <sup>b</sup>	1	3	5	1	8

(a) £200 fine imposed in addition to imprisonment in one case.

(b) One case in Northern Ireland.

(c) Two cases in Northern Ireland.

**DANGEROUS DRUGS ACTS 1920 AND 1923**  
**AGES AND OCCUPATIONS OF PERSONS PROCEEDED AGAINST DURING 1925**  
*(All in Great Britain unless otherwise stated)*

	Number proceeded against.	Ages.						Occupations.
		Under 20.	20-30.	30-40.	40-50.	50-60.	Over 60.	
<b>MALES.</b>								
Raw Opium . . . . .	12	—	5	2	3	2	—	Seamen, 9; labourer, 1; cook, 1; street trader, 1.
Prepared opium . . . . .	21	—	3	12	4	1	1	Laundrymen, 3; seamen, 14; other occupations, 4.
Medicinal opium . . . . .	—	—	—	—	—	—	—	—
Coca leaves . . . . .	—	—	—	—	—	—	—	—
Cocaine . . . . .	15	—	5	5	2	1	2	Chemists, 4; labourers, 2; tailors, 2; dentist, 1; other occupations, 6.
Morphine . . . . .	11 <sup>b</sup>	—	2 <sup>a</sup>	3	2 <sup>a</sup>	4	—	Chemists, 6; dentist, 1 <sup>a</sup> ; other occupations, 4 <sup>a</sup> .
Heroin . . . . .	1	—	—	1	—	—	—	No occupation.
<b>Total Males . . . . .</b>	<b>60<sup>b</sup></b>	—	15	23	11	8	3	Seamen, 23; laundrymen, 3; chemists, 10; labourers, 3; tailors, 2; dentists, 2 <sup>a</sup> ; cook, 1; street trader, 1; other occupations, 14 <sup>a</sup> ; no occupation, 1.
<b>FEMALES.</b>								
Raw opium . . . . .	—	—	—	—	—	—	—	—
Prepared opium . . . . .	2	—	—	2	—	—	—	Cook, 1; no occupation, 1.
Medicinal opium . . . . .	—	—	—	—	—	—	—	—
Coca leaves . . . . .	—	—	—	—	—	—	—	—
Cocaine . . . . .	4	—	2	1	—	1	—	No occupation, 2; 1 teacher and 1 typist.
Morphine . . . . .	1	—	—	1	—	—	—	No occupation.
Heroin . . . . .	1	—	—	1	—	—	—	No occupation.
<b>Total Females . . . . .</b>	<b>8</b>	—	2	5	—	1	—	No occupation, 5; 1 cook; 1 teacher and 1 typist.
<b>Grand Total . . . . .</b>	<b>68<sup>b</sup></b>	—	17 <sup>a</sup>	28	11 <sup>a</sup>	9	3	

(a) One case in Northern Ireland.

(b) Two cases in Northern Ireland.

## CHAPTER VI

### THE HYGIENE OF EMIGRATION AND IMMIGRATION

**I**N the nineteenth and twentieth centuries emigration overseas from European countries resulted in movements of great magnitude. It has been calculated that during the period 1825-1900, over 23 millions of people left Western Europe in excess of those received from abroad. Such movements are somewhat irregular ; the annual average for different periods varies considerably. From 1881-90 the annual yearly average of Europeans migrating oversea was 648,383 ; from 1891-1900, 537,218 ; from 1901-10, 998,756 ; 1911-13, 1,368,367 ; 1920-3, 685,217. The United Kingdom during these years has always headed the list ; the rate of emigration immediately before the War is not being kept up, however, the yearly average of emigrants for 1920-3 was 242,136.

It is of considerable interest to note the destination of emigrants. In 1923 the United States easily headed the list with 44 per cent ; the Argentine came next with 19.5 per cent, Canada followed with 11 per cent, then came Australia with 8.6, Brazil 7.7, Cuba 4.7, Mexico 1.6, South Africa 1.2, New Zealand 0.9, Palestine 0.7, and Paraguay 0.1.

More than three-quarters of the emigrants from Sweden, Norway, Germany, and Denmark go to the United States. From Great Britain, Canada receives almost as many (34.4 per cent) as the United States (36.3 per cent) ; a large proportion of Finlanders also go to Canada. Brazil receives 88.3 per cent of the Portuguese emigrants, many Roumanians go there (36.1 per cent). More Italians are going to the

Argentine, also many Spaniards and Czecho-Slovaks. It is somewhat surprising to see the number of emigrants who return to their own country during a year. In Italy returning emigrants were 56 per cent of emigrants for the years 1909-13, about 37 per cent for the period 1920-3. Every year large numbers go from Southern Italy to the Argentine to help with the wheat harvest; the majority return in the spring. The proportion was about 31 per cent for the United Kingdom; it steadily decreased from 1920 to 1923. For other countries the average for these years was Sweden one-third, Spain one-half, Czecho-Slovakia one-twelfth. For Portugal, where oversea emigration is largely seasonal, the proportion is about 50 per cent. In the Argentine the numbers of aliens arriving and leaving the country in the year was about equal.

In Asia, oversea migration takes place largely from China and Japan and India. Hong-Kong is the chief port of emigration for Chinese coolies going to other parts of Asia (479,889 emigrants from 1920 to 1923).

In Europe a considerable amount of movement takes place within the Continent; France especially receives a large number of European immigrants notably in connexion with the working of the coal-mines. The standard of hygiene among these immigrants to France is often below that of the ordinary population; they are responsible at times for the spread of infectious disease.

In accordance with a resolution of the Washington Conference an International Emigration Commission was formed. The Commission met in 1921; they formulated resolutions on such questions as the international co-ordination of measures concerning the protection of workers, the suppression of traffic in women and children, the finding of employment for immigrants, legislation restricting emigration and immigration and the collective recruiting of workers for abroad. The programme sketched by the Commission is being gradually dealt with by the International Labour Office and the Conference.



In recent years many countries have inaugurated arrangements to prevent the immigration of persons who by reason of their being diseased or possessing physical or mental defect are likely to become a charge on their new country. Other reasons for exclusion include illiteracy and sexual immorality; these are indirectly health reasons, illiterates are with difficulty made to understand the laws of hygiene, sexual immorality obviously spreads venereal disease.

A marked change in the character of the immigration into the United States occurred about the year 1885. Prior to that date more than 85 per cent of the immigrants came from the United Kingdom, France, Germany, Holland and Scandinavia. Since 1885 there has been a shifting of this incidence and Russia, Southern Europe with Turkey and Syria have sent increasing numbers with unsatisfactory results, an increasing number of foreign-born persons finding their way into public institutions and becoming public charges. At the beginning of the present century it became necessary for the U.S.A. to legislate for the exclusion of the unfit; Canada, Australia, South Africa, Great Britain and Brazil are among the countries which have followed their example.

The Immigration Acts and Orders of the different countries are substantially the same; they define the classes of persons who are to be prohibited from entering a country, and provide for the examination of any immigrant, medically or otherwise, to ascertain whether he comes within any of the prohibited classes. Exclusion for certain given reasons is mandatory. The Immigration Acts of Canada and the United States of America provide for the establishment of Immigration Departments and for Immigration Boards to determine appeals from persons detained, restricted, or arrested as prohibited immigrants. There can be no appeal against the decision of the Board in the case of an alien who comes within the mandatory class unless in the U.S.A.<sup>1</sup> and

<sup>1</sup> And not even then if suffering from tuberculosis or a loathsome or dangerous contagious disease.

New Zealand, with the consent of the Secretary of State or a Minister, bonds or undertakings are deposited.

The U.S.A. Immigration Act, 1917, which is typical of all these Acts, divides defective and diseased aliens <sup>1</sup> into the two following classes :—

' Class A.—Aliens whose exclusion is mandatory under the law by reason of a certain specified physical or mental defect or disease—all idiots, imbeciles, feeble-minded persons, epileptics, the insane or those who have suffered from one or more attacks of insanity at any time previously; persons of constitutional psychopathic inferiority; chronic alcoholism; those suffering from tuberculosis in any form or with a loathsome or dangerous contagious disease.

The U.S.A. regulations define loathsome and contagious diseases as including :—favus, ringworm of the scalp and nails, sycosis barbae, actinomycosis, blastomycosis, frambesia (yaws), mycetoma (madura foot), leprosy, oriental sore (cutaneous leishmaniasis), and venereal diseases.

The following are also certifiable as dangerous contagious diseases :—trachoma, filiarials, amœbiasis, schistosomiasis and other diseases caused by animal parasites, such as leishmaniasis, trypanosomiasis (sleeping sickness), paragonomiasis <sup>2</sup> and clonorcliasis.<sup>2</sup>

Class B.—Aliens not comprehended under Class A who are physically defective or diseased, such defect or disease being of a nature to cause dependency or to affect the ability of the alien for self-maintenance. Under this heading are included all diseases and defects that, in the opinion of the medical officer, will materially impair a person's capacity for self-maintenance or are of a more or less permanent character likely to need institutional treatment, or

<sup>1</sup> This Act provides for the examination of alien seamen as well as of passengers who are definitely recognized as immigrants; in the financial year ending Jan. 30, 1925, 545,472 alien passengers were examined and 854,915 alien seamen.

<sup>2</sup> These diseases caused by trematodes are seen among aliens disembarking at San Francisco; the first is an infection of the lungs resembling bronchitis caused by *Paragonemus ringeri*, and is rather common in Japan; the second is a liver-fluke disease affecting humans, also caused by *Clonorchis endemicus*; it is common in China and Japan.

medical treatment and all cases of diseased, deformed, or crippled children who will require unusual care during childhood, and who are likely to be physically defective if they live to maturity.

A few of the most common defects under this heading are senility, heart disease, chronic arthritis and myositis, nervous affections, malignant new growth, deformities, marked varicose veins, seriously defective eyesight, chronic malaria, uncinariasis (hookworm disease),<sup>1</sup> pellagra, beri-beri, chronic cutaneous affections, or severe anaemia.

Class 6.—Aliens who present defective or diseased conditions of a less serious character, but who must be certified for the information of the immigration officers and boards of special inquiry under provision of the law.' The U.S.A. regulations include pregnancy under this heading.<sup>2</sup>

It is provided that the physical and mental examination of all arriving aliens shall ordinarily be made by not less than two experienced medical officers of the U.S.A. Public Health Service. Experts in the examination of insane and mentally defective are appointed and every facility is to be provided for examination.<sup>3</sup>

The U.S.A. Act also provides for the appointment of inspectors and matrons of the U.S.A. Immigration Service for duty on vessels bringing immigrants to the U.S.A. These officials are often able during the voyage to gather useful information as to the admissibility of certain emigrants, especially in connection with mental disorders and mental deficiency.

<sup>1</sup> This disease among aliens is apparently treated in hospital at San Francisco; chenopodium is well reported on as a remedy.

<sup>2</sup> See *Regulations governing the Medical Inspection of Aliens*. Miscellaneous Publication No. 5, Treasury Dept., U.S.A. Public Health Service, 1917.

<sup>3</sup> In 22 years of 17,957,807 aliens seeking admission to the U.S.A., 6,629 were certified as mentally disordered. See *Mental Hygiene with special reference to the Migration of People*, Public Health Bulletin No. 148, Treasury Dept., Washington, 1925, which is incidentally an interesting treatise on the whole problem of immigration.

For the mental tests used, see *Manual of the Mental Examination of Aliens*, Miscellaneous Publication, No. 18, Treasury Department, U.S.A. Public Health Service; and *A Psychological Study of Immigrant Children at Ellis Island*, by Berthy Boody, Ph.D. Binet tests were used together with modifications of the American Army Beta tests; as far as possible the influence of language has been eliminated.

An appeal may be made by a rejected alien to the special boards of inquiry appointed by the Commissioner of Immigration, and further appeal may be made in some cases to the Secretary of Labour. The decision of the board of inquiry is to be final when the alien is affected with tuberculosis in any form or with a loathsome or dangerous contagious disease or with any mental or physical disability which would bring him within any of the classes excluded from admission to the U.S.A.

Aliens brought to the U.S.A. in violation of the law are to be immediately sent back in the vessel which brought them, unless it is, in the opinion of the Secretary of Labour, inhumane to refuse them permission to be landed for medical treatment, in which case the alien is to be treated in an immigration hospital at the expense of the shipping company which brought him, until he can be safely deported.

When an excluded alien is helpless from sickness, mental or physical disability or infancy, the deportation of an accompanying alien may also be effected, and under the same conditions on the vessel as those for the rejected aliens.

The Act empowers the President of the U.S.A. to call an international conference, or to send special commissioners to any foreign country to regulate by international agreement (subject to the consent of the Senate of the United States) the immigration of aliens to the United States and to provide for the mental, moral and physical examination of such aliens by American consuls or other officers of the United States at the ports of embarkation, or elsewhere ; also to secure the assistance of foreign governments in their own territories to prevent the evasion of the laws of the United States governing immigration to the United States and generally to enter into international agreements to prevent the immigration of aliens who, under the laws of the United States, are or may be excluded from entering the United States.

In view of the desire of many patients with tuberculosis to settle abroad, the restrictions as to the admission of persons suffering from tuberculosis are of special interest. The U.S.A. regulations admit of no elasticity in cases of tuberculosis ; an alien suffering from tuberculosis in any form has no option of appealing to be admitted in the discretion of the Secretary

of Labour, upon the giving of a suitable and proper bond, or a deposit in cash.

Tuberculous persons are prohibited from entering Canada, either to settle or in transit; they are also excluded from Australia; such persons seeking admission to New Zealand are required, *if permission to land is granted at all*, to enter into a bond for £500.

The Government of South Africa has recently found itself compelled to stop the issue of permits given under certain conditions to tuberculous persons and will strictly enforce their exclusion.

Brazil has followed the example of Northern America, and excludes the tuberculous, but such immigration into the Argentine appears to be allowed.

Under the Aliens Order of 1920 the Home Office is responsible for the exclusion from the United Kingdom of undesirable aliens, of all classes.

By the terms of this Order, 'leave shall not be given to an alien to land in the U.K. who is a lunatic or idiot or mentally deficient person; who is the subject of a certificate given to the immigration officer by a medical inspector that for medical reasons it is undesirable that the alien should be permitted to land'. Further definition of the conditions which constitute 'undesirability on medical grounds' is given in a confidential Code of Instructions to medical inspectors; they are very similar to those specified in the mandatory classes already mentioned.

In view of the extensive prevalence of typhus in Europe at the time of the issuing of the Aliens Order, 1920, medical inspectors of aliens in this country were instructed 'that some conditions of lousiness should be regarded as justifying' the exclusion of the alien.

Measures are directed against the introduction of trachoma, a disease which has not secured a hold in this country. Aliens who are entering the country for more than three months' residence are submitted to full medical examination. If

any such person is found to be suffering from trachoma he is returned by the next boat to the port of embarkation. Aliens coming for a shorter period than three months are only subjected to a rapid survey as they pass the Medical Officer on landing. If any of these persons are found to have any doubtful condition of the eyes, they are carefully examined and if found to be suffering from trachoma the information with their names and addresses are notified to the Medical Officer of Health of the area.

The working of the Aliens Order is of interest ; it applies to some 13 ports in the United Kingdom. In Liverpool in 1925 the total number of aliens arriving in the port was 21,613, of whom 293 were residents returning to this country ; the greater proportion of the aliens were visitors for six months or less, 15,108 being on holiday, 837 travelling on business ; diplomats and persons on Foreign Government Missions numbered 167. Seamen numbered 114 ; another 69 seamen were under contract to join ships in British waters. Transmigrants numbered 2,908, aliens in transit, 130 ; Ministry of Labour permits were held by another 40 ; other aliens numbered 773.

At the present time no alien is allowed to take up employment in this country without the permission of the Ministry of Labour, consequently it is only rarely that the medical inspector has to bear in mind the earning capacity of an alien passenger.

The existence of any disease endangering the Public Health has to be ascertained in any of the aliens arriving at the port ; any patient suffering from the infectious diseases notifiable in this country must be notified to the Port Medical Officer by the ship's surgeon or captain on arrival ; aliens suffering with an acute infectious disease are landed conditionally on their consenting to be removed to the infectious disease hospital and remaining there until discharged as non-infectious. Apart from issuing medical certificates, the medical inspector is often able to advise the immigration officer that

while the state of health of an alien does not justify his rejection on medical grounds his condition is such that it would be advisable to limit the duration of his stay in this country.

During 1925 at Liverpool, ten aliens were held up on medical grounds; three by reason of mental disease, two for venereal disease, and one each for pulmonary tuberculosis, typhoid fever, sleeping sickness, paralysis agitans and general debility. In the Port of London in the same year fifteen aliens out of 20,856 passengers arriving on ships carrying aliens were found to be suffering from infectious and other diseases.

At some ports the medical examination has to be conducted on board, often under somewhat difficult conditions in the third-class quarters. There is often too much noise and a poor light, there may be difficulty in keeping in touch with Immigration Officers working in different parts of the ship; the provision of special medical inspection rooms not only facilitates the work but saves the time of the Immigration Officers and of the shipping companies.

### TRANSMIGRATION

Many of the emigrants disembarking at British ports are transmigrants; they are mostly domestic servants and agricultural labourers of various nationalities including Russian, Polish and Austrian Jews, Russians, Polaks, Jugo-Slavs, Austrians, Hungarians, Finns and Scandinavians.

Transmigrants as opposed to aliens in transit are defined as holders of prepaid tickets to some destination out of the United Kingdom who have had certain specified securities given on their behalf that they will not remain in this country, and in the event of being rejected by another country will not re-enter this country. They must be allowed to journey through this country, although they may be detained in hospital if suffering from acute infectious disease. If found to be suffering from trachoma a notification is sent to the

Medical Officer of Health of the port from which they intend to leave this country, as well as to the shipping company and the Ministry of Health; these persons are ultimately returned to their country of origin, under agreement with the shipping company.

Transmigrants leaving the United Kingdom from the port of Liverpool are housed there in special emigration houses, where they are kept under strict supervision, being visited daily; all cases of infectious disease are reported to the shipping company's doctor and to the Public Health Department. Similarly transmigrants leaving the port of Southampton are housed at the Atlantic Park Hostel at Eastleigh.

The United States Public Health Service take every precaution to prevent the introduction of typhus fever by emigrants from Central Europe; they are bathed and their clothes, hair and belongings freed from vermin at the cost of the shipping company. All second- and third-class passengers bound for the U.S.A. are inspected immediately before sailing: if found to be verminous they are sent to a disinfection station. As a check on the efficiency of these inspections information concerning verminous passengers found during the New York quarantine inspection is forwarded to the medical officers in Europe through the Paris office.

Canada is also a country of the transmigrant; the Canadian regulations explicitly refuse to allow a certificate of transit to be given to persons with tuberculosis in any form or suffering from any contagious or infectious disease or one which may become dangerous to the public health; diseases which are curable within a reasonably short time, and can be treated in hospital are excepted.

Greece too is a country of transit; its geographical position between Poland and Palestine, between Russia and all parts of the Western World, results in many migrants travelling through Greece. Legislation on emigration, however, does not exist; the chief difficulties are social in character.



## FRANCE

There is no exclusion from France for physical reasons, but when typhus threatened to spread throughout Europe in 1920 a decree was passed requiring all persons who entered France from a country where typhus was prevalent, and all immigrants travelling in convoys from any country to be examined for typhus and to have their persons and belongings disinfested if verminous.

France is becoming more and more a country of immigration, she is said to be only second to the U.S.A. in the number of immigrants received.<sup>1</sup> For many years, Italy has had an immigration treaty with France. Belgium has also a treaty for her agricultural labourers who come every year to help at the harvest. Large groups of foreign workers are now selected in their own countries by official agents for emigration to France; many of these foreigners engaged to work on contract renew their contracts and remain in France.

It is stated that the overcrowding and the low standard of hygiene found among many of these immigrants causes infectious disease such as typhoid fever to spread unduly among these foreigners from whom it passes on to the ordinary population. Many of the North Africans and other foreigners seek treatment for venereal disease, but it is not certain whether they do not contract these diseases in France.

Apart from these groups of immigrant workers, there are also a number of Russian and Armenian refugees from the Caucasus, Turkey and Asia Minor for whom special arrangements have been made, usually through the League of Nations Refugee Section. These people, once installed and at work, try to bring in other members of their families, wives, children, brothers or sisters, who for various reasons have remained behind in their own country, or are themselves refugees somewhere else.

<sup>1</sup> Les aspects sanitaires du problème de l'immigration en France.' Drs. Dequidt and Forestier.—*Revue d'Hygiène*, Dec. 1926.

The disadvantages of permitting all travellers to pass into France over land frontiers without medical inspection are pointed out from time to time in the French Press. Admission at the ports is safeguarded by the port health regulations, but apart from the special observation at railway stations on the main international lines, maintained only during times of epidemics, there is nothing to prevent a foreigner from introducing infection by crossing the land frontiers.

Illnesses due to disease other than infectious disease have put a strain on hospital accommodation in France; there has been considerable complaint as to the extent to which immigrants fill up the beds in French hospitals.

In Marseilles the question has been especially acute; after each catastrophe such as the disaster to Wrangel's army, the burning of Smyrna, the expulsions from Constantinople, a fresh influx has occurred of many immigrants, especially of Syrians and Armenians, for whom their own Governments refuse to be responsible. This port has also become the place to which come from all parts of the Mediterranean large numbers of Syrians, inhabitants of the Lebanon and Palestine, Armenians, Greeks and Levantines in order to make personal application to the U.S.A. Consul to obtain a visa. Some 25 to 30 per cent. of patients in Marseilles hospitals at one time were foreigners; very often admission had to be refused to French patients. In 1925 the proportion of foreigners admitted to the Tenon hospital was 70 per cent, nearly all of whom were necessitous and had to be admitted free of charge whilst many French people were unable to afford the charges and remained untreated.

The problem is to be dealt with by a commissioner of immigration and naturalization.

More than 80,000 transmigrants annually pass through France; most of them are Mid-Europeans, Armenians, Albanians and Rumanians emigrating to the American continent. Many of these were held up in France because they were unable to fulfil the conditions required by their country of destination. In 1925 a new law came into operation whereby in future emigrants entering France with a transit visa were only allowed to remain a few days in the country.

The French branch of the International Migration Service find that their help is most often required on account of trachoma and tuberculosis.

A typical instance of the help they are able to afford is as follows :—

' A Persian woman and her children were on their way to America to join the head of the family, who had supplied them with all the necessary means of doing so. At the ship's side, medical inspection revealed the fact that one of the children showed signs of trachoma, and she was not allowed to embark. The mother, obliged to leave her child behind, entrusted her to the care of the port bureau of the French branch of the International Migration Service. The Service undertook the care of the child, found her a safe home, saw that she was well looked after, kept up a correspondence with the child's parents, and handled the money sent by them for the cost of the child's keep and treatment. When the child was cured, the Service made the arrangements for the child to rejoin her parents.'

#### POLAND

Poland is largely an agricultural country with a density of seventy-five inhabitants to the square kilometre; it is thus over-populated and much emigration takes place, formerly to the U.S.A. but now more to countries with less strict immigration laws, such as the Argentine.

France receives many Polish workers. Many Polish Jews have emigrated to Palestine.

Emigration is controlled by the Emigration Office, a branch of the Ministry of Labour and Public Welfare. Among its functions are the repression of illegal propaganda, the control of shipping companies, the appointment of conductors on the emigrant ships and the provision of information on emigration; it issues emigration passports and has control of labour contracts and is empowered to draw up agreements with countries of immigration. In its work it is helped by several voluntary organizations, one of which in a suburb of Warsaw has instituted barracks where emigrants can

stay before setting off on their journey. Two voluntary societies do work especially in connexion with the protection of girls and women against the white slave traffic.

#### THE CARRYING OUT OF THE IMMIGRATION LAWS

The Treasury Department of the United States Public Health Service issues 'Regulations Governing the Medical Inspection of Aliens'. They include comprehensive instructions as to the procedure for the medical examination of aliens and also notes on the detection and diagnosis of the diseases designed to assist the examining officer and to secure uniformity of acceptance and rejection of aliens on medical grounds between one medical officer and another at the different ports of entry and frontier stations.

The Regulations remind officers that 'The immigration laws make no distinction between alien cabin passengers on ships and travellers by land on the Canadian and Mexican borders; they offer problems which must be met by the ingenuity and tact of the medical officers'.

No place has had more experience of handling immigrants than the great seaport of New York, and it is of interest to note the conditions under which the immigrants are received.

All immigrants have to pass through the immigrant station at Ellis Island in the harbour; they are conveyed from the vessels in which they have travelled in ferries to the Island.<sup>1</sup> Here, until recently the aliens filed past the fifteen medical officers separately 5,000 in a day, and any suspected persons were picked out for detailed examination.

In 1923 the arrangements were adversely commented on by Sir Auckland Geddes, H.M. Ambassador, Washington, in a report he was invited to make by the U.S.A. authorities; he found that the searching medical examinations required were being carried out on premises which had been in existence

<sup>1</sup> Comment was made at San Francisco in 1925 on the far greater value of medical inspections carried out at immigration stations as contrasted with those made on board ship.

for a number of years and were no longer suitable in size or equipment for the extensive use to which they were being put.

In 1925 the new Immigration Law of 1924 did away with the bunching into the first few days of the month of the greater portion of the quota allowed for that month, with resulting congestion and unavoidable lowering of the standard of examination.

It was decided not to bring to Ellis Island more than 1,000 aliens in any one day; these changes have enabled the 'routine' examination to be replaced by an 'intensive' one.<sup>1</sup> Sir Auckland Geddes also reported that

'After seeing Ellis Island and studying its problems, I believe that it is true to say that it is impossible to administer any immigration station under existing laws without hardship and tragedy. If a system could be devised which would prohibit persons desiring to come to the United States from sailing from Europe or elsewhere without the certainty of admission to the United States, the problem would be almost entirely solved.

'At present, United States consuls, when granting a visa to passports to the United States, may mark the visa with the number of the regulation which they believe that individuals entering the United States would violate. . . . I feel quite sure that this does not unfairly bias the judgement of the immigration authority, but if an individual is clearly not eligible to enter the United States, it would in my judgement, be kinder to prevent him from sailing from Europe or elsewhere than to reach Ellis Island and there turn him back.'

In 1921, two years previously, the International Emigration Commission had stated that in their opinion 'Governments should arrange for the thorough inspection of emigrants at ports of embarkation and the principal places of transit. It suggested that special Conventions should be made between the States concerned

<sup>1</sup> The number of immigrants has also declined since 1921, due to the application of the Immigration (Quota) Law of 1921; the Immigration Law of 1924 further reduced the numbers.

to settle the conditions under which inspection should take place before embarkation, so that emigrants may be sure of admission to the country of immigration. Representatives of certain British steamship companies in making statements to the Commission stressed the need that the inspection of the emigrant at the port of embarkation should be final and provide the necessary guarantee that the emigrant was not liable to be refused admission on arrival.

Articles 21 and 22 of the new International Convention state that the health authorities of the country of immigration should examine emigrants before departure. Arrangements should be made between the countries of emigration, transit and immigration so as to reduce rejections for health reasons to the minimum. They should also determine the measures that should be taken to prevent the spread of infection.

Towns of departure or ports of embarkation of emigrants should be provided with adequate arrangements for their medical inspection and treatment, including a medical service with the necessary medicaments and appliances, an establishment inspected by the State where the emigrants may undergo the necessary sanitary formalities, be lodged and visited by doctors and their food and drink supervised and also a place at the port where the medical inspection before disembarkation can be carried out.

In the eleven months preceding September 1925, over 35,000 were deported from the United States. Apart from the large group deported for illegal entry, comprising those who had been smuggled across the border, there were over 4,000 who were either public charges or liable to become public charges, 1,025 were illiterates, and 429 were dealt with on account of immorality.

An experiment is now being tried at three Irish ports where representatives of the United States Immigration Service make a thorough examination of the candidates before embarkation. People who pass this examination are landed at the docks in New York instead of at Ellis Island.

The Immigration Law of 1924 has done away with the practice of granting visas to more people than could be admitted and placed on the American consuls the responsibility of

refusing visas to those people who they believe would not be eligible for admission.

The Department of Health for Canada in conjunction with other Overseas Dominions have established a system of medical examination in the British Isles, the Irish Free State and on the Continent, whereby prospective emigrants are examined by a doctor on the Official Roster of Medical Referees, who number approximately 1,500.

### CONDITIONS ON THE JOURNEY

Before sailing an official medical examination of emigrants is made in several countries to ensure that none of the passengers is liable to spread infection or endanger the safety of the other travellers.

In this country all emigrants travelling second-class or steerage on board vessels outward bound are subject to inspection by Medical Officers of the Board of Trade.<sup>1</sup>

But the conditions on the journey have given rise to much complaint. In August 1921 the International Emigration Commission discussed 'the deplorable sanitary conditions prevailing on railways and on board ship', and a commission of technical experts was called for to prepare a report dealing with the minimum conditions of hygiene, safety and comfort to be provided for emigrants on railways and on board ship. Certain British steamship companies represented that in order to avoid unfair competition it was desirable to obtain uniformity in the legislation of the various countries in these matters.

The Merchant Shipping Acts 1894 and 1906 require British emigrant ships to be seaworthy and have proper accommodation, to furnish good and efficient food, to provide medicines, and on large ships to carry a surgeon, and in other ways protect the interests of the emigrant. Short summaries of these regulations are posted up in every ship. The British official

<sup>1</sup> The crews of all such vessels bound for America are also subjected to inspection by these officers.

*Handbooks for Immigrants* advises emigrants of these regulations and instructs them that if they are not being properly treated they should immediately complain.

The supervision of these emigrant ships is carried out by the Board of Trade. On British ships the immigrant is well cared for; the food provided is as a rule of good quality; stewardesses are provided; some vessels have playrooms for children; in some ships there are matrons, and a welfare supervisor.

The new International Sanitary Convention recommends that emigrant ships should be provided with a sufficient supply of vaccines (small-pox, cholera, &c.) so that the emigrants can be vaccinated *en route* if necessary. Although this provision would be more generally used on Asiatic ships, yet from time to time vaccination against small-pox must be useful in connexion with European emigration.

Great Britain, Canada, U.S.A., Belgium, France, Italy, Spain and Sweden issue regulations as to emigrant ships and their construction; these provisions relate to the minimum distances between berths and between decks, the size of the berths and the number of square metres of space per emigrant and the amount of cubic air space per passenger.

Each country has its own emigrant regulations, and emigrant ships are inspected at the ports where they touch. The view has been expressed that one country is often not satisfied with the verdict of a foreign inspector, and is rightly concerned that every provision should be made for the welfare of its own particular countrymen. It is consequently thought desirable that some international body should set an international standard, and try to make provision for an international inspection that will be generally satisfactory.

The International Labour Organization has drafted a Convention the main purpose of which is to secure that every emigrant ship should carry at least one official inspector appointed by the Government of the country whose flag the ship flies. After each voyage the inspector would report to



the government to which the vessel belongs, and that government would forward the report to the governments concerned.

Upon arriving at Transatlantic ports, most of the immigrants are obliged to spend days upon the train before reaching their destination. The Canadian Red Cross has established, in co-operation with the Department of Immigration, at the seaports, well-equipped nurseries at which the children are attended to, and the mothers given an opportunity to prepare for the next stage of their journey.

Each mother is given a card which informs her of the address of the Red Cross Division of the province to which she is proceeding and instructs her as to how she can, if necessary, get in touch with the Public Health or Red Cross authorities.

## CHAPTER VII

### VENEREAL DISEASE

**T**HE International Conferences of 1897 and 1902 on Venereal Disease convened at Brussels by the Belgian Government resulted in the formation of associations for combating venereal diseases in several of the countries represented. After the outbreak of war in 1914 there was an immediate increase in incidence of venereal diseases and the problem forced itself on the public notice. In 1921 the League of Red Cross Societies organized international conferences on venereal diseases at Copenhagen, Prague and Paris in the course of which it became apparent that practically all the countries represented approved the idea of establishing a common plan of campaign against venereal disease.

In Brussels, during the National Congress organized by the *Ligue Nationale belge contre le Péril Vénéérien*, a preliminary agreement was arrived at between representatives of the British, Belgian and French national societies, and early in 1923 the *Union Internationale contre le Péril Vénéérien* was founded in Paris at a meeting attended by representatives of British, Belgian, Spanish, French and Swiss Societies, by delegates of the League of Red Cross Societies, and, unofficially, by Japanese delegates. In addition, many national Societies, not represented at the meeting, had signified their adherence to the International Union.

Co-ordination of national efforts must be made lest one country which has achieved relative freedom from infection should be re-infected from other countries where the contagion is relatively abundant. Especial efforts should be

made to free the great seaports from infection: emigration should be controlled, international measures should be taken against quack remedies and against fraud in the case of valuable remedies and possibly also of prophylactics. General principles of common interest to all countries such as equal standards of morality for men and women, legal responsibility for causing infection, compulsory notification of venereal disease might with advantage be discussed at international conferences.

An important piece of international work has been done in connexion with the treatment of venereal disease in seamen.

In 1920, at the International Labour Conference of the League of Nations at Genoa, the problem was discussed at a special meeting of the delegates, convened under the auspices of the English National Council for Combating Venereal Diseases. A set of resolutions was drawn up, adopted by the Conference, and circulated to all participant Governments.

They asked for:—

1. The provision of adequate facilities for the prevention and treatment of venereal diseases at all the principal ports.
2. The inclusion of venereal diseases among the conditions for which free drugs and treatment are provided for members of the Mercantile Marine.
3. The dissemination of appropriate information on the subject to seafarers, and especially to those at training establishments. (In an International Labour Office report issued in 1926 by a Joint Commission it was recommended that the circular published by the British Shipping Federation should be forwarded to various shipowners' and seamen's organizations.)
4. The provision of adequate facilities for recreation at all large ports under the administration of a joint organization representative of owners and seafarers.

The special attention of the International Labour Organization was called to the importance of the recommendation as to facilities for recreation.

These resolutions were also transmitted to the Health Section of the League of Nations and stimulated general interest in the matter and in this way assisted the Health Section and the *Office International* to secure support for the completion of the international arrangement relating to facilities to be afforded to merchant seamen for the treatment of venereal diseases.

In May 1920 the matter of international action was brought before the Committee of the *Office International d'Hygiène Publique* by Sir George Buchanan, the British representative, who in the following October submitted a memorandum showing the steps which had been taken in British ports where seamen were treated gratuitously at venereal disease clinics, irrespective of nationality. Denmark had already made similar arrangements. Various questions were raised; was the shipowner or seaman to pay? a record of the treatment already received would have to be carried from port to port by the seaman. The 'carnet' eventually agreed on was based on the card already in use in British ports drawn up by Dr. F. J. T. Coutts.

It was felt that there was a real uncertainty, national and international, as to the meaning of expressions used to connote different degrees of Wassermann reaction and the exact significance of negative reactions. Consideration of this question was also necessarily extended to other tests such as those which are dependent upon precipitation, e.g. the Dreyer or Sigma test. The Standards Commission of the League of Nations Health Organization carried out an intensive inquiry at Copenhagen into the comparative value of the different blood tests for syphilis, and agreement on the notation which should be generally used to express their results was reached.

An Agreement was negotiated by the Belgian Government and was eventually signed at Brussels on the 1st December, 1924, on behalf of the following Powers: Argentine, Belgium, Cuba, Denmark, Finland, France, Great Britain, Greece,

Italy, Monaco, Peru, Roumania and Sweden. Since that date the adherence of New Zealand has been received and several other Powers are stated to be about to adhere. The United States of America are not prepared to adhere to the Agreement on account of various legal difficulties, but the American Public Health Service is not opposed to the principle of the Agreement and arrangements will be made for the United States to conform to the International Scheme as closely as possible.

The agreement is to the effect that :—

(1) The High Contracting Parties undertake to establish and maintain venereal treatment centres, open to merchant sailors and watermen of all nationalities, in each of their chief sea and river ports.

These centres must have a medical personnel who are specialists and an equipment and organization kept abreast of the requirements and progress of scientific knowledge. They must be so established and worked as to be readily accessible to all desiring to make use of them. They must be expanded at each port to a degree proportionate to the amount of shipping, and must have a sufficient number of hospital beds at their disposal.

(2) Medical treatment as well as the supply of medical necessaries must be given gratuitously. Hospital treatment, when the medical officer of the centre considers it to be necessary, must also be gratuitous, and patients are to be supplied without any charge with sufficient medical supplies to carry out necessary treatment during the voyage to the nearest port to which they are going.

(3) Each patient must be supplied with a card which shall be strictly personal to himself and on which he must be described by a number only. The medical officer of each treatment centre attended by the patient is required to write the following information on the card :—

- (a) The diagnosis, with a summary of the clinical facts noted at the time of the examination.
- (b) The treatment carried out at the centre.
- (c) The treatment to be followed during the voyage.
- (d) In cases of syphilis the results of serological examinations (Wassermann).

The form of the card is to be similar to one figured in the annexe to the Agreement, but may at a later date be altered by administrative order.

It is desirable, for comparative purposes, that the Wassermann examinations should be carried out, so far as possible, by one uniform method.

(4) The masters of ships and those in charge of boats are to be held responsible for informing their crews of the existence of the treatment centres referred to in this Agreement.

Port Sanitary Officers at the time of hailing ships, or on the occasion of their first visits on board, are required to furnish a supply of notices for the crew, stating the position of the treatment centres and the consultation hours.

In 1923 the *Union Internationale contre le Péril Vénérien* appointed a Ports Committee. The practical application of the agreements was stimulated by experts representing the Union Internationale visiting the principal trading ports.

By the (British) Merchant Shipping Amendment Act 1923, venereal disease was brought under the same conditions as other ailments. Drugs for treating these diseases must be available on every ship, together with such disinfectants as may be required by those who have exposed themselves to the risk of infection and are unable to visit a clinic before reaching the next port. In Germany shipowners are required to distribute preventive medicaments to seamen; in Sweden a Royal ordinance is being prepared to this end.

The British Social Hygiene Council have distributed a brochure, *The Seafarer's Chart of Healthy Manhood*, which gives extensive information on venereal disease and a list of treatment centres and times of attendance at most of the large ports throughout the world. Leaflets giving suitable advice to seamen have been distributed for some time by the Liverpool Sanitary Authority. The owners of the lines plying between the British and Scandinavian ports have also distributed leaflets, giving the times and addresses of the free clinics in the ports at which their ships called.

In Australia 'most satisfactory means for the dissemination of exact knowledge among seafarers and for immediate self-disinfection have been adopted'.<sup>1</sup>

A copy of a well-written leaflet follows:—

**LIVERPOOL PORT SANITARY AUTHORITY  
HEALTH OF SEAMEN**

Many of the ailments and illnesses which are associated with a seafaring life may be avoided by attending to a few simple rules of health.

If you would avoid these ailments attend to the following:—

1. Do not drink water from polluted or doubtful sources. Ice Cream and Uncooked Shell-Fish frequently cause Typhoid Fever and Dysentery.

2. When taken at all, spirits should be consumed in the strictest moderation, care being especially taken as to the quality of the liquors obtained in bars in foreign ports.

3. Avoid exposure to the direct rays of the tropical sun and unduly prolonged exposure to high temperatures.

4. When in tropical ports, avoid sleeping uncovered on open decks or in quarters where mosquitoes are likely to bite you, as malaria is frequently contracted in this way. When mosquitoes are prevalent, sleep under cover of a mosquito curtain.

5. Serious lifelong illness may be contracted by sexual intercourse with loose women.

Any form of VENEREAL DISEASE, if untreated, may last a life-time, and be transmitted to wife and children. If either of these diseases, syphilis or gonorrhœa (pox or clap) should be contracted, do not delay in consulting a properly qualified doctor at the earliest moment. Avoid all quacks and patent medicines.

It is commonly believed that when the temporary pain and discomfort are relieved, and the sore or discharge has disappeared, that the disease is cured. This is a great mistake, and neglect of treatment is a very common cause of prolonged illness, including stricture or paralysis.

Persons suffering from any form of Venereal Disease should, immediately they arrive in Liverpool, visit one of the following institutions at once, where up-to-date treatment by specialists in these diseases, may be had free of charge, and without any fear of disclosure.

It is especially important that attendances for treatment should be regular, until the specialist considers that the disease has been cured.

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<sup>1</sup> Report on Protection of the Health of Seamen against Venereal Disease, International Labour Office, 1926.

### HOURS OF ATTENDANCE AT THE VENEREAL DISEASES TREATMENT CENTRES IN LIVERPOOL.

<i>Institution.</i>	<i>Days and Hours of Attendance.</i>
SEAMEN'S DISPENSARY Cleveland Square, Park Lane.	The Dispensary is open daily (except Sunday) from 9.30 a.m. to 8 p.m. Saturday, 9.30 a.m. to 1 p.m. New Patients.
ROYAL INFIRMARY . Pembroke Place.	Monday, 5.30 p.m. to 6.30 p.m. Tuesday, 12 noon to 1 p.m. Wednesday, 5.30 p.m. to 6.30 p.m. Friday, 7 p.m. to 8 p.m. Continuation Treatment for Patients Daily 9 a.m. to 6.30 p.m. Sunday, 10 a.m. to 12 noon. New Patients,
DAVID LEWIS NORTHERN HOSPITAL, Entrance in Leeds Street.	Mondays and Fridays, 5 p.m. to 6 p.m. Continuation Treatment every Evening from 7 to 8 p.m.
ROYAL SOUTHERN HOSPITAL, Caryl Street.	New Patients. Tuesday, 5 p.m. Thursday, 5 p.m. Saturday, 1 p.m. Continuation Treatment daily at 5 p.m. except Friday and Sunday. On Saturday treatment will be given at 1 p.m. New Patients.
STANLEY HOSPITAL .	Monday and Thursday, 5 to 6 p.m. Continuation Treatment daily 6 to 7 p.m. except Tuesday, Saturday and Sunday.

Treatment can also be obtained at the following Centres, viz. :—

BOOTLE BOROUGH HOSPITAL Derby Road	Monday Wednesday Friday	} 5 p.m.	
BIRKENHEAD Boro' Hospital, Park Road, N.	Monday Wednesday Friday		} 6 p.m.
WALLASEY— Mill Lane Dispensary Mill Lane Hospital	Wednesday, 6.30 p.m. to 7.30 p.m. Friday, 2.30 p.m. to 4 p.m.		

### SUPPRESSION OF TRAFFIC IN WOMEN AND CHILDREN

Towards the end of the last century various voluntary organizations were formed in Europe with this object. In 1899 these organizations held a congress which resulted in



the establishment of the International Bureau to co-ordinate and support the initiative of the voluntary bodies. From 1899 to 1904 much private activity occurred throughout Europe when, partly as a consequence of the formation of this bureau, the French Government convened a diplomatic conference which drew up an agreement whereby the signatories undertook :—

(1) ' To have a watch kept especially in railway stations, and in ports of embarkation.'

(2) ' To have the declarations taken of women of foreign nationality who are prostitutes, in order to discover who has caused them to leave their country, and with a view to their eventual repatriation.'

(3) ' To exercise, within legal limits, supervision over the offices and agencies engaged in finding employment for women and girls abroad.'

Subsequent experience showed that these measures were inadequate: an international conference of the representatives of governments was convened by the French Government in 1910. A Convention was drawn up whereby the sixteen States taking part bound themselves, in cases where their own legislation did not suffice to provide for and inflict punishments on all who engaged in this trade. As this also proved inadequate when the League of Nations were entrusted by Article 23 of the Covenant with the task, a *questionnaire* was dispatched to all Governments asking them for details of the measures taken to suppress the traffic in their respective countries, and of the various problems directly connected with that traffic.

The League is primarily concerned only with traffic in women and children. It cannot concern itself with prostitution, which is a domestic problem—and one by which every one of its members is faced—except in so far as prostitution concerns the international traffic in women and children, which it is its duty to combat by every possible means.

A Conference comprising delegates from thirty-four coun-

tries met in Geneva in 1921 to consider the replies to the *questionnaire*; it embodied its conclusions in a final Act which later in the year was adopted as a Convention intended to supplement rather than replace the earlier international acts relating to the traffic. For instance, the punishments prescribed by the Convention of 1910 for traffickers in women and girls were also made applicable to those who engage in the traffic of children of both sexes.

The Convention of 1921 required the punishment of those guilty not only of the offences committed, but of attempts to commit, and, within legal limits, of acts preparatory to the commission of such offences.

The new Convention raised to twenty-one years the age limit fixed by the earlier Convention at twenty.

The provisions relating to extradition also went further than those of the Convention of 1910; the High Contracting Parties have now agreed that in cases where no extradition conventions are in force between them they will take all measures within their power to extradite or provide for the extradition of persons accused or convicted of the offences specified in Articles 1 and 2 of the Convention of 1910. In addition the High Contracting Parties agreed to provide regulations for the supervision of employers' agencies and offices, so as to protect women and children seeking employment in other countries.

An article dealing with the protection of emigrants was embodied in the new Convention.

Each State was to appoint a Central Authority with whom the League Secretariat was to keep in touch as well as with voluntary associations. The Third Assembly added a resolution. Pending the abolition of state regulation of prostitution, the Advisory Committee should consider if it could be agreed that no foreign woman should be employed or carry on the profession of prostitute in any licensed house.

The Convention has been signed by thirty-three States, eighteen of which have up to the moment ratified and three

States which have not signed the Convention have adhered to it.

A Permanent Committee was formed by the League with the object of advising the Council on all matters relating to the traffic.

It consists of ten Government representatives and five assessors or advisory experts appointed by the five principal international voluntary organizations for combating the traffic. Among the Governments represented on the Committee are France, Great Britain, Italy, Japan and the United States of America. This Committee now held three sessions in June 1922, March 1923, and April 1924.

In March 1923 the majority of the Advisory Committee adopted two resolutions:—

The first recommended that a *questionnaire* should be sent to all members of the League, asking those States which have a system of regulation of prostitution and licensed brothels for a full report of its workings and results, together with a statement of the grounds on which it is advocated, and those States which previously had a system of regulation but have abandoned it, for a report of the reasons that led them to take this course and of the results which have followed their action; the second recommended that a general study of the conditions under which the traffic in women and children is carried on should be made on the spot.

A short summary of the more important of the replies to the *questionnaire* follows.

*Panama* regards the system of regulation as essential to public health. 'The greatest objection to regulation is the obvious contradiction which exists between the system of tolerance and the highest ends of the State, which from the ethical standpoint cannot but condemn prostitution and the traffic in women. But these considerations of a purely theoretical nature are not sufficiently cogent to prevent the recognition that prostitution is inevitable, and that its regulation in the interests of public health is a necessity.'

*Greece* has also advanced reasons for maintaining licensed brothels.

In *Hungary* a system of State regulation and of licensed brothels exists, but the Government is of opinion that the severe measures taken to punish procuration prevents the possibility of licensed brothels becoming a source of traffic. *Hungary* has prevented the registration of foreign women as prostitutes and is preparing a scheme for the uniform regulation of prostitution and the suppression of licensed brothels.

The *Belgian* Department of Justice, quoting the opinion of specialists, states that 'the system of State regulation, originally established as a measure for the protection of public health and as a guarantee of decency in large towns, has not fulfilled either of these expectations . . .' 'Alleging that licensed brothels are recognized by the State—a claim which is in some sort borne out by the system of regulation—the proprietors of these houses constantly renew and change the inmates by admitting younger members, and by this fact alone they are a permanent factor in the traffic in women. Houses of this nature apply to special agents engaged in this type of recruiting. In addition, the inmates of licensed brothels rapidly lose all will power and moral sense; having fallen to the last stage of abjectness, they are the constant victims of traffickers to a far greater extent than clandestine prostitutes.'

The memorandum of the *Netherlands Government* explains that the system of police regulation has been abandoned because it did more harm than good, a view confirmed by several international medical congresses. 'As regards the connexion between the abolition of licensed brothels and the international traffic in women, Dutch experience has shown that the traffic depended on the existence of licensed brothels, and that their abolition has almost killed it. The agents of the proprietors of such houses could always count on licensed brothels taking the women and girls procured. Even in

1901 (two years before the actual closing of licensed brothels in Amsterdam) in the course of the inquiry held by the National White Slave Traffic Committee, it was proved that in fifteen months seventy-nine women had been engaged for and had been given employment in the three chief brothels in that city. Further investigations showed that many of these women were under age, and were entered in the civil registers under the names of women of full age, from whom the necessary papers had been obtained by the Paris agents of the brothel proprietors.'

*Poland* abolished licensed brothels in 1922 because they constituted centres for the international traffic in women; it was impossible to give assistance to prostitutes, owing to the fact that the inmates of licensed brothels were materially dependent on the proprietors; large quantities of alcohol were consumed in those houses, thus contributing to the number of cases of venereal diseases; the bringing together of large numbers of prostitutes also tended to disseminate these diseases.

The *Czecho-Slovakian Government* considered that the professional prostitute and the traffic in women were rendered possible by the existence of licensed brothels. The clients of these houses constantly demand fresh women. In consequence, the dispatch of prostitutes from house to house is very frequent and the exchange of prostitutes is continuous. If licensed brothels did not exist traffic in women would be reduced to a minimum. The demand for fresh women is above all active in countries where a system of State regulation exists. Prostitutes in licensed brothels contract venereal disease far more frequently than prostitutes living independently and are more susceptible to contagion; on an average a prostitute in a licensed house contracts syphilis after three years, whereas an independent prostitute usually escapes for five years. As a result of the higher degree of promiscuity in licensed brothels the danger of venereal contagion is greatly increased. The argument that venereal disease is lessened

by a system of licensed brothels and State regulations falls to the ground, because it has been shown that all prostitutes suffer from chronic gonorrhœa and at least one-third of them from latent syphilis.

Inmates of these houses are down-trodden creatures without rights of any kind, entirely at the mercy of the keeper of the house. Everything given to them is placed against their account so that they are always in the keeper's debt, and it is thus impossible, or very difficult, for them to abandon the position should they wish to do so: they are in fact slaves.

Licensed brothels are for the most part frequented by youths of twenty years of age or even younger. They encourage depravity and cynicism among young people and 'it is an established fact that venereal diseases are found even among pupils in secondary schools'.

*Latvia* abandoned the system of licensed houses because of its general failure. 'As experience has shown everywhere, the number of prostitutes who can be placed in licensed brothels is relatively insignificant. Consequently, prostitution in general can only be supervised in a very imperfect manner. Efforts to establish general regulations for the supervision of prostitution have thus proved of little use and the system of licensed brothels, quite apart from the evils which the system engenders, has not justified expectations.'

*Sweden*.—No licensed brothel system has ever existed, but a system of regulating prostitution which was in force in some of the principal towns was abandoned in 1919.

*Denmark*.—This country abolished the licensed brothel system in 1901 and State regulation system in 1906, but this action was not taken as a result of experience or of observations connected with the traffic in women and children.

*Cuba* abolished the 'authorized zone' in 1913 because of traffickers.

*France* has appointed a special commission and forbidden keepers of licensed brothels to employ foreign women.

The Fourth Assembly of the League of Nations asked the

Advisory Committee to request, if possible, those Governments sanctioning licensed brothels to take precautions to prevent women being detained against their will.

In March 1923 the Advisory Committee suggested that a system of special licence might be a protection for women seeking employment in theatres abroad, but that each country should adopt the method best suited to its special circumstances. The question of emigration and immigration could, it thought, be best examined in collaboration with the International Labour Office at Geneva. The matter involved protection before departure, during the voyage and on arrival and the special treatment suitable for undesirables. In dealing with prostitutes it was thought that women as well as men should be employed among the police. A body of experts was appointed to inquire into the extent and scope of the traffic in women and children. A *questionnaire* was drawn up and submitted to the Governments with the full authority of the League; the expert Committee followed up the *questionnaire* by making inquiries on the spot. Investigations were made in twenty-eight countries; 6,500 people were interrogated, no fewer than 5,000 of whom were connected directly or indirectly with 'commercialized prostitution'.

Inquiries in Mexico showed that the traffic there is real slavery, procurers buying and selling women and making a profit on every transaction.

In South America nine out of ten of the women in disorderly houses are foreigners. Proprietors of licensed brothels in Uruguay import women wholesale from Europe. The victims come mainly from cabarets in Hungary, Austria, and Germany. The movements of tourists is also followed; women are imported into Egypt, Tunis and Algeria for the winter season and are sent elsewhere for the summer. Most of the white slaves are recruited among dancing girls. The Commission has evidence that white-slave agents, who pose as theatrical agents, have offices in Belgrade, Berlin, Bucharest, Budapest, Marseilles, Paris, Vienna and Zagreb. England is

considered a 'bad country' by white-slave agents, because the British police keep so keen a watch on their movements.

The report shows Portugal to be one of the worst countries; 40 per cent of the registered prostitutes there range in age from sixteen to twenty.

The causes of prostitution, the Committee states, are to be found in the low salaries paid in many countries to women workers and in cabarets throughout the world which engage girls to dance and sing, but retain part of their salaries on various pretexts; the girls fall into debt and are forced first to encourage men to drink and then to prostitute themselves. Girls also become white slaves through bogus matrimonial agents and bogus employment agencies.<sup>1</sup>

#### SUPPRESSION OF OBSCENE LITERATURE

Obscene publications—whether photographs, prints, books or any other form—are made use of by traffickers in women and children: they are used to induce men to visit brothels or to entice women to become prostitutes. In 1923 an International Convention was drawn up at Geneva and signed by practically the whole civilized world. By it:—

'The High Contracting Parties agree to take all measures to discover, prosecute and punish any person engaged in committing any of the following offences, and accordingly agree that—

'It shall be a punishable offence—

'(1) For the purposes of or by way of trade or for distribution or public exhibition, to make or produce or have in possession obscene writings, drawings, prints, paintings, printed matter, pictures, posters, emblems, photographs, cinematograph films or any other obscene objects.

'(2) For the purposes above mentioned to import, convey or export or cause to be imported, conveyed or exported any of the said obscene matters or things, or in any manner whatsoever to put them into circulation;

<sup>1</sup> Report presented to the League of Nations Assembly, 1927.



' (3) To carry on or take part in a business, whether public or private, concerned with any of the said obscene matters or things, or to deal in the said matters or things in any manner whatsoever, or to distribute them or to exhibit them publicly or to make a business of lending them ;

' (4) To advertise or to make known by any means whatsoever, in view of assisting in the said punishable circulation or traffic, that a person who is engaged in any of the above punishable acts, or to advertise or to make known how or from whom the said obscene matters or things can be procured either directly or indirectly.'

The Congress at Graz (Sept. 1924) held that when drawing up legislation, offences against minors should be considered especially serious: it agreed with the Geneva Conference of 1923 that it is undesirable to define the word 'Obscene' and trusted that each country would take as high a standard as possible,

In this country the position was laid down in March 1926 by the Home Secretary (Sir W. Joynson-Hicks) :—

' As regards books printed abroad, everything practicable is done to prevent the entry into this country of books which are clearly indecent. A great number of such books have been stopped, and this practice is being continued.

' Moreover, there is an international agreement for the interchange of information relating to dealers in indecency, and the Home Office, in a number of cases, after stopping consignments of books or photographs sent to this country, has notified the appropriate authority in the country of origin, with the result that prosecutions have been instituted in foreign countries against individuals trafficking in indecency.

' As regards books printed in this country, there are, practically speaking, no powers of *preventing* publication in the sense of taking action before a book is offered to the public by way of sale or otherwise, but as soon as an indecent book is exposed for sale or distribution, the law can be set in motion.

' It is in my opinion, a defect in the law that before the police can obtain a warrant under the Obscene Publications Act, 1857, to

search premises where indecent books, pictures, &c., are known or suspected to be, they have to wait till an offence has been committed by the publication or sale of indecent articles as from the premises in question.

' This is one of the defects which I hoped to remedy by the clause relating to search warrants in the Criminal Justice Bill of last session, but the clause had to be withdrawn owing to the opposition aroused, mainly because it was thought to be aimed at political offences.

' Apart, however, from this defect, the law is, generally speaking, effective, and so far as concerns all the really pornographic stuff the Home Office carries on an unobtrusive but very active and successful campaign for its suppression.

' When, however, we come to consider works which do not belong to the category of gross and obvious obscenities, many problems arise.

' There is a large number of borderline cases in which it is extremely difficult to decide whether a prosecution on a charge of indecency would be likely to be successful and would be advisable. Such questions as the following have to be considered :—

' Is the book of such a character that general and indiscriminate distribution would constitute an offence while distribution in particular directions or to a special class of the community would not ?

' Is the book a classic or a real literary production illustrative of the times in which it was written or with which it deals, although passages relevant to the subject-matter are undoubtedly indecent ?

' Is the book ultimately wholesome and moral, though to arrive at such a conclusion the reader has to wade through undesirable matter, and is it therefore expedient or inexpedient to take any action ?

' Moreover, one has to bear in mind the possibility that the jury may fail to agree and that a trial will give the book a great advertisement.

' Another difficulty is that the standard of judgment in these matters varies. Different people hold, quite honestly, widely different views as regards certain types of books, and it is, generally speaking, undesirable to attempt to enforce by legal proceedings

a higher standard than the general body of public opinion approves.

'To-day the standard of public opinion is not high, there is room for a great deal of work in educating and improving the public judgement. While I shall certainly not be remiss in invoking the law in appropriate cases, I cannot help feeling that legal action will not in itself provide the remedy unless at the same time more is done by right-thinking people to mobilize public opinion in a general attempt to raise the standard of taste and judgement.'

This improvement of public opinion is not brought any nearer by the presentation of 'unpleasant' plays. Plays which are true to life and are entertaining may satisfy the inexacting, but the essential of true art is to invigorate the imagination and make us think more finely about life. Although life is often amoral, the extent to which plays at present deal with unpleasant passions is out of all proportion to their significance in English life. Poison, though good medicine upon occasion, is a poor diet.

## CHAPTER VIII

### THE HEALTH OF SEAMEN

**M**ARINE trade is international in character. Vessels and crews spend a considerable portion of their time in foreign ports ; in a large number of ships the crews are recruited from several nationalities. Even more important, vessels change their nationality in course of time, many of them soon after completion. It is to be hoped that the health of seamen will come to be regarded from the international point of view, but any international proposals made on their behalf should be framed with regard to the highest standards to be found.

#### THE HEALTH OF BRITISH SEAMEN

When an attempt is made to work out a death-rate for members of the British mercantile marine, one of the difficulties is the lack of certainty of their number. The Board of Trade, who are responsible for the health of seamen in British mercantile vessels, estimated the number of British seamen in 1921 to be 170,000 ; the Seamen's National Insurance Society consider the figure should be 138,000 and the National Sailors' and Firemen's Union 117,000.<sup>1</sup>

The cause of death cannot be considered to be given with accuracy. Some information as to deaths among seamen while signed on as crews is issued by the Board of Trade,

<sup>1</sup> It has been estimated that in addition some 10,000 foreigners and 50,000 lascars are employed ; another estimate is that apart from lascars, foreigners constitute only 3 per cent of the crews of British ships.

but even here the cause of death is often only as correct as a ship's captain can make it. The Board has no information as to deaths among seamen ashore and no longer in active service; that is to say, it has no information as to deaths from those very diseases for which an unhealthy occupation directly prepares the way. The Registrar-General, on the other hand, obtains information as to deaths of seamen ashore, but none as to deaths abroad while on service, and the population he deals with is merely that of seamen at home at the moment when the decennial census is taken.

Employed British seamen in and about 1921 (average of three years 1920, 1921, and 1922 taken) had a death-rate from all causes 12 per cent higher than 'All Males, England and Wales', 10 times higher from enteric fever, 16 times higher from malaria, 180 times higher from small-pox, 50 times higher from alcohol, a dozen times higher from homicide, nearly double from suicide and seven or eight times as great from accidents. The rate for pneumonia was less ( $5/7$ ); the rate for tubercle of the lung ( $1/15$ ) was explained by the figures of the Board of Trade taking no account of men dying of disease (or accident) after discharge from their ships, even if the cause of their death had begun to operate before that discharge.

But Fleet-Surgeon W. E. Home is satisfied that the most reasonable approximation to the true death-rate among British merchant seamen is 11.68 per 1,000 in contrast with 6.435, the death-rate which represents the much slower rate at which they would have died had they remained at work instead of going to sea. In other words, they appear to die between the ages of 15 and 70 years nearly twice as fast (11.68 per 1,000) as their brethren of the same ages (6.43 per 1,000) in the general civil population.

During the sailing era, the handling of sails required a large crew of young men, for whom scanty room could be found in the ship. The more space given to the men the less was there for the cargo, if enough cargo could not be carried,

ships could no longer pay their way, and there would be no ships to go to sea employing sailors ; so the sailors recognized that they must put up with small quarters. There was little room for carrying water, so water for drinking and washing was scarce : the food was bad as well ; every sailor expected low, dark crowded decks. Fire in wooden ships being a greater danger than chill, there was no heating except from the men's bodies ; the more crowded the more comfortable ; no ventilation to make them cold. Leaks were almost unavoidable in wooden vessels ; the privy arrangements were very primitive, there were seats in the ' head ' of the ship alongside the bowsprit ' and a man might get dropped in the sea by a sudden deep pitch '.

When iron came in, the old tradition ruled the design of the steamer, and the men did not get the benefit of the changes possible. The discontent of the crews and the representations of various bodies including port medical officers eventually caused Parliament to pass the Merchant Shipping Act. This Act has done much to remedy the unsatisfactory conditions which had hitherto prevailed among merchant seamen. Nowadays there are very few complaints as to the quality and quantity of the food <sup>1</sup> served out to the men. The Act lays down a minimum dietary which is both adequate and varied : it differs slightly for each day of the week. Most of the dietaries provided by owners are more liberal than that laid down by the Schedule. The old tierces of salt beef and salt pork are no longer the mainstays, chilled meat is commonly carried and usually lasts out voyages of ordinary length. Vegetables such as potatoes may give out after a time, dried vegetables are only fairly satisfactory substitutes. Occasionally an unsatisfactory ship may be found or the ship may get hung up, or sea water make its way into the ships' stores ; if the crew are in any way dissatisfied with the food

<sup>1</sup> Scurvy is of course long a disease of the past ; beri-beri, however, still claims a number of victims among seamen, particularly lascars and Norwegians.

it has been arranged that they can complain to the Board of Trade, who can require the owners to give the men adequate monetary compensation. Cooks on vessels of 1,000 tons (gross) and upwards, that is to say practically all foreign-going ships, must possess a Board of Trade certificate granted after passing an examination in cooking; nowadays if the crew don't like the food sent to them they have no hesitation in sending a deputation to the captain who, if he upholds their objection, will order the cook to serve something else. Although many of the larger vessels are able to use their engines to distil water there is still need for the better regulation of water supply and storage.

Contaminated water supplies are not uncommon on cargo vessels; outbreaks of enteric fever are not uncommon from this cause. Water obtained from a certain port was for a time notorious in this respect. It has been suggested that Port Sanitary Authorities should be empowered to deal with contaminated water on ships; that drinking-water should be stored only in galvanized iron or steel tanks so constructed as to be readily inspected and cleansed and that these tanks should be placed sufficiently distant from the latrine and sleeping accommodation. Vessels trading to ports where water supplies are doubtful should treat the water with bleaching powder; rough and ready means for testing the purity of water and calculating the quantity of bleaching powder that must be added (Horrock's box) cost little and can easily be used after very little practice.

The condition of the decks has been improved, it is no longer necessary to ask for them 'to be covered with timber, well laid and caulked, with a well-constructed waterway and a trapped scupper or drain, not communicating with a privy'. Other improvements have been the removal of the capstan from the forecastle; the hawse pipes through which runs the anchoring cable smelly with mud from the last harbour are now usually air-tight so that no smell comes through. In some forecastles still the space is encumbered with many

pipes; the hawse pipes, steam pipes for the capstan overhead, &c., increase the difficulty of keeping the crew space clean.

The burning of oil instead of coal makes for the comfort of the crew. Oil has improved the comfort and status of the firemen especially. By lessening their number it has made room in the ship so that greater space can be allotted to the crew individually and better arrangements made for their comfort. Considerable improvement is, however, still necessary.

Comparisons have been made between the 400 cubic feet required for each man in a seamen's lodging-house under the London County Council and the 120 cubic feet required at sea, which, with encumbrances deducted, would come down to about 80 feet.<sup>1</sup> The minimum height of crew spaces, &c., apparently need only be 5 feet 6 inches.

The Merchant Shipping (No. 2) Bill 1921, introduced by Mr. Sexton, Labour member for St. Helens, allowed the Board of Trade to require further a suitable mess-room for the seamen and apprentices, who each were to have 140 cubic feet and 18 square feet of deck space instead of the 120 cubic feet and 15 square feet of the 1906 Act. The space for mess-rooms, bathrooms and washing-spaces were to be included in the 140 cubic feet and 18 square feet, but at all times there were to remain 120 cubic feet and 15 square feet for each occupant in sleeping-places.<sup>2</sup> The cubic space was to be kept free of goods or stores of any kind. The improvement of cubic and superficial space was to be given equally to lascars

<sup>1</sup> The Instructions to Surveyors, 1923, say, 'in estimating the space available for the proper accommodation of seamen and apprentices, there may be taken into account the space occupied by any mess-rooms, rooms fitted with baths and for showers, or washing-places appropriated exclusively for the use of those seamen or apprentices, *providing the sleeping accommodation is not less than 72 cubic feet and 12 superficial feet per head.*

<sup>2</sup> A Committee of Port Medical Officers of Health in 1922 recommended that the cubic space allowance aimed at should be similar to the Admiralty and Army transport requirements, viz. 200 cubic feet per head with a minimum height of 6 feet 6 inches.



who evidently suffer more from pulmonary tuberculosis than British seamen <sup>1</sup> and yet under the 1906 Act are only given 72 cubic feet and 12 square feet each.

In Norwegian ships 140 cubic feet space is required for officers; in Australia 180 cubic feet for officers and 140 for apprentices and men, both white and black; no deductions are permissible for mess-rooms, &c. U.S.A. vessels must provide 240 cubic feet for each man.

Ventilation often constitutes a difficulty; frequently the provision of inlets and outlets does not secure effective ventilation and mechanical ventilation with a thermo-regulating apparatus is required. In the Royal Navy, a scheme of ventilation has been established which gives each man without unpleasant draught, 3,000 cubic feet per hour.

It is objected that seamen will stuff up the openings for ventilation; if the air supplied were warmed this would not occur. The incoming air can be warmed by blowing it over a steam coil. Oil burning also helps ventilation; there is now no coaling and no coal dust to dread, so the ship is no longer hermetically sealed up for most of her time in harbour, but can be left open to air herself all the time she is not running. On merchant ships often improved ventilation for engine-rooms and stokeholds is wanted; <sup>2</sup> galleys require doors on either side for through ventilation in addition to skylights.

<sup>1</sup> The tuberculosis death-rate, as far as it could be calculated in 1913-14, was 63 per 1,000, that of British seamen being 14 per 1,000 only. One reason given for limiting the cubic space for lascars is that a large number have to be employed on a ship.

<sup>2</sup> The usual ventilation shafts do not provide for the effective ventilation of the wings of stokeholds and engine-rooms where the temperature is highest. The ventilation shaft which reaches the lower part of the engine-room could with advantage terminate in two horizontal perforated branch shafts reaching the end of each wing. The ventilation of the sides of the stokeholds can be improved by fans in the upper part of the stokehold near the inlet ventilator so as to drive the fresh air over baffle plates down via the wings towards the entrances of the furnaces.

Another requirement is adequate lighting ; this should not be obstructed by the bunks being placed under the portholes, they should be arranged on the in-board side. In Norwegian ships berths are not allowed along the side of the vessels. ' It is not only that want of light means presence of dirt, but that when men get ample light they naturally take a pride in keeping their places clean.'

Although Asiatics, especially the Chinese, are often very clean, yet they do bring bugs on board at times and light is needed to keep insects hunted down.

The presence of vermin in living-quarters causes great discomfort. The Australian Marine Regulations prescribe very definite rules in the construction of bunks, &c., for the prevention of this nuisance ; spraying with certain fluids is not only curative but preventive. Unfortunately, when the men join not infrequently either they or their effects are verminous : if all new members of a crew on a clean vessel were given on joining a disinfectant bath and their effects disinfected in a sack disinfector, an inexpensive fitting on a steam-driven vessel, living-quarters could comparatively easily be kept clean.

Some of the trouble is due to a lack of discipline ; the men's quarters are at times deliberately left by the men in the worst possible condition. It has been suggested that crews' quarters should be inspected daily by an officer and the condition logged, also that better disciplinary powers should be given to masters to enforce cleanliness among crews.

To prevent spread of tuberculosis where possible the men should be berthed in cabins with not more than four men in each. In vessels carrying passengers the crew should have much the same standard of accommodation as that of third-class passengers.

Standard ships originating in the last war have much to recommend them. Here is an account of the inspection of such a ship : ' The crew spaces were aft, in the poop, which was divided centrally, sailors on one side, firemen on the other.

'The sailors' crew space had the berths in double tiers round the space, iron cots on iron stanchions, the outer berths set in from the ship's side, itself covered with cork cement. The side ports or scuttles were larger than they would have been in the fore-castle; when aft they are higher up and are not required to resist so heavy a pressure of sea, are less likely to be cracked or broken and are thus a lesser risk to the safety of the ship. Consequently this space aft is better lighted. The iron cots provided are an advantage; light is less obstructed and the shadows less dense; they are moreover less likely to harbour insects. Further, there was a large skylight and ventilating shafts here were of considerable diameter. Also the height of the crew space was greater. Mess-rooms were provided.' Crews should be berthed aft. Being aft the scuttles are much larger than if they were forward and there is more light. When the crew space is in the fore-castle a skylight cannot be provided, it would hardly be safe, it might be driven in by the sea and anyway it would be sure to leak. A leaky skylight means the two beds beneath it are soaked with rain: if driven in, water washes about the deck, soaks the men's bags, wets their feet, makes the atmosphere so moist as to add a severe trial to the hardship of bad weather and gives the men a great deal of trouble to get rid of it. Hence skylights and sufficient ventilation for crew spaces in the fore-end of ships are heartily disliked.

The British Board of Trade merely advise the provision of crews' quarters in the poop in reference to the fore-castle; some European countries and Australia insist upon the men being accommodated in the poop. Where British vessels are sold to shipowners in such countries, the authorities insist upon the removal of the men's quarters to the poop.<sup>1</sup>

<sup>1</sup> The higher standards of hygiene of crews' quarters in some foreign maritime countries is well illustrated by the long list of structural alterations which have to be made when British vessels are sold to foreign firms, notably Norwegian and Swedish. Also when ships are built in this country for foreign countries the crews' quarters are very much better than those provided in many new British ships.

The living-quarters should be kept clean, washed but not with a hose, they should be kept dry in all corners. By arrangement between the Board of Trade and the National Sailors' and Firemen's Union an extra seaman may be carried on the articles as a seaman's cook, whose duty it is to keep the seamen's crew spaces clean; otherwise this duty falls to the boys. A similar extra hand to take care of the firemen's quarters has not yet been asked for; he is needed even more. Gangs of women now clean cargo steamers between voyages, so the men now join clean ships.

In the absence of steam heat, stoves with efficient flues should be provided; cooking stoves should be forbidden in the living-quarters. Separate rooms should be provided for messing. In some ships the men eat their meals in their sleeping-places and there is no hospital so that if a case of infectious diarrhoea or typhoid fever occurs on board the disease is given every opportunity of spreading.

All bare iron surfaces in living-quarters should be efficiently insulated; this is required in Norwegian ships. Cork paint, although hard to clean, is better than match-boarding which is liable to harbour vermin.

Dr. W. Collingridge held that bunks should be of iron and painted white; and not more than two tiers allowed. Each bunk, he considered, should be 6 feet 2 inches by 2 feet and provide 32 cubic feet per man. Folding berths of rustless iron have been recommended. In Australian vessels metal bunks only are permitted, arranged so as not to overlap the portholes, there must be a distance of 5 feet between the bunks, a provision very important for the prevention of the spread of certain infectious diseases. The men's bedding should be aired daily, a locker should be provided outside the living-quarters, there should be a drying room for wet oilskins.

Mr. Sexton's Bill required that the accommodation for the crew shall include such sanitary, hospital and lavatory equipment as the Board of Trade shall think right, also an adequate

supply of hot water for the ablutions of the engine-room staff. Water-closets should be provided with a flush from the engine-room and be fitted with a non-return valve to prevent waves washing in; each should be in a separate compartment high enough to allow a man to stand upright with sufficient light and ventilation, and a lifting seat to permit the closet to be used as a urinal. For convenience, especially in rough weather, the whole should be near the living-quarters, but carefully insulated as regards smell. Even nowadays the W.C. in the lobby is not uncommonly of the trough pattern, often with a wooden seat, fouled probably; there may be an impervious bulkhead, but all the same the smell reaches the crew space. Iron troughs should be forbidden; earthenware with its smooth surface is so much more easily cleaned; it stands less chance of fouling and so gives rise to less smell.<sup>1</sup> White paint is very useful; it shows up the dirt and so promotes cleanliness. Oil paint is very much preferable to lime-wash and washable distempers. Washing accommodation with hot and cold water should be available and a bath for every twelve men or a douche cell for every ten and a foot-washing tank. Stress has been laid on the need of fresh water for bathing; a bucket of warm fresh water in a clean washplace is very much more acceptable to the seamen or firemen than a bath of salt water.

Facilities such as tanks are required for washing clothes. In the coal-burning ships there should be bathrooms for the staff, fitted with lockers for the dirty engine-room suits and boots which now have to be taken to their sleeping-places: then every stoker could go clean to his cabin at the end of his watch as they do in the Royal Navy. Baths are less necessary when oil is burnt, as the work is much cleaner; there is no

<sup>1</sup> Section 25 of the Board of Trade Instructions to Surveyors as revised in 1923 provides that in new ships single-seat water-closets, properly partitioned off from each other are to be provided, and that the pans are to be of enamelled iron or heavy glazed stoneware of the hopper variety with hard wood rims or seat pads and each one is to be provided with a water seal and flushing arrangement.

need to change clothes at the end of a watch in an oil-fired stokehold.

Ships should possess a hospital for infectious cases with bed, wash place and seat. In Australian ships over a certain tonnage a hospital with its own sanitary and washing accommodation must be provided. The substitution of oil fuel for coal brings about a lessening in the time lost by reason of illness; <sup>1</sup> it has relieved the waiting-rooms of the ships' doctors of the numerous cases of heat-stroke, colic and wounds and abrasions of the hands.

When a ship does not carry a doctor (about 90 per cent do not) the captain takes on the duties. In this country he is required to possess a certificate in first aid and encouraged to obtain some knowledge of venereal diseases.

There is a *Ships' Captains' Medical Guide* <sup>2</sup> written by Dr. Charles Burland, which gives a list of the medicaments, &c. the ship must carry.

Medical consultations at sea by wireless between parties of different nations would be much facilitated if there were a simple international code. To help do away with the difficulty of the foreign languages 'A standard questionnaire which would give the captain hints as to the wording of his first message and the international standardization of certain medical phrases would do much to simplify the task of all concerned'.

The ships would have to carry a uniform medicine chest; the Itinerant Conference (see p. 162) considered the adoption of a standard international medicine chest for use on ships not required to carry a doctor. 'Clearly it would facilitate the work of the doctor if he could refer, when giving advice by wireless, to chapter and verse in an international medical manual or to a certain number which would be the

<sup>1</sup> Vigné, C., and Cury, H.: *Les Conditions d'hygiène dans les Chaufferies au mazout à bord des navires marchands*. Bull. Off. Internat. d'Hyg. Pub., 1925, xvii, 979-89.

<sup>2</sup> A new edition is to be published shortly.

same for the same subject in every national medical manual.'<sup>1</sup>

### TUBERCULOSIS AND MALARIA

It cannot be doubted that tuberculosis arises directly out of conditions under which seamen live. The first step is to prevent as far as possible the advent of a tuberculous seaman on board ship; careful medical examination before entrance would do something in this direction.

It has been advocated that men invalided out of ships for tuberculosis should be taken care of and provided for by the industry generally; a parallel is afforded by the Workmen's Compensation Act of 1918. 'The result would be that owners would quickly ascertain what cubic space must be given to the men if they are to be kept free from phthisis, that seamen so affected would be taken good care of and that the cost of these improvements would be met by a very slight increase of freight and passenger rates.'<sup>2</sup>

Similar arrangements should be made for seamen who get plague, the prevention of which is affected very much by the structure and careful management of the ship. Mosquito proofing is required to prevent malaria.<sup>3</sup> The ships' authorities are obliged to serve out quinine as a preventative in certain zones; the man can be logged if he doesn't take it: he can be fined and punished if he breaks his agreement. Malaria is a serious disease to shipowners; over and over again ships have been lost because practically the whole of the crew has been attacked with malaria and the ship could not be worked. Vaccination against small-pox and anti-typhoid inoculation at the required intervals are of especial importance to seamen.

<sup>1</sup> See *British Medical Journal*, March 12, 1927, p. 492, for letter from Dr. C. Lillingston. These problems are being investigated by a Standing Committee of the League of Red Cross Societies.

<sup>2</sup> See *Merchant Seamen*, by Fleet-Surgeon W. E. Home, O.B.E., M.D.

<sup>3</sup> The pamphlet of the Board of Trade dealing with malaria on ships is well worth reading.

The recent Itinerant Conference held in Norway (July 1926) met especially to examine and consider, with a view to adoption on international lines, an experiment made recently by the Norwegian Red Cross, in the establishment of port dispensaries for the treatment of sickness and disease among sailors of all nationalities when ashore.

The Conference considered that the needs would be met by establishing in ports bureaux prominently placed on the quayside and distinguished by some sign of universal application whose function should be (a) to furnish information as to where appropriate medical advice and treatment could be obtained; (b) that of a *poste-restante*; (c) to afford advice as to local recreational and social facilities and sleeping accommodation.

It was felt that the most suitable agency in each country for the establishment and administration of these bureaux would be the National Red Cross Society, and it was recommended that the League of Red Cross Societies should invite these national societies to undertake the work in consultation with the shipping and other organizations interested.

Further recommendations included one that the shipping interests and the seamen's organizations in each country should be invited to co-operate by promoting facilities for recreation, and another that the League of Red Cross Societies should invite the International Labour Office and certain other international organizations to appoint a standing committee on the welfare of seamen with particular reference to their medical treatment and general welfare while at sea.

There is need in shipping companies for an official, an assistant marine superintendent, to act as welfare superintendent; he would concern himself with the condition of the accommodation for the crews. There is not much continuous service nowadays; many of the men sign on for a single voyage and then go. This makes it important that there should be some one who should consider continuously their interests and who would be in a position to recommend to the companies



any improvements necessary from time to time. Apart from the rough out-of-doors life, men going to sea should not in their lodging and general comfort be constrained to accept a lower grade of comfort than is customary to men in their position working ashore; the standard of cleanliness and comfort aimed at when they are at home they should get at sea. On the other hand, there is need for some at least of the seamen to develop a sanitary conscience. Even on large vessels provided with all the appliances necessary there is ground for complaint on this score, the crew, and even the stewards, do not keep themselves or their cabins and work-places clean.

There are very few of the old shell-back class left: the bulk of foreign-going seamen are young men who sail for a few voyages, during which they may change their ship more than once; the passages are shorter, and these men are apt to take but little interest in their ship, and have no pride in keeping her clean; apparatus for ventilating the crew space is more likely to be abused than used. Yet in the long run the more owners do for their men the better is the work done for them. The shipping company that gets a good name for looking after their men will have the pick and get the more careful man, who will take care of the company's property. A man at sea can do a lot of harm if he is careless. The increased size and value of ships make it possible to give better living conditions to officers and men, but this is not appreciated by every owner. The British shipowner might do as much for his men as some of the U.S. lines, in which the men ship at New York for the voyage or for six months, whichever is the shortest. When they return to New York they are discharged, but any man who wants to go on again, and is appreciated, signs on again next day. Service for approved men is thus practically continuous; that means no boarding-house bill, fewer temptations and more saving.

While it is not difficult to give men satisfactory hygienic conditions on liners it is not so easy on tramp steamers, which

form about seven-tenths of the Mercantile Marine. Some tramps, however, are hygienic and comfortable : sailing ships are no longer being built. The hard case of coasting trade must be considered ; but while small ships can never be so comfortable as large ones, not all the hardships men are accustomed to at sea are unavoidable.

In this country there has been a persistent demand that the health of seamen should be placed under the supervision of the Ministry of Health instead of under the Board of Trade.

## CHAPTER IX

### INDUSTRIAL HYGIENE

**I**T is now almost generally accepted that no man's occupation should be a menace to his health or a risk to his life. This standpoint has been reached after much effort, both national and international. In 1880 the Swiss Government addressed a circular note to the Governments of the leading States of Europe, suggesting a conference to discuss international conventions on various industrial questions, including 'Prohibition of employment of women and children in dangerous or unhealthy processes', but owing to the unsatisfactory response, this conference was not held. Ten years later Germany convened an official conference of all Governments to consider international agreements for the improvement of industrial conditions, including measures to safeguard the health of the workers.

This Conference met in Berlin in March 1890, and fourteen countries were represented.

The subject of employment in dangerous or unhealthy processes was discussed, but the Conference came to no definite decisions on the matter. In 1897 a Congress was held at Brussels, and considered, *inter alia*, the formulation of uniform legislation by different nations for dangerous trades.

From this Congress arose the International Association for Labour Legislation, the forerunner of the present International Organization. In 1905, the second official International Labour Conference was held at Berne, on the invitation of the Swiss Government. Fifteen European States were represented. The Conference considered the problem of the

prohibition of the use of white phosphorus in the manufacture of matches.

A Convention on the subject was drafted. It was formally adopted by a Diplomatic Conference in 1906, and signed by seven States : Denmark, France, Germany, Italy, Luxembourg, Switzerland, and the Netherlands.

Great Britain adhered to the Convention in 1908, Canada in 1914, New Zealand in 1911, South Africa in 1910, Norway in 1914, and Spain in 1909. An immense stride in the promotion of industrial hygiene and welfare was made after the War.

The Treaty of Versailles proclaims that there exist conditions of labour ' involving such injustice, hardship and privations to large numbers of people as to produce unrest so great that the peace and harmony of the world are imperilled '. It goes on to say that ' an improvement of these conditions is urgently required ' and calls attention to the need for dealing with certain matters which affect the health of workers ; among these are the regulation of the hours of work, including the establishment of a maximum working day and week ; the prevention of unemployment ; the provision of an adequate living wage, and the protection of the worker against sickness, disease and injury arising out of his employment, and the protection of children, young persons and women.

The Treaty also states that the failure of any nation to adopt humane conditions of labour is an obstacle in the way of other nations which desire to improve conditions in their own countries.

One of the first acts of the Peace Conference of 1919 was the appointment of a Commission ' to consider the international means necessary to secure common action on matters affecting conditions of employment '.

In consequence of the deliberations of this Commission, Part XIII of the Treaty of Versailles set up the present International Labour Organization as one of the autonomous institutions of the League of Nations ; a permanent International Labour Office was established at Geneva. It is under

the control of a Governing Body consisting of 24 persons, 12 representing Governments, 6, workers, and 6, employees; 8 of these Government members sit by right as representing nations of chief industrial importance; they elect the remaining 4 members. The Director is M. Albert Thomas, the well-known French politician and ally of Mr. Lloyd George. An important part of the work of the Director is to visit States in order to persuade them to ratify the Conventions; South America especially responds to such visits. The International Labour Office convokes, at least once a year, a conference of the representatives of the members, i.e. the nations belonging to the organization. Fifty-four nations belong, at the present moment, to the organization. The only great nations outside it are the United States of America, which has not yet joined the League, and Russia.

All nations, whether large or small, have equal rights at the Conference. Each is represented by two Government delegates, one employers' delegate, one workers' delegate. Each delegate votes individually; the workers can vote with the workers, and the employers with the employers, of all nationalities. The employers' and workers' delegates must be chosen by the Governments in agreement with the industrial organizations which are most representative in each country.

The International Labour Conference votes (1) *draft conventions*, by which nations undertake strictly to observe certain regulations, and (2) *recommendations*, which are to be taken as guides in passing national legislation or in issuing administrative orders. These may, it is true, vary in detail in different countries, but they have to conform to one and the same principle.

Each nation is bound within one year (or in exceptional circumstances, within eighteen months) to submit the draft conventions voted by the conference to the national authority competent to ratify treaties, that is, in most cases, to the Parliament.

Parliaments are not bound to adopt these conventions, but if Governments refuse to submit them for their consideration, those nations run the risk of having applied against them the economic penalties provided for in the Covenant of the League of Nations (refusal of passports, stoppage of goods, blockade, &c.). In any case the obligatory submission of the conventions to Parliament involves virtually their submission to public opinion, which is the best agency for securing their adoption.

Once the conventions have been ratified by a nation, or the recommendations have been made the subject of special legislation, the nation is bound to enforce them. Any violation brings the International Labour Organization, its Commission of Inquiry, and the International Court of Justice into play, and these possess definite powers for obtaining proper enforcement. Here, again, economic penalties can be applied.

An important method of procedure initiated at the Peace Conference is the selection of the matters to be discussed at the ensuing Conference. By Art. 402 of the Treaty, Governments can object to the consideration of items.

The First International Labour Conference originating from the Treaty met at Washington in 1919. Six draft conventions were adopted; they dealt with the application of the principle of an eight-hour day and a forty-eight-hour week; the question of preventing or providing against unemployment, employment of women before and after childbirth, employment of women during the night, the minimum age of employment of children in industry, night work of young persons employed in industry.

In 1925 the discussion on the Director's Report was largely concerned with the progress made in the ratification of the Hours Convention and with explanations from delegates of countries of 'chief industrial importance' as to why their Governments had not ratified. The British defence of inaction was the same as in other years; effectively the Eight Hours restriction was already observed throughout Great Britain;

railway agreements involving Sunday duty were an insuperable barrier to ratification.

The League of Nations Union points out that 'The British hesitation to ratify the Eight Hours Convention continues to cause this country to suffer economically, for by our failure to ratify we retard ratifications elsewhere, and so actually provoke the "unfair competition" of which we complain—i.e., production unreasonably cheapened by long working hours which we long ago admitted were unjustifiable for our own workers. A significant example of the situation brought about by British hesitation to ratify may be seen in the conditions made by Italy and Latvia in their conditional ratification of the Hours Convention during this year. Italy's ratification (which dates from October 1924, but was not officially published until January 1925) will not be translated into practical action until Belgium, France, Germany, Great Britain and Switzerland have ratified; Latvia's also waits to be applied until there is ratification by three States of chief industrial importance.'

The convention on unemployment requires that all available information regarding unemployment shall be communicated to the I.L.O. within three months, necessitates the establishment of free public employment agencies, and involves the admission of foreign workers to the benefits of insurance systems established in the countries in which they are working.

The Maternity Convention provides that a woman employed in industry shall, for six weeks before and six weeks after confinement, be set free from work, be paid benefits sufficient for the full and healthy maintenance of herself and her child, and be entitled to the free attendance of a doctor or certified midwife, and, in cases where she is nursing her child, shall, on resuming work, be allowed half an hour twice a day during her working hours for this purpose.

In this country the Maternity Convention has not been ratified because it is generally considered that the position of married women here under the National Health Insurance

Acts was different from that provided for in the convention and on the whole secured them as favourable conditions.

The convention on night work of women in industry lays down a period of eleven consecutive hours, including the interval between ten o'clock in the evening and five o'clock in the morning, during which women may not be employed in factories.

The convention on child labour in industry prohibited the employment of children under 14 in industry (in Eastern countries such as Japan the minimum age may be 12 if the child has finished the school course).

The convention on night work of young persons prohibits the employment of young persons under 18 in industry during the night.

A Commission (virtually a Committee) was appointed of representatives of the Governments, employers, and workers, with Sir T. M. Legge of the English Home Office as Chairman, to consider the employment of women and children in unhealthy processes. The Commission called attention to the difficulty of excluding discussion on the employment of men, as well as of women and children in unhealthy processes and recommended, *inter alia*, the prohibition of the employment of women and young persons in certain *lead processes*; the regulation of the employment of women and young persons in certain other *lead processes*; the preparation by the International Labour Office of a list of the principal *processes to be considered as unhealthy*; the formation of a *Health Section* in the International Labour Office to keep in touch with the medical departments of Government offices charged with the application of factory laws; the suggestion to all Governments without a medical organization of this character that they should make provision for a *service specially charged with the duty of safeguarding the health of the workers*, in addition to a system of efficient factory inspection.

The Commission also expressed the hope that medical inspection to safeguard the health of the workers would be instituted in all countries; that compensation would be



paid for disability due to occupational diseases and resulting from industrial accidents, and that all such cases of occupational diseases would be made compulsorily notifiable by medical attendants.

The Conference decided to adopt a convention requiring the *disinfection of wool* in countries recognized as particularly dangerous from the point of view of *anthrax*, or, if this were not possible, disinfection at the port of arrival. In the case of *horsehair* for the manufacture of brushes, disinfection in the factory should be required. They considered that research should be carried out as to the prevention of danger of anthrax from horsehair used in weaving or for mattresses and from the handling of hides and skins of every kind.

The report of the Commission was adopted by the Conference who formulated recommendations concerning the protection of women and children against lead poisoning.

These recommendations were to the effect that women and young persons under the age of 18 years be excluded from employment in the following processes :

- (a) In furnace work in the reduction of zinc or lead ores.
- (b) In the manipulation, treatment, or reduction of ashes containing lead and in the desilverizing of lead.
- (c) In melting lead or old zinc on a large scale.
- (d) In the manufacture of solder or alloys containing more than 10 per cent. of lead.
- (e) In the manufacture of litharge, massicot, red lead, white lead, orange lead, or sulphate, chromate, or silicate (frit) of lead.
- (f) In mixing and pasting in the manufacture or repair of electric accumulators.
- (g) In the cleaning of workrooms where the above processes are carried on.

That the employment of women and young persons under the age of 18 years in processes involving the use of lead compounds, be permitted only subject to the following conditions :

- (a) Locally applied exhaust ventilation, so as to remove dust and fumes at the point of origin.

- (b) Cleanliness of tools and workrooms.
- (c) Notification to Government authorities of all cases of lead poisoning and compensation therefor.
- (d) Periodical medical examination of the persons employed in such processes.
- (e) Provision of sufficient and suitable cloak-room, washing, and mess-room accommodation, and special protective clothing.
- (f) Prohibition of bringing food or drink into workrooms.

That in industries where soluble lead compounds<sup>1</sup> can be replaced by non-toxic substances, the use of soluble lead compounds should be strictly regulated.

The Conference adopted a recommendation that each country which had not already done so would adhere to the Berne Convention of 1906 prohibiting the use of white phosphorus in the manufacture of matches. In connexion with the prevention of anthrax the Conference recommended to the members of the International Labour Organization that arrangements should be made for disinfection of wool infected with anthrax spores, either in the country exporting such wool, or if that is not practicable, at the port of entry in the country importing such wool.

An Advisory Committee was appointed; it sat in London in 1922 and recommended:

- (a) As regards hair used in the brush-making and upholstering industries, compulsory disinfection in all cases;
- (b) As regards wool and long hair to be used in the textile industry, compulsory disinfection, except in the following cases:
  - (1) If the country of origin is included in the schedule of areas where the danger is slight;
  - (2) If the material imported has already been disinfected by a process recognized as effective;

<sup>1</sup> It was decided that a lead compound should be considered as soluble if it contains more than 5 per cent of its weight (estimated as metallic lead) soluble in a quarter of 1 per cent solution of hydrochloric acid.

- (3) Wool and long hair which must be sorted before washing, except in the case of such classes of these materials as may be excluded from the schedule of non-dangerous materials ;
  - (4) In such other cases as may be subsequently determined.
- (c) As regards hides and skins, until a process of disinfection of the raw material which is effective and can be applied industrially has been discovered, organization of measures to combat anthrax by means of suitable regulations ;
- (d) As regards the protection of flocks, collaboration between the International Labour Office and the International Institute of Agriculture at Rome ;
- (e) As regards horns and hoofs, sterilization before industrial treatment ;
- (f) As regards bones, compulsory disinfection, or where this is not carried out, protective measures.

A mixed Advisory Committee on Agriculture has been set up consisting of representatives of the International Institute of Agriculture at Rome and members of the Governing Body of the International Labour Office, together with a certain number of experts. Among other questions they have dealt with the prevention of anthrax among flocks.

The Committee also discussed the organization of research concerning the disinfection of hides and skins infected with anthrax spores.

‘ Certain imported commercial animal products, such as wool, hair, skins, and bones, are liable to convey anthrax infection to the workers handling them ; to avert this danger certain precautions are prescribed by law in this country. Another class of persons exposed to anthrax infection are dock labourers engaged in unloading cargoes of hides and skins, which are carried on the shoulders of these men from the ship to the shore. All nations do not take precautions similar to those required in this country (see below), and but little control can be exercised over certain Asiatic countries

as to the conditions under which infected animal products are exported to Europe. For some years the danger of imported articles infected by anthrax has engaged public attention in this and other countries. The International Congress of Industrial Hygiene discussed the question at Milan in 1906 and again at Brussels in 1910. The International Association for the Legal Protection of Workers appointed a Committee in 1912 to consider what were the best prophylactic measures to prevent the risks of anthrax in certain industries. International co-operation is required to devise and carry out suitable measures to prevent the spread of the infection. It is commonly admitted that imported animal products from Russia, Persia, India, China, and Siberia are often infected and that special measures should be applied to material coming from these countries. It has been proposed that disinfecting stations in each of these countries should be established at certain ports where cargoes of animal products are embarked for conveyance to Europe, and that guarantees of efficient disinfection should be given, with a certificate signed by a competent bacteriologist who has applied proper tests, before the bales or packages are allowed to be taken on board ship for exportation.'

As an illustration of the need for efficient disinfection the history of the outbreaks of anthrax in England caused by shaving brushes deserves consideration.

'Before the War we got cheap shaving-brushes from Germany. In 1914, this source of supply being closed, a London firm which had purchased in 1912 a *parcel of hair from China* and kept it in stock sent a portion of it to a factory in the Midlands to be made into shaving brushes, another portion being sold to a New York house. The parcel sent to the Midlands was labelled "goat-hair", though much of it was horsehair. As goat-hair does not come under the regulations requiring it to be disinfected before manufacture, although horsehair does, the hair was not disinfected. From March to August 1915, 25 gross of these shaving brushes from the Midlands factory were sent to London and were distributed by the firm to many vendors in town as well as in the provinces. The first case of anthrax due to the use of these brushes occurred at the end of June 1915, and was followed shortly afterwards by others. Up to the end of 1916, 19 cases, 10 fatal, had been reported,

and all were attributed to the use of the brushes. Investigation on behalf of the Local Government Board was made by Dr. F. J. H. Coutts, who confirmed the incrimination of the brushes in the anthrax outbreak. The presence of anthrax spores in the brushes was bacteriologically proved. Efforts were at once made to stop the sale of the brushes and many were privately destroyed by their alarmed owners. Among the British troops in France from 1915 to 1917 some 28 other anthrax cases were said to have been due to infected shaving brushes. No further cases occurred in England during 1917-18, but a fresh outbreak was reported during 1919-20, comprising 31 cases, of which 12 were fatal, ascribed to shaving brushes of Japanese manufacture.

'When the German supply of cheap shaving brushes was stopped, Japanese merchants began to manufacture a similar article at a low price with hair *imported from China*. It was alleged by the Japanese that the hair used for the brushes had been disinfected, but bacteriological evidence in our own country showed that many samples examined contained virulent anthrax spores notwithstanding the fact that the brush was wrapped up in a Japanese certificate stating that it was free from infection. As soon as it was found that these brushes were causing anthrax endeavour was made to stop their sale. Of one consignment of 40,000 brushes 30,000 were recovered and many others were destroyed by their owners. Their importation into this country was forbidden early in 1920, and after this the outbreak subsided.'<sup>1</sup>

Complete sterilization of shaving brushes is impracticable, the difficulty being to destroy the anthrax spores embedded in the handle of the brush.

In 1913 the English Home Office appointed a Departmental Committee on Anthrax in the Woollen Industry, and a Disinfection Sub-Committee of this Committee reported in June 1918, advising that every dangerous variety of material should be disinfected in central disinfecting stations, at the earliest possible stage in the course of transfer from the producing to the consuming areas. In the case of such material, risk of infection could not be controlled by regulations to be applied in factories. As the outcome of this report the Prevention of Anthrax Act, 1919, was passed.

A Government Wool Disinfecting Station has been established

<sup>1</sup> See *Lancet*, Jan. 2, 1922.

at Love Lane, Liverpool, where the material is dealt with in automatic apparatus so as to do away with any need for handling.

All wool and animal hair imported from or through Egypt, and all East Indian goat-hair are required by Order in Council, to be disinfected. Other material is sent voluntarily to the station. After washing with warm dilute alkaline solutions, it is subjected to disinfection in baths of warm formaldehyde.

The view that *all* wool should be disinfected before it comes to this country has received some support, but the Geneva Conference has, however, rejected this proposal, and even the British Empire is not unanimous.

The English Departmental Committee considered that disinfection of wool and hair ought not to be regarded as permanently necessary. The true solution is the prevention of anthrax among animals, and the careful destruction of the comparatively few which may die from the disease even when the most careful precautions are taken.

The former Rules of 1899 are now replaced by the Hides and Skins Regulations, 1921; hides are best steeped in a bath of hydrochloric acid (2 per cent) and common salt (10 per cent)—Schattenfroh's method.

The Anthrax Order of 1920, issued by the English Board of Agriculture, directs that the carcasses of diseased or suspected animals shall be buried, unopened in lime, at a depth of not less than six feet below the surface, or else destroyed by exposure to a high temperature or to chemical agents, in a place approved for the purpose by the Board. Precautions to be adopted in relation to infected dung, litter, &c., and with regard to preventing contamination by excretions, blood, &c., are also specified in this Order.

Animals known to have been in contact with the diseased animal are to be detained until found free of the disease.

The Board emphasizes the value of the bacteriological examination of blood or smears from the cut surface of lymphatic glands. In a leaflet issued, stockowners are invited to report to the police every case of sudden or unexpected illness or death in their stock, especially among cattle. Butchers, slaughterers, and knackers are warned not to shed the blood or dress the carcass of such an animal.

A Health Section of the International Labour Office has been created to deal with all questions connected with industrial hygiene, including comparison and co-ordination of the legislative provisions of different countries; it also undertakes general or special inquiries on unhealthy occupations.

A *Safety Service* has more recently been created which studies the reports of factory inspectors in respect of accident prevention and of other organizations which enforce safety measures, prepares comparative studies of the organization of factory inspection in industrial countries, and compiles information concerning the latest developments relating to industrial safety for publication by the Office.

The Advisory Committee on Industrial Hygiene was appointed in 1921 and met in 1923; it was attended by nine experts of international standing on industrial health. The Committee considered the information concerning unhealthy occupations already collected by the Health Section of the Office and decided that a publication, *Occupation and Health*, should be issued containing this information.

#### SECOND CONFERENCE

The Second Conference met at Genoa in 1920; it was specially devoted to maritime questions and adopted three draft conventions concerning the age of admission of children to employment at sea, unemployment indemnity in case of shipwreck and facilities for finding employment for seamen.

Four recommendations were adopted concerning the limitations of the hours of work in the fishing industry and in inland navigation, the establishment of national seamen's codes and unemployment insurance for seamen. The Joint Maritime Commission set up has since examined questions relating to maritime labour. The Commission on Unemployment established in 1920 have formulated recommendations which if adopted would enable each nation to collect and publish all information relative to the problem of unemployment in a form which would make it comparable internationally.

## THIRD CONFERENCE

At the Third Conference (Geneva, 1921) unemployment was discussed. By lessening unemployment, undoubtedly the drain on the vigour and health of the nation is diminished. But unemployment cannot be dealt with until its exact causes and proportions and results of the remedies already tried are known. The International Labour Office were asked to investigate the problem.

An American writing in the *Quarterly Review* (Oct. 1925), on 'The pleasantness of European life', says:

'The workmen of Europe are the class whose economic position is least stable. The old domestic industries which produced for local and well-known markets have nearly disappeared. In their place has gradually come the large-scale industry. Improvements of mechanism and organization have given a constantly increasing output, with a consequent necessity for new or wider markets to be found. Tremors in these markets, the slightest contraction, a bankruptcy, react upon the producers however far away these are. Consequently, industrial life is subject to vicissitudes, to bad times and good times, owing to causes often quite outside the producers' control, or even outside their knowledge altogether.

'This uncertainty, this liability to outward contingencies, is a feature of all industrial life, in whatever part of the world. In Western Europe, indeed everywhere west of the Vistula, except the Rhineland, it is probably less prominent than in Great Britain or the United States. In France, Spain, Italy, and Austria, the small workshop has never been wholly displaced by the factory; and the factory itself has rarely attained the large scale of English or American grand industry. The markets are comparatively limited; production is primarily for domestic consumption rather than for export; consequently employment is not so sensitive to reactions from all over the world. The French and German workman, moreover, has not learned to believe that it is right not to work hard. He is an arduous worker, as any one may observe who stands, for instance, on a quay of the Seine and watches gravel being shovelled. Hard work keeps down cost of production; and low cost of production keeps prices stable, and so tends to keep



employment stable. The relatively small or moderate scale of many continental industries has enabled the relations of master and men to be maintained more closely than in the great English and American industries. The families which owned the Mulhouse cotton-mills retained an active interest in the work throughout the nineteenth century. Few enormous fortunes were made, so that the tendency for families to retire from business and to become a moneyed aristocracy never became very prominent. The work-people, although by no means insensible to the "labour" or "proletarian" movement, have never become wholly estranged from the owners.'

A draft convention concerning the use of white lead in industry was adopted. It prohibits the use of white lead and sulphate of lead in the internal paintings of buildings with certain exceptions (including artistic painting and fine lining) after a certain date in 1927. White pigments containing a maximum of 2 per cent of lead expressed in terms of metallic lead are permitted. The employment of males under 18 and females in painting work of an industrial character involving the use of white lead is prohibited, and regulations are laid down under which painting, in which white lead is employed, shall be carried on. The convention also provides for the compilation of statistics of morbidity and mortality. France and Belgium have ratified this convention.

Neither race nor sober habits afford immunity from lead-poisoning. Absorption through the digestive canal is probably the most important mode of entry, although many authorities, especially in this country consider that lead enters the system chiefly through the respiratory tract. The skin also affords a means of entry for the poison by direct contact. Much of the lead is, however, absorbed in the form of dust. The painter using paint already mixed incurs only the slight risk of ingesting small amounts of lead, in particular from his paint-smearred fingers, but if he uses sand paper dry to remove paint from surfaces he inhales large quantities of

dangerous dust. Danger also occurs from the inhalation of lead oxides when the workman burns off paint with a blow-pipe. Unfortunately, inhalation of even small amounts of insoluble lead compounds may set up chronic plumbism: it has been estimated that this condition can be set up by so small an amount as 1 milligram of dust inhaled daily; 10 mgs. set up severe symptoms in a short time. Lead compounds, inhaled and ingested, are stored as an insoluble phosphate in the bones; this may be gradually mobilized and excreted and in passing through the blood stream may produce toxic symptoms.

There is considerable difficulty in applying the preventive measures adopted in factories where workers are given the time and provided with the means to wash their hands before meals; painting is carried on away from the employers' premises; the employer is often a 'small man' and would find it hard to make the necessary outlay. Control of hygienic measures is not easy in the case of painters and workers in similar occupations where the places of work are scattered. Help would be afforded by instituting the compulsory notification of occupational lead-poisoning in all occupations since the appreciation of the danger is the indispensable basis of precautionary measures. Prohibition of the sale of white lead in the form of a paste and the placing on the market of colours ready for use would do away with the grave risk of plumbism run when the painters prepare the colours themselves. The upholders of the draft convention argue that these precautions are insufficient in themselves, the only really efficacious measure of which the application could be readily controlled would be the absolute prohibition of the use of colours with a white lead basis. Such a radical measure could not, however, be introduced if colours with a white lead basis could not be replaced by innocuous substances equally good from a technical point of view. On this matter agreement could not be reached by the technical experts at the Conference. There is much evidence from

house-painters, civil and marine engineers, and the State Workshops in Belgium, Italy, &c., that oxide of zinc, properly treated, can be used as the basis of a product giving every advantage possessed by white lead whether in covering power, drying qualities, or durability. The general view of the members of the Conference, however, was that paints made with white lead were superior for outside work or work exposed to certain fumes or moisture, and that its use should be permitted in the interior painting of railway stations and industrial establishments in which, in the opinion of the Government concerned after consultation with the national employers' and workers' organizations, its use is necessary.

A serious consideration strongly urged was that the lead-mining industry would be seriously affected if lead paints were prohibited. Many mines would have to be closed down and the price of certain by-products of lead mining would be increased. In France, on the occasion of the prohibition of the use of white lead, the question was raised as to whether an indemnity should be given to the owners of white lead works, but the Senate, which had at first introduced into the law a clause granting indemnities, in the end rejected this proposal. In this connexion it should be pointed out that there is here no question of expropriation, and in consequence the question of an indemnity does not arise. In England, until the Lead Paint (Protection against Poisoning) Act, 1926, came into force, house-painters were not included in the list of occupations in which notification of occupational disease is compulsory, but information has been obtained of many instances. In the ten years (1900-1909) the total number of cases of lead-poisoning among painters was 1,973, of which 383 (19.41 per cent) were fatal. On the other hand, a lesser fatality and fatality rate occurred among the notifiable cases of lead-poisoning; these were 6,762, of which 275 (4.06 per cent) were fatal. Probably the full extent of lead-poisoning does not come to light; many workers and medical men are still under the impression that the clinical symptoms are confined to colic and paralysis, although in the majority of cases it only causes for years a more or less marked anaemia. During this time the well-known blue line on the margin of the gums is often

absent, although the examination of the blood often allows of the diagnosis of plumbism.

The Lead Paint (Protection against Poisoning) Act, 1926, requires notification of cases of lead-poisoning contracted in or in connexion with the work of painting buildings.

Under Section 1 the Secretary of State may make regulations for preventing danger from lead paint to persons employed in or in connexion with the painting of buildings, and in particular :

(a) for prohibiting the use of any lead compound except in the form of paste or of paint ready for use ;

(b) for the prevention of danger arising from the application of lead paint in the form of spray ;

(c) for prohibiting dry rubbing down and scraping ;

(d) for providing for the periodical medical examination of persons employed in or in connexion with painting with lead paint, and for the suspension from employment of persons whose health is or appears to be likely to be injuriously affected thereby ;

(e) for securing that facilities for washing during, and on cessation of, work are afforded to persons employed in or in connexion with painting ;

(f) for the use of protective clothing by persons so employed and for preventing clothes left off during work from being soiled by paint ; and

(g) for the distribution to persons so employed of instructions with regard to hygienic precautions to be taken.

On and after 19th November 1927 no woman or young person may be employed in painting any part of a building with white lead paint ; apprentices, women or young persons doing special decoration or other work not of an industrial character and women already employed are excepted.

When the Bill was before Parliament it was stated that the prohibition of lead paint in this country would reduce painting work by 40 per cent ; the extent of unemployment made the Government loath to disturb industry or to increase

unemployment unless it was absolutely necessary. An undertaking was given to bring in a Bill to prohibit lead paint if the regulations fail to give the protection expected.

The recommendation concerning social insurance in agriculture was to the effect that nations which are members of the International Labour Organization should extend any laws and regulations establishing systems of insurance against sickness, old age, &c., to agricultural wage-earners, on the same conditions as those applicable to industrial workers.

By the draft convention concerning workmen's compensation in agriculture, the members undertake to extend to all agricultural wage-earners any laws and regulations which provide for the compensation of workers for personal injury by accident arising out of, or in course of, their employment.

Other recommendations were adopted concerning the development of technical agricultural education, the prevention of unemployment in agriculture, night work of children and young persons in agriculture, the protection of women in agriculture before and after childbirth. Under the draft convention concerning medical examination of children employed at sea, children and young persons under 18 years of age shall only be engaged on production of a satisfactory medical certificate; their continued employment at sea shall be subject to annual medical examinations and the production of a satisfactory medical certificate.

A draft convention concerning the minimum age of employment as trimmers and stokers at sea was also adopted, as well as a more general draft convention concerning the weekly rest in industry.

#### THE FOURTH CONFERENCE

The Fourth Conference met at Geneva in 1922; the meetings were largely devoted to preliminary considerations in connexion with emigration problems. It adopted one recommendation

with regard to the obtaining of statistical and other information regarding emigration and immigration in order that they might obtain the material on which to base future remedies and proposals.

The First Conference on international questions concerning disabled men met at Geneva in this year; it was attended by experts nominated by the most important associations of the disabled in France, Great Britain, Italy, Germany, Austria, and Poland, and by experts from the Government Departments concerned.

The meeting adopted a series of recommendations for organizing the pooling of experience in the medical and surgical treatment of men disabled both in war and industry, particularly in the manufacture and supply of artificial limbs. Special attention was also given to the question of the reciprocity of treatment of foreign disabled.

A further meeting of experts for the purpose of investigating the problem of finding employment for disabled men was held at Geneva in 1923. Experts representing thirteen countries, including Great Britain, South Africa, Australia, Canada, and New Zealand, took part in the meeting. The total number of war disabled is at least ten millions, including eight millions who, in spite of their pensions, are forced to a varying extent to look for work.

The problem of placing disabled men was discussed. It was thought that by rationally organizing disabled labour the different nations will secure that the disabled are in a position to do all the work of which they are capable, so utilizing all the forces of production.

#### THE FIFTH CONFERENCE

The Fifth Conference (Geneva, 1923) considered the development of facilities for the utilization of workers' leisure; general principles for the organization of factory inspection; equality of treatment for national and foreign workers as regards workmen's compensation for accidents and the weekly sus-

pension of work for twenty-four hours in glass-manufacturing processes where tank furnaces are used.

#### THE SIXTH CONFERENCE

The Sixth Conference (Geneva, 1924) adopted provisionally the recommendation on the equality of treatment of national and foreign workers as regards workmen's compensation for accidents (adopted finally 1925). The draft convention on the weekly suspension of work for twenty-four hours in glass-manufacturing processes where tank furnaces are used was adopted provisionally (lost in 1925 because the two-thirds majority required was not obtained).

The draft convention prohibiting night work in bakeries (excepting the manufacture of biscuits) was adopted by a provisional vote. The British Government's proposal to except hotels, restaurants, and public or private establishments where the goods baked are consumed on the premises, was unanimously rejected in committee.

A resolution was passed that the question of a draft convention and a recommendation on the disinfection of horse-hair, horns, hoofs and bones against anthrax be considered at a future session.

#### THE SEVENTH CONFERENCE

At the Seventh Conference (Geneva, 1925) the conventions on workmen's compensation for accidents and occupational diseases were passed. A resolution was adopted requesting the Governing Body of the International Labour Office to place the question of general sickness insurance upon the Agenda of 1927, and at the 'same or successive sessions' to include insurance for invalidity, disablement, old age, widows, and orphans.

#### THE EIGHTH CONFERENCE

The Eighth Conference (Geneva, 1926) dealt with the simplification of the inspection of emigrants.

## THE NINTH CONFERENCE

The Ninth Conference (Geneva, 1926) was exclusively devoted to maritime questions, including the codification of the rules relating to seamen's articles of agreement. A recommendation was adopted concerning the general principles regarding the inspection of conditions of work of seamen. The question of the international regulation of hours of work at sea was referred to the Joint Maritime Commission (re-elected at this session) for consideration.



Conventions	State	Washington 1919						Genoa 1920						Geneva 1921						Geneva 1925						Geneva 1926						State	Washington 1919					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	1	2	3	4	5	6							
<b>1st Conference, 1919</b> 1. Hours. 2. Unemployment. 3. Childbirth. 4. Night work, women. 5. Minimum age (industry). 6. Night work, young persons. 7. White phosphorus. <sup>1</sup>	Argentina	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□									India	■	■	■	■	■	■				
	<b>2nd Conference, 1920</b> 8. Minimum age (sea). 9. Shipwreck indemnity. 10. Employment for seamen.	Australia (See Note 3)							⊙	□	□	■																	Irish Free State*		■	■	■	■	■			
		<b>3rd Conference, 1921</b> 11. Minimum age (agriculture). 12. Rights of association (agriculture). 13. Workmen's compensation (agriculture). 14. White Lead. 15. Weekly Rest (industry). 16. Minimum age (trimmers and stokers). 17. Medical examination, young persons (sea).	Austria	×	■	■	■	■	⊙				■	■	■	■													Italy	×	■	■	■	■	■			
			<b>7th Conference, 1925</b> 18. Workmen's compensation (accidents). 19. Workmen's compensation (diseases). 20. Equality of treatment (accidents). 21. Night work in bakeries.	Belgium	⊙	□	■	■	■	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙					Japan		⊙	⊙	⊙	⊙	⊙		
				<b>8th Conference, 1926</b> 22. Inspection of emigrants on board ship.	Bolivia	⊙		⊙		⊙																					Latvia*	×	□	■	■	■	■	
					<b>9th Conference, 1926</b> 23. Seamen's articles of agreement. 24. Repatriation of seamen.	Brazil	□	□	□	□	□																					Lithuania*	□	□	□	□	□	□
						<b>Ratification</b> ■ Registered ..... 210 □ Approved ..... 27 □ Recommended ..... 158 × Conditional or with delayed application 4	Bulgaria*	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									Luxemburg*	⊙				
<b>Application</b> ◆ Legislative or other measures anterior to the adoption of the Convention by the Conference. ● Legislative or other measures passed since the adoption of the Convention. ▼ Report not yet due.							Canada (See Note 3)						⊙	⊙	⊙		⊙	⊙	⊙		⊙	⊙											Netherlands	□	□	□	■	■
	Note.—The above signs are used to indicate information communicated to the International Labour Office in annual Reports under Art. 408 of the Treaty of Versailles on measures taken to give effect to ratified Conventions. ⊙ Legislation passed. ○ Legislation in progress or in preparation.						Chile	■	□	■	■	■		□	□	□	□	■	■	■	□	□											Norway	⊙	⊙	⊙	⊙	⊙
		Note.—These signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.					China	⊙		⊙	⊙	⊙																					Paraguay	□	□	□	□	□
			<b>Note.</b> —The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.				Cuba			□	□	□	□	□	□		□				□												Poland	□	■	□	■	■
				Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.			Czecho-Slovakia	■	□	■	■	■	■				■	■	■	■	■	■	■	■									Portugal			⊙	⊙	⊙
					Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.		Denmark	□	■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■									Rumania	■	■	■	■	■
						Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.	Esthonia*	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□	□	□					Serb-Croat-Slovene Kingdom	⊙	⊙	⊙	⊙	⊙
Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.							Finland*	■		■	■	■	■				■	■	■	■	■	■	■	■									South Africa	○	◆	◆		
	Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.						France	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									Spain	□	■	■	■	■
		Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.					Germany	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									Sweden	⊙	◆	○		○
			Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.				Great Britain		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							Switzerland (See Note 3)	■	■	■	■	■
				Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.			Greece	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									Uruguay	□	□	□	□	□
					Note.—The above signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.		Hungary*		⊙	⊙	⊙	⊙	⊙				⊙				⊙																	

State	Washington 1919					Genoa 1920					Geneva 1921					Geneva 1925					Geneva 1926					Notes
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
India	■	■		■		■	■					■			■	■	■		□	□						
Irish Free State*	●	◆		●	⊙	◆	⊙	○	○			◆			●	●	●		⊙							
Italy	X	■	■	■	■	A	■	■	■	■	■	□	■	■	■	■										
Japan		■		■		■	■			■	■						■		□	□						
Latvia*	X	□	■	□	■	■		■	X	■	■	■		■	■	■	■									
Lithuania*	□	□	□	□	□					□	□															
Luxemburg*	○						A																			
Netherlands	□	□	□	■	■	■	A	■	■	■	■	■	■	■	■	■	■	■	□	□	□	□				
Norway	○	●	○	○	○	○	○	○	○	◆		○			○	○										
Paraguay	□	□	□	□	□																					
Poland	□	■	□		■	■	B	■	■	■	■	■	■	■	■	■	■									
Portugal																										
Rumania	■	■	■	■	■	■	■	■						■	■	■	■									
Slovene-Croat Kingdom	□	□	□	□	□	□		□						Y	●	○	○									
South Africa	○	◆	◆			A															■					
Spain	□	■	■	□	□	□	A	■	■	□	□	□	■	■	■	■										
Sweden	○	◆	○		○	○	○	●		◆	◆	◆	◆	●		●	●	○	○							
Switzerland (See Note 3)		■		■	■	■	A							○	○				□	□						
Uruguay	□	□	□	□	□	□		□	□	□	□	□	□	□	□	□										

1. No official information which can be indicated in this table has been received by the International Labour Office from the following Members of the Organization:

- Albania
- Colombia
- Costa-Rica
- Dominican Rep.\*
- Ethiopia\*
- Guatemala
- Haiti
- Honduras
- Liberia
- New Zealand<sup>1</sup>
- Nicaragua
- Panama
- Persia
- Peru
- Salvador
- Siam
- Venezuela

<sup>1</sup> Adhered to White Phosphorus Convention in 1917.

2. The States marked \* became Members of the Organization on the following dates: Bulgaria, 1920; Finland, 1920; Luxemburg, 1920; Esthonia, 1921; Lithuania, 1921; Latvia, 1921; Hungary, 1922; Irish Free State, 1923; Ethiopia, 1923; Dominican Republic, 1924.

3. The chart does not show, in the case of federal countries, information communicated to the International Labour Office concerning legislation in the separate States, Provinces, &c., approximating to or in conformity with the Conventions.

4. In addition to the Recommendation concerning white phosphorus mentioned in the opposite column, 27 Recommendations concerning conditions of labour were adopted at the nine Sessions of the Conference, 1919-1926 inclusive. Particulars of action taken on these Recommendations, a list of which is given below, are published from time to time.

- 1919 (1st Session): Unemployment.  
Reciprocity of treatment.  
Prevention of anthrax.  
Protection of women and children against lead-poisoning.  
Government health services.
- 1920 (2nd): Hours of work (fishing industry).  
Hours of work (inland navigation).  
National seamen's codes.  
Unemployment insurance (seamen).
- 1921 (3rd): Prevention of unemployment (agriculture).  
Maternity (agriculture).  
Night work of women (agriculture).  
Night work of children and young persons (agriculture).  
Technical agricultural education.  
Living-in conditions (agriculture).  
Social insurance (agriculture).  
Weekly rest (commerce).
- 1922 (4th): Migration statistics.
- 1923 (5th): Factory inspection.
- 1924 (6th): Utilization of spare time.
- 1925 (7th): Minimum scale of workmen's compensation.  
Jurisdiction in disputes on workmen's compensation.  
Workmen's compensation for occupational diseases.  
Equality of treatment (workmen's compensation).
- 1926 (8th): Protection of emigrant women and girls on board ship.
- 1926 (9th): Repatriation of ships' masters and apprentices.  
Inspection of conditions of work of seamen.

**INTERNATIONAL LABOUR OFFICE**

Conventions

State

Conventions	State	1
<i>1st Conference, 1919</i>		
1. Hours.	Argentina	<input type="checkbox"/>
2. Unemployment.		<input type="checkbox"/>
3. Childbirth.		<input type="checkbox"/>
4. Night work, women.	Australia (See Note 3)	<input type="checkbox"/>
5. Minimum age (industry).		<input type="checkbox"/>
6. Night work, young persons.	Austria	<input checked="" type="checkbox"/>
7. White phosphorus. <sup>1</sup>		<input checked="" type="checkbox"/>
<i>2nd Conference, 1920</i>		
8. Minimum age (sea).	Belgium	<input checked="" type="checkbox"/>
9. Shipwreck indemnity.		<input checked="" type="checkbox"/>
10. Employment for seamen.		<input type="checkbox"/>
<i>3rd Conference, 1921</i>		
11. Minimum age (agriculture).	Bolivia	<input type="checkbox"/>
12. Rights of association (agriculture).		<input type="checkbox"/>
13. Workmen's compensation (agriculture).	Brazil	<input type="checkbox"/>
14. White Lead.		<input type="checkbox"/>
15. Weekly Rest (industry).		<input type="checkbox"/>
16. Minimum age (trimmers and stokers).	Bulgaria*	<input checked="" type="checkbox"/>
17. Medical examination, young persons (sea).		<input checked="" type="checkbox"/>
<i>7th Conference, 1925</i>		
18. Workmen's compensation (accidents).	Canada (See Note 3)	<input type="checkbox"/>
19. Workmen's compensation (diseases).		<input type="checkbox"/>
20. Equality of treatment (accidents).	Chile	<input checked="" type="checkbox"/>
21. Night work in bakeries.		<input checked="" type="checkbox"/>
<i>8th Conference, 1926</i>		
22. Inspection of emigrants on board ship.	China	<input checked="" type="checkbox"/>
<i>9th Conference, 1926</i>		
23. Seamen's articles of agreement.	Cuba	<input type="checkbox"/>
24. Repatriation of seamen.		<input type="checkbox"/>
<sup>1</sup> This Berne Convention formed the subject of one of the Washington Recommendations. States which had previously adhered to the Convention are indicated by the sign <input checked="" type="checkbox"/> in column 7, and States which have adhered subsequently by the sign <input type="checkbox"/> .	Czecho-Slovakia	<input checked="" type="checkbox"/>
<i>Ratification</i>		
<input checked="" type="checkbox"/> Registered .....	Denmark	<input type="checkbox"/>
<input checked="" type="checkbox"/> Approved .....		<input type="checkbox"/>
<input type="checkbox"/> Recommended .....	Esthonia*	<input type="checkbox"/>
<input checked="" type="checkbox"/> Conditional or with delayed application		<input type="checkbox"/>
<i>Application</i>		
<input checked="" type="checkbox"/> Legislative or other measures anterior to the adoption of the Convention by <sup>1</sup> the Conference.	Finland*	<input type="checkbox"/>
<input checked="" type="checkbox"/> Legislative or other measures passed since the adoption of the Convention.	France	<input type="checkbox"/>
<input checked="" type="checkbox"/> Report not yet due.		<input type="checkbox"/>
<i>Note.</i> —The above signs are used to indicate information communicated to the International Labour Office in annual Reports under Art. 408 of the Treaty of Versailles on measures taken to give effect to ratified Conventions.	Germany	<input type="checkbox"/>
<input checked="" type="checkbox"/> Legislation passed.		<input type="checkbox"/>
<input type="checkbox"/> Legislation in progress or in preparation.	Great Britain	<input type="checkbox"/>
<i>Note.</i> —These signs are used to indicate information concerning other measures applying or tending to apply Conventions, derived from all official sources.	Greece	<input checked="" type="checkbox"/>
		<input checked="" type="checkbox"/>
	Hungary*	<input type="checkbox"/>

## CHAPTER X

### VOLUNTARY AID IN PUBLIC HEALTH

**H**YGIENE is defined in the new Oxford English Dictionary as 'a department of knowledge or practice which relates to the maintenance of health'. It covers a very wide field, relating to almost every human activity. So far we have been dealing with the more strictly preventive side of medicine, but an account of international hygiene would not be complete if it did not include information on the humane activities of several organizations, notably the League of Red Cross Societies.

The War work of the different national Red Cross Societies was of a high order; the work of the British Red Cross Society won the approval of Lord Kitchener. By the time of the Armistice the machinery had been brought into such efficient working order that it would have seemed a great waste of a valuable asset to have shut down a humanitarian organization which would obviously still have much work to do in helping to supply the hygienic needs of the civil populations rendered homeless, helpless and in a poor state of health by the direct or indirect effects of the War. As early as the Second International Red Cross Conference, held at Geneva in 1867, the proposal that Red Cross Societies should undertake active work in peace time had been discussed, but it was a long time before the idea of the Red Cross as a purely temporary agency in war-time yielded to the conception of the Red Cross as a permanent asset to humanity. In 1895, however, the German Red Cross inaugurated a campaign against tuberculosis, in 1900 the Italian and Greek Red Cross

embarked on an anti-malarial campaign, and child welfare clinics were founded by a number of Red Cross Societies. The formulation of the scheme of the League of Nations caused Mr. Henry P. Davison, the Chairman of the War Council of the American Red Cross, to propose that the national Red Cross Societies should form a League to develop the humanitarian activities of the Red Cross in peace-time ; accordingly, in February 1919, representatives of the American, British, French, Italian, and Japanese Red Cross Societies met and formed themselves into a Committee of Red Cross Societies, with which the *Comité International de la Croix-Rouge*, founded as long ago as 1863 on a narrower basis of war-time work, expressed its willingness to work. In April 1919 the new Committee convened at Cannes a conference of prominent medical men drawn from practically all parts of the world to obtain their advice on aims and organization. At this early date ideas had not become sufficiently clarified ; the Conference recommended that a Bureau of Health, with a Director, a medical staff and an Advisory Council, should be created and efforts should be made, mainly through national Red Cross Societies, in securing advance in the prevention of disease and the protection of the public health.

At the time of the Conference typhus was threatening to invade Europe from Poland ; the first recommendation, therefore, dealt with the control of typhus fever. The Conference further recommended that the League of Red Cross Societies should work for ' the promotion of child welfare ; wide public health legislation and efficient administration ; standardization of vital statistics ; scientific investigation in hygiene and sanitary science ; the establishment of public health laboratories for every community ; the control of tuberculosis, malaria, and venereal disease ; educational propaganda ; the training of school children in personal and general hygiene ; town planning and adequate housing for the working classes ; the adoption of general health principles in new countries '.

Special emphasis was placed on the need of increasing

the number of nurses for nursing the sick and employing suitably trained women to work as public health nurses, a term which includes the health visitors, school and tuberculosis nurses of this country.

The programme as stated here is such as would be evolved by many individual public health medical officials; it appears to be of so official a character that it almost postulates the formation of an official body to carry it out. To anticipate somewhat, it gradually became clear that several questions were involved. One was how far the programme could be carried out by existing national public health organizations, either official or voluntary; another, whether the existing international organization, *L'Office International d'Hygiène Publique*, sufficed for the new programme; and a third, what was the line of demarcation between official work and voluntary aid. These questions are somewhat interwoven, but the need for a League of Red Cross Societies was conclusively shown and a Health Section of the League of Nations was set up. It is difficult and unnecessary to formulate the precise lines of demarcation which should be followed between the work of the voluntary body (the League of Red Cross Societies) and the official health organization of the League of Nations; the situation is one which is familiar to voluntary health workers on the one hand and public health committees on the other in all those areas where voluntary work and expenditure of voluntary funds on health matters go on side by side with official work; if tact and prudence are exercised on both sides harmony and mutual benefit are secured. At the various conferences on the subject the same conclusions were always reached, namely, that in practice the line of demarcation could be easily drawn, and that not only should there be no reason for rivalry, but each should be strengthened by the other. In point of fact the Health Section found the work accomplished and prepared by the Red Cross organization of immense value.

Returning to the ordered sequence of events, in May 1919

the League of Red Cross Societies was formed, the five founder members—the Red Cross Societies of France, Great Britain, Italy, Japan, and the United States—being rapidly joined by other existing Red Cross Societies. Since that time, in accordance with Article 25 of the Covenant of the League of Nations, many more Red Cross Societies have been formed in the different countries; these have also joined the League of Red Cross Societies, bringing the total membership up to fifty-four. The activities of the League have been largely devoted to relief, the promotion of health propaganda, development of the Junior Red Cross, the improvement of the nursing and the public health nursing service.

One of the purposes of the League is to help to co-ordinate relief work in times of serious national or international calamities. Just a year after the formation of the League, when the whole of Europe was threatened by an epidemic of typhus brought by the refugees who were crowding out of Russia, the League of Nations asked the League of Red Cross Societies 'to undertake an investigation with a view to determining the sanitary situation in Poland and Czecho-Slovakia, and to organize an international effort to combat the epidemic'.

The eastern frontiers of Poland were visited by a special international medical mission (Drs. Castellani, Cumming, Buchanan, and Visbecq); the inquiries and report facilitated the work of the executive commission sent to Poland by the League of Red Cross Societies early in 1920. In 1919 a mission was sent to Czecho-Slovakia to report on the health situation and to distribute supplies. The League thus early learnt how to organize the relief measures required to cope with severe and widespread distress and disorganization. In 1920 a typhus research commission was sent to the head-quarters of the Polish executive commission at Warsaw.

In Czecho-Slovakia the executive commission helped to establish the new system to prevent the spread of typhus; they helped largely to promote an intensive course of training in epidemic work for Czecho-Slovakian Red Cross workers at

Prague. Similar work was carried on in Rumania ; in addition the League helped to establish a hospital and dispensary for children at Bytiča in Slovakia ; funds were collected for the relief of starving children in Vienna.

In 1922 Senator Ciraolo of the Italian Red Cross formulated proposals for systematizing the organization of international relief to victims of sudden disasters so that immediate help could be given to them. When earthquakes, tornadoes, floods and fire destroy towns, or devastate whole areas, not only must the injured be cared for and the homeless fed and clothed, but often camps and shelters must be erected, emergency hospitals set up, and measures taken to prevent the spread of infectious disease.

Just as the fire brigade in this country rightly pride themselves on being on the spot within a few minutes of a conflagration, so does Senator Ciraolo trust that the organization which he has proposed, by its foresight and measures arranged to meet an emergency, will be on the spot and at work within a few hours of a disaster of national proportions. The headquarters staff of the League are working at the problems involved ; these include the formation of corps of voluntary workers, schemes for directing public opinion in favour of relief work and the provision of funds and equipment. The Health Division is largely engaged in health propaganda ; it helps the national Red Cross Societies to educate public opinion of the country as to the need of various reforms. The Cannes Medical Conference set out a long list of public health measures required generally by practically every country ; in some countries more progress has been made than in others, but in every country in the world there is ample room for improvement in these directions. In this country we have seen over and over again the immense value of the pioneering efforts of voluntary societies ; to give a few instances—Infant Welfare centres were started by many local voluntary agencies ; for Tuberculosis Dispensaries we have largely to thank the Central Fund for the Establishment of Dispensaries, a body which



has now turned its attention to the provision of subsidized workshops for the tuberculous; in several counties, notably Shropshire and Berkshire, the county schemes for the treatment of orthopaedic defects owe their origin largely to the Central Committee for the Welfare of Cripples. Public Health Committees and officials should be, and are, grateful to any body which aids in moulding public opinion so that the public or private philanthropists are willing to provide the funds necessary for public health schemes or institutions; if in addition they will assist in persuading the public to take advantage of the institutions provided so much the more are their services valuable.

Local Sanitary Authorities have for long been engaged in the promotion of cleanliness and other hygienic habits among the people. Here again would seem to be a field of work where every helper ought to be welcome; the remarks of the Cannes Conference on this matter are very much to the point.

'It is desired, however, to emphasize the importance of inviting the educators of the world to co-operate sympathetically in teaching elementary hygiene by both precept and example; and where possible to work through the school children in reaching the adult population with needed information. From many sources has come the suggestion that a primer of sanitation, differing from any thus far published, should be prepared and adapted to each country desiring to utilize it in popular propaganda work.

'The [lay] Press and the desire of reporters and editors actively to participate have never been fully utilized.

'The cinema film, which is probably the most powerful educational weapon that we possess, has been used comparatively little in the public health field because there has existed no central agency for translating the scientific facts into the language and action of the motion picture. The section urges the importance of such a central bureau as this proposed, devoting time and expense on preparing public health cinema

scenarios and, where necessary, the production of the initial prints of the same.

' Without referring in further detail to educational devices, attention is called to the value of publicity, including especially the value of well-planned and beautiful posters. The wisest use of such posters can only come through the establishing of some central agency equipped with a resourceful personnel in personal touch with artists and sanitarians on the one hand, and the propaganda agencies on the other.

' What is true of posters is also true of exhibits. A single well-planned and managed exhibit does its work through many years by the stimulation of the popular discussion aroused. Lectures are an important means of education, but many lecturers fail because they have no means of illustrating the points they wish to make. Every propaganda society is eager for assistance in planning for such lecture-aids as lantern slides, charts, and simple demonstration models.'

Other important methods of propaganda exist, but these do not exactly come within the scope of the report.

Fiction in its various forms, the short tale but, above all the novel, not necessarily the novel with a purpose, must have exercised, and be exercising, a great influence on the remedy of serious abuses involving the health of a people. On the other hand, fiction can work in the opposite direction: it has done serious harm; if instances were needed we might give the erotic story shading off to the pornographic, and the selection as heroines of women who inevitably have an illegitimate child whose future welfare does not receive the same degree of consideration as the emotions of its mother.

To this agency for good or evil may be added the drama. Mr. Bertrand Russell has recently been writing on the inculcation of truth by means of the dramatic art; he referred to the difficulty of conveying the true meaning of words by words alone; whether they be spoken or written, action is necessary. Whether his dictum be strictly applicable or not to the matter under immediate consideration, there is no doubt

that in addition to the cinema film, plays inculcating various truths are of great value. *Drink*, which Charles Warner made famous, the play of M. Brioux, *Damaged Goods*, at once leap to the mind, possibly *White Cargo*, by Leon Gordon, all teach useful lessons which escape dullness, at least if the actors are capable or the audience lenient.

A visit to the Head-quarters of the League in Paris will enable any one interested to see for himself or herself the way in which the staff have endeavoured to carry out the programme laid down for them.

Rightly the League considers that propaganda to be effective must fit in with the particular ways of thinking of the people to whom it is directed; nothing can be more local. The Secretariat therefore are more pleased to pool their brains and ideas with those of national Red Cross Societies than to issue 'literature' themselves. However, very general and fundamental ideas can be worked out successfully in a way that would appeal to the people of a large group of nations; consequently the Health Division itself has brought out a booklet, *Principles of Hygiene*: this is largely made up of beautiful artistic coloured illustrations with a minimum of text and should inculcate in children and possibly older persons useful ideas on how to keep healthy. A booklet on venereal disease, re-edited in 1926, and one on *Hygiene in the Merchant Service* have also been brought out.

In this country we have much to learn as to the possibilities of pictorial propaganda, the artists and hygienists of the Continent have done wonders; they interweave beauty and precept, they clothe service with charm.

In England we are better acquainted with film work, although Switzerland, owing perhaps in a measure to its natural scenic advantages, has produced some outstanding films which we are wise enough to use over here. But in this country we are capable of producing excellent health films with first-rate plots, acting and scenarios. The League in Paris with its central position can and does with advantage

act as a clearing house of ideas on film work ; they have advised French producers, imported good American health films, and refused to extend their patronage to certain films on rabies, tuberculosis and drug habits which seemed objectionable.

The Health Division of the League has given special attention to the question of mobile health propaganda units. One such unit provided with a portable cinema apparatus was launched in Czecho-Slovakia in 1921 ; it enabled 400 lectures to be given to a total of 160,000 persons. The demonstration led to the establishment of two units on a permanent basis by the Czecho-Slovak Red Cross. A similar unit was set up in Poland in 1922 with no less satisfactory results.

Another line of propaganda has been attempted ; modelled somewhat on the lines of the United States tuberculosis experiment at Framingham, the League, working in conjunction with the Belgian Red Cross, chose Jumet <sup>1</sup> as an experimental ground for intensive preventive work. A complete and systematic study was and is being made of the whole population of Jumet, and at the same time an endeavour made to trace, cure, and prevent disease. There existed already at Jumet an infant welfare clinic and a milk centre ; the Demonstration culled in branches of societies who opened three clinics, one for venereal diseases, one for mental hygiene and another for tuberculosis. The sanatorium hospital of Jumet was reorganized so that its services (specialists, laboratories, X-rays, &c.) were at the disposal of all the doctors and all the inhabitants of the community. Health instruction was also given to the inhabitants especially through the labour organizations.

### NURSING DIVISION

One of the initial difficulties in many of the countries in which the Red Cross Societies started their educational health

<sup>1</sup> Jumet is a small industrial town of 30,000 inhabitants between Brussels and Charleroi. The League of Red Cross Societies has published a report (1927) on the Demonstration.

work was not only the absence of well-trained Public Health nurses, but also the absence of any facilities for training. For propaganda on infant welfare, for instance, only an indigent man or woman can be effective; they alone will be able to know how to approach and handle the mother and the rest of the relatives, including sometimes the father.

A still more elementary need was found: nursing schools have been in existence for so long in this country that it is a trifle surprising to us to learn that there are countries without practically any trained nurses. Schools for the training of women in public health work have also been established in Great Britain for a considerable time, although not so long as ordinary nursing schools. Through the Nursing Division of the League a course both in Public Health Nursing and Hospital Administration has been given at Bedford College for Women with the collaboration of the College of Nursing, and a system of scholarships has been devised to enable suitable nurses after training to return to their own countries, and 'render such services in the interest of public health as the Red Cross of their own country may entrust to them'.

These nurses receive instruction in Public Health work somewhat on the lines of English health visitors.<sup>1</sup>

An international course for nurse administrators and teachers in schools of nursing is also being given; the Division also makes any arrangements for nurses who come or are sent by Red Cross Societies or other organizations to Paris or London in order to study some particular phase of nursing, midwifery or social service work for periods of one, two or several months. A woman who is keen enough to travel of her own accord to learn her work thoroughly deserves every help, and any effort spent on her behalf by the League will be repaid manifold in service to the community. There is no doubt of the huge success of the activities of the League in regard to nurses helped in any one of these three ways;

<sup>1</sup> I had the privilege of examining them for three years and can testify to their keenness and desire to learn.

the Nursing Division of the League keeps in touch with the nurses in their own countries and helps them in the initial stages, and Miss Katherine Olmsted, its chief, is able to report in glowing terms on the value of the work of these pioneers.

Another activity of the League has been the sending out of suitable, highly trained English and foreign nurses to inaugurate or direct schools for nurses, in Belgrade and Bucharest financial help has been given by the League to help the Hungarian Red Cross to reopen schools for nurses. The League encourages congresses for nurses; one was arranged under the auspices of the Austrian Red Cross in Vienna, attended by nurses from nine surrounding countries; at Riga, a congress for nurses from Esthonia, Latvia and Lithuania was arranged under the auspices of the Latvian Red Cross. Only those who have had experience of the amount of work entailed in arranging a congress will fully appreciate the labour involved.

#### THE JUNIOR DIVISION

The Junior Red Cross was started in Canada in 1914, and now extends to thirty-six different countries and comprises a child membership of over eight and a half millions.

The chief contribution of the Junior Red Cross lies in the fact that it can be introduced into the regular school work, not as an addition to the curriculum, but as a motive and inspiration for work already in hand. For instance, in matters of hygiene, the Junior Red Cross has been proved to be of great assistance in creating in children a *desire* to be healthy.

As a natural expression of the desire to be useful aroused by membership in the Junior Red Cross, large groups of children have been enrolled in various countries in campaigns against dirt, flies, mosquitoes, rats, malnutrition, bad teeth and similar menaces to health. This desire to be useful often leads to socially useful activities outside the health field which tend to develop a civic consciousness. In order to serve the Red Cross ideal by developing this civic consciousness to the point where it is capable of crossing national

frontiers, children enrolled in this movement are offered opportunities to help children of other nations in distress, and to keep in touch with foreign ' Juniors ' at all times by means of a highly organized system of school exchanges.

Children's magazines are published by a number of Red Cross Societies with a Junior Membership. The object of these journals is to stimulate the children's interest in health, civic service, and international understanding.

### EMIGRATION DIVISION

The League has decided to organize an Emigration Division to co-operate with the International Labour Office and private, national and international organizations for the protection of emigrants. ' It will recommend that the public health nurse should not merely take action to ensure the health of emigrants before, during, and after the voyage, but that she should, immediately the family contemplates emigration, also give information and guidance to its members, in order to prevent their being exploited and to enable them to adapt themselves more readily to conditions in the country to which they are proceeding. The Division shall suggest the idea of supplementing the training of nurses for this purpose. It shall endeavour to obviate the undesirable results due to the emigration of unaccompanied children.'

The Division are investigating the methods adopted by the national Red Cross Societies in their work for emigrants, the agreements between the Red Cross Societies of the various countries and those concluded with their respective Governments and the system of appointing Red Cross delegates in immigrant-receiving countries to assist the immigrants on arrival, during the period of their establishment, and during their stay.

The work of the League of the Red Cross Societies is not so well known perhaps to the man in the street as that of the Health Section of the League of Nations, but all the

same it is of vast significance ; it is behind everything, waiting and ready to help.

#### ROCKEFELLER FOUNDATION

The International Health Board (Rockefeller Foundation) was incorporated in 1913 with an initial endowment of \$100,000,000, the gift of Mr. John D. Rockefeller, which was afterwards increased to \$182,704,624. Its administration was entrusted to an original board of nine members, who were given the power to add to their number and to choose their successors. The aim to be pursued was given as ' the well-being of mankind throughout the world ' ; the Board decided that this end could best be attained by public health work in co-operation with governmental services.

The Foundation decided to interest itself chiefly in improving the environment of the individual.

In choosing this particular line of action the directors aim at creating a demand for public health work in those countries and states where there is no established form of sanitation, and where it would be hopeless to deal with the individual until some form of sanitary conscience was awakened in the mass of the people. The most efficient form of education in health matters is by concrete demonstration, and as there are certain branches of preventive medicine that lend themselves particularly well to this method of health education, such, for instance, as the control of hook-worm disease, yellow fever and malaria, the main efforts of the Foundation are at present concentrated on these objects. These diseases have led to mortalities which have transcended the death roll of the greatest political cataclysms. Malarial and hook-worm infections are causing economic inefficiencies beside which the effects of the greatest of industrial upheavals sink into insignificance. In India alone, out of a population of some 300,000,000 persons, over 150,000,000 are infected with hook-worm, and it has been estimated that the working capacity of the individual is reduced by about one-third by



this infection. From malaria, it has been officially estimated, approximately 1,300,000 deaths occurred annually in India alone.

The yellow fever campaign was undertaken in the hope of banishing that disease from the Western Hemisphere, and so successful has the campaign been that the only areas still remaining under suspicion are confined to the interior of certain states on the northern coast of Brazil, and a limited section of Central America. Having cleared the historic strongholds of the disease in the Americas, staffs were trained for similar work in West Africa.

The malaria problem presents rather more difficulty, but though the results have not been so spectacular as in the case of yellow fever very substantial progress has been made. From an economic standpoint this disease is much more difficult to control in rural than in urban areas, and a large portion of the Board's funds have been applied in defraying the cost of sending specialists to demonstrate the feasibility of malaria control in towns and villages where that disease is endemic. Perhaps the best illustration of the extent of the Board's labours is given by the work in connexion with hook-worm disease. A girdle of control centres has been placed round the earth; the work is carried on in the East and West Indies, in the Southern Seas, in Australia, Fiji Islands, Siam, Brazil, Spain, Mexico, to mention but a few of the places at random. At Lopburi (Siam), for instance, the medical officer in charge is assisted by his wife who is a trained nurse. In addition to intensive hook-worm measures, and control of soil-pollution, this particular unit undertakes maternity work and child welfare activities, as well as giving a certain amount of medical relief. Similar instances of hook-worm campaigns broadening out into general public health work have occurred in various districts in Brazil, and elsewhere.

The Board co-operates with the Health Committee of the League of Nations by placing funds at their disposal for the

international interchange of public health personnel, the development of the epidemiological intelligence service, and the improvement of public health statistics.

Among its contributions to public health teaching institutions the Board has voted a large grant towards the provision of a School of Hygiene in London. The new School of Hygiene at Warsaw has been made possible by the generosity of the Rockefeller Foundation; its objects are the production of serums and vaccines, bio-chemical work, the investigation of epidemiological problems, and the provision of machinery for the technical research to form the basis of State and scientific measures. They will also train fully qualified officers for administrative service. The Rockefeller Foundation provided scholarships which enabled the present teaching staff to learn the American methods of sanitation.

In 1925 the Board awarded 147 fellowships; in addition 50 resident fellowships were awarded for study within the students' own country. These fellowships are given especially to men in order that they may obtain special knowledge to take charge of an important part of the public health programme of a Government.

The activity of the Foundation's China Medical Board has resulted in its ownership of the Peking Union Medical College which it supports. There is a complete modern Medical School and Hospital with Training School for Nurses; twenty-five other medical centres in China are assisted.

The *Commonwealth Fund* of New York has undertaken extensive relief operations in Austria for several years through the American Health Administration.

Dr. Le Roy A. Wilkes made a careful study of conditions in preparation for the Fund's efforts to promote the health of Austria's children. Two complete administrations were founded in Graz and Salzburg, several activities have been undertaken in several provinces, and assistance has been given to 103 health stations for infants and pre-school children throughout Austria.

One result of the formation of the League of Nations was the co-ordination of different movements concerned with international health, including the Paris International Bureau of Assistance, who formulated a convention for the assistance of foreigners in sickness.

In addition to official health organizations such as that of the League of Nations and the Pan-American Bureau, there are voluntary organizations which preceded these and which still continue their work in the interests of hygiene among many nations.

The American Near East Relief Fund, the Imperial War Relief Fund, the Friends, the Catholic and the Jewish International Social Welfare and Relief organizations, the Y.W.C.A. and the Y.M.C.A., the Salvation Army, the International Abolitionist Federation, the Federation of National Unions for the Protection of Young Girls, and international agencies supporting the peace movement, the education movement, and the woman's movement, are all contributing their iota toward progress in international health and welfare.

High among such agencies must be rated those dealing with famine. The Russian famine immediately following the last War and which affected 19 millions, causing the death of about 2 millions, the North China famine of 1920 and the later one of 1921 were the objects of much international welfare work, especially by the Friends and the U.S.A. organizations.

#### 'SAVE THE CHILDREN' FUND AND INTERNATIONAL UNION

The 'Save the Children' Fund and International Union was founded early in 1920 by the Save the Children Fund of London and the Swiss Committee for Child Relief of Berne, under the patronage of the International Committee of the Red Cross.

In 1923 the International Union drafted a manifesto, setting forth a Declaration of the Rights of the Child which was adopted in 1924 by the Fifth Assembly of the League of Nations, and is now commonly known as the 'Declaration

of Geneva'. Such a step was epoch-making in the history of the child welfare movement, child care and protection thus became part of the definite work of the League of Nations.

The terms of the Declaration of Geneva are :

'By the present Declaration of the Rights of the Child, commonly known as the "Declaration of Geneva", men and women of all nations, recognizing that mankind owes to the child the best that it has to give, declare and accept it as their duty that, beyond and above all considerations of race nationality or creed :

'1. The child must be given the means requisite for its normal development, both materially and spiritually.

'2. The child that is hungry must be fed, the child that is sick must be nursed, the child that is backward must be helped, the delinquent child must be reclaimed, and the orphan and the waif must be sheltered and succoured.

'3. The child must be the first to receive relief in times of distress.

'4. The child must be put in a position to earn a livelihood, and must be protected against every form of exploitation.

'5. The child must be brought up in the consciousness that its talents must be devoted to the service of its fellow-men.'

The Declaration has not unnaturally been criticized as being somewhat Utopian, and as setting forth ideals difficult of attainment, without indicating the means by which they are to be reached. Nevertheless the ideal is stated, and an ideal is not only an incentive to attainment, but an antidote to the policy of the acceptance of evils because they are of ancient date.

The welfare of the child is inseparable from its health, therefore efforts to improve its physique and health are inevitably undertaken by all organizations for the welfare of the child. Thus the Boy Scout movement, which has branches in almost every civilized country of the world, and the Girl Guide movement, conduct their training on principles of which 'Health and Development' is one.

The International Association for the Protection of Children is a voluntary organization founded in 1921, its membership comprising representatives of the Belgian, French, Italian, Luxemburg, and Swiss Governments, and a number of private

individuals. The association publishes the *Bulletin Internationale de la Protection de l'Enfance*.

The International Birth Control Federation has its headquarters at present in New York and holds yearly an International Neo-Malthusian Birth Conference.

#### INTERNATIONAL MIGRATION SERVICE

At the World's Y.W.C.A. Conference at Chambéry, in 1924, the U.S.A. delegates reported that there was great need for an especial type of assistance in Europe for women and children who went to America from 'half around the world'.

A preliminary survey was made of the migration conditions in five European countries, and as an outcome an International Migration Service was started to 'extend personal service and friendliness, through its various Bureaux, at points where migrants congregate for the formalities of travel between countries; to seek to study problems of migration, particularly as affecting women and children; to work towards the international regulation and bettering of conditions under which they migrate, thus promoting international goodwill'.

This service worked in close relation with the National Red Cross Societies; its head-quarters are at Geneva.

The objects of the International Migration Service are primarily social, but as many of the problems with which the Service has to deal arise from the rejection of one or more members of a family, owing to physical disabilities, and the final solution of the problem lies in the cure of the rejected, the Service must concern itself with the health and hygiene of the emigrant, as well as extending him other help and counsel.

The Service does not give any financial assistance, nor establish any clinics or hostels; it makes use of existing institutions or organizations, and endeavours to get these established where they are needed.

## CHAPTER XI

### THE WORK OF THE LEAGUE OF NATIONS HEALTH ORGANIZATION

**A**LTHOUGH machinery for dealing with international questions concerning hygiene existed before the advent of the League of Nations, the coming into being of this bond of union has stimulated international co-operation in the field of hygiene to such an extent that nowadays the ideas of international hygiene and the League of Nations are inseparable. Mention has already been made incidentally of the activities of the Health Organization of the League; here is the place for a connected account of their work.

When the League of Nations was formed there was already in existence the *Office International d'hygiène publique*, which had rendered very valuable services to its constituent States. Any new health organization of an international character perforce included the *Office International*; consequently the present Health Organization consists of three parts: the Advisory Council constituted by the Permanent Committee of the *Office International d'hygiène publique* at Paris, the Health Committee and the Health Section, an integral part of the Secretariat of the League of Nations. The printed resolutions of the Health Committee are forwarded for consideration at the meeting of the Permanent Committee of the Office International; advisory opinions are secured from this body before the Council of the League acts upon them. The advice of the Permanent Committee is asked from time to time by the League.

I have referred to the activities of the League in the collection and publication of morbidity and mortality statistics; it soon became apparent that to enable comparisons of any value to be made the statistics must be collected in a uniform manner. Several commissions were therefore appointed to clear up any difficulties and to formulate the statistical methods to be followed so as to enable international comparisons to be made. The absence of a definition of a still-birth has obscured international comparisons of birth rates; the Commission appointed to define still-births reported:

'It is requisite, in drafting the desired definition, to have a clear understanding of what constitutes a "birth" and when such "birth" is complete'.

'In the proposed definition, the word "birth" mean the separation and extrusion of a foetus from the body of the parturient woman. The birth is to be deemed complete at the instant when the whole of the body of the foetus—head, trunk, and limbs—is outside the body of the mother.

'The birth is to be deemed a live-birth (as defined above) if after birth the infant breathes.

'The act of respiration is incontrovertible evidence of life, and its continued absence is to be taken as proof of foetal death.

'It is desirable, for statistical purposes, that a distinction should be made between the birth of a foetus which can normally be expected to be capable of an existence independent of its mother and the expulsion of one which cannot, births in the latter category being regarded as miscarriages (abortions).

'A foetus capable of an independent existence is a "viable foetus" and is the product of a gestation which has lasted at least twenty-eight weeks. Such foetus will normally measure at least 35 cm. from the crown of the head to the sole of the heel, the body being fully extended. The Committee is of opinion that the latter criterion is the more trustworthy.

'Hence a "dead-birth" is the birth of a foetus, after twenty-

eight weeks' pregnancy, in which pulmonary respiration does not occur; such a foetus may die either: (a) before, (b) during, or (c) after birth, but before it has breathed.'

With regard to the records to be kept the Commission stated that—'It is desirable that every live-birth should be entered in the *Register of Births*. An infant born alive but dying before registration of its birth should be entered both in the register of births and in that of deaths, the prescribed certificate of cause of death being produced at the time of registration or subsequently thereto, as may be by law directed.

'It is desirable that every dead-birth should be inscribed in a *Record of Dead-Births*. The person responsible for the registration should be required to produce, whenever possible, a certificate of cause of death, such certificate to be signed by a recognized medical practitioner. The information to be given in the certificate and the form thereof should be prescribed by the competent authority.

'In countries requiring the registration of births of non-viable foetuses (as defined above), such births should be entered in a separate record, with such information as to duration of pregnancy, cause of abortion and other particulars as may be prescribed by the competent authority.'

The Commission issued rules for the compilation of statistics. Statistics of *natality* (birth-rates) should be based on the number of live births; statistics of *fertility* should be based on the number of viable births, both live and dead births; rates of *infant mortality* will be based on the numbers of *live-births* and of deaths of infants under the age of one year (12 months). The suggestion was made that the Health Committee should prepare an international list of causes of dead-birth.

As the result of the study of statistics of the cause of death certain conclusions have been reached in the need for an international certificate of death; the death certificate should be of a confidential character (as in Switzerland) to ensure



the disclosure of tuberculosis, alcoholism, and venereal disease.<sup>1</sup>

Where more than one cause of death is mentioned in a certificate, the selection of the primary cause should be made by the statistician; in obtaining the information to select the primary cause uniform questions should be asked of the certifying practitioner; in all countries there should be uniformity of principles and rules in the selection of the primary cause of death.

Deaths are tabulated according to the principles laid down in the *Manual of the International List of the Causes of Death*.

As late as 1893 no two countries in the world used the same forms and methods for the statistical classification of the causes of death. For international comparison of the death-rates, for the public health, and for epidemiological purposes a uniform system of nomenclature was so obviously essential that in 1893, at the Session of the International Statistical Institute held at Chicago, the late Dr. Jacques Bertillon presented a draft of a classification of the causes of death for international use, which had been prepared by a special committee. This draft was at once generally approved, and promptly adopted by several countries; it was further decided to keep the classification abreast of scientific knowledge by decennial revisions at the hands of an international commission appointed by the various participating countries. These meetings for revision were subsequently held in Paris in 1900, July 1909, and in October 1920, with Dr. Jacques Bertillon as permanent secretary-general.

After the second decennial revision the United States Bureau of the Census and Great Britain both brought out in 1911 *A Manual of the International List of Causes of Death*, and following the third revision in 1920 the same course has been followed by the United States in 1924 and by this country

<sup>1</sup> It is possible that progress may be made in this direction by the separation of purely medical information from data obtained for the use of civil authorities.

in 1926. The present edition of the Manual, which is adapted for Scotland and Northern Ireland also, is issued on the authority of the Registrars-General for England and Wales, Scotland, and Ireland, with a view to providing for the use of public health officers, the medical profession generally, and any others interested, an official statement of the practice in force with regard to the classification of the causes of death in the several parts of the kingdom. There is still a lack of uniformity in the international methods of death registration, and at the third revision in 1920 a resolution allowed each country a certain amount of latitude in adapting to its own special requirements the model of an abridged list approved at the conference for revision.

The Manual enables the names of diseases as certified according to the method used by the country to be assigned to their correct place in the international list of causes of death. Thus the General Register Office advises medical practitioners to use in their death certificates those terms only which are recognized in the nomenclature of the Royal College of Physicians of London, for when this is done there is, as a rule, no difficulty in referring deaths to their proper heading in the International List of Causes of Death as now adopted for use in the Registrar-General's reports. The conference on vital statistics held at Geneva in 1925 recommend that all the countries using the International List should publish similar manuals containing lists of terms employed in certifying the cause of death.

The next revision of the International List will be undertaken by a conference called by the French Government. So far there has not been universal agreement that the Health Section of the League of Nations should undertake the task of arranging conferences to deal with this question. The League is, however, attempting to collate recommendations from this and other countries.

In order to help to remove the difficulty found when comparing the vital statistics of different countries owing to the

lack of information in the registration laws and practices, the Health Organization has published handbooks on the vital statistics of a number of countries. They include a brief description of the country concerned, a more detailed memorandum of the establishment and responsibility for statistics, notes on the population and sources of population statistics and a full account of the registration of live-births, still-births, deaths, infantile mortality, morbidity statistics of the country as a whole and of the statistical information available from the more important towns. Conclusions and appendices indicate the subjects of inquiry on which light is thrown by the statistics, and how certain criteria may be applied in order to enable the student to make satisfactory comparisons of the trend of mortality in two or more countries.

Special statistical studies have been undertaken under the auspices of the Health Committee; Dr. Rosenfeld (Vienna), reporting on tuberculosis statistics, dealt with the principles that should govern the certification and tabulation of tuberculosis deaths in order to render these more exact and susceptible of international comparison. He says, in fact, that the matter would be far simpler if all countries adopted a standard nomenclature, a universal system of death certification and proper classification. In some countries non-medical men give certificates of death. A report by Dr. Roesle brings out the considerable differences in the virulence of scarlet fever in the eastern and western countries of Europe and the remarkable chronological variations in lethality in the same country.

The League has issued several Public Health Surveys: these are reports on the organization and the administration of the public health services of various countries, and have been prepared by a public health official of the country concerned. They have been supplemented by the *International Health Year Book* which from 1924 onward will record the more important legislative and administrative advances made during the year.

The Health Committee has set up a number of technical commissions (sub-committees): these are advisory bodies, which with the help of scientific workers from various countries study various problems and submit proposals to the Health Committee.

Many of the studies and inquiries are made in consequence of requests made by the Governments of various countries for help in the solution of their health problems. The League have adopted a valuable suggestion, made by Italy, that inquiries should be made into the prevalence and methods used to prevent trachoma in various countries. Research will also be made into the subject of plague prevention, a suggestion received.

#### MALARIA COMMISSION

In certain areas of most European countries endemic malaria has always existed as a more or less common disease. From time to time at irregular intervals striking increases of prevalence have occurred, not only affecting the areas of existing endemic incidence, but also localities previously almost or quite free from malaria.

Even in England there have been epidemics, as for example in 1859. Russia is said to have had epidemics in 1894, 1899, 1903, and 1908. In Rumania an epidemic seems to have occurred in 1890. In pre-war Serbia a severe epidemic occurred after the Balkan War of 1912. In Greece the year 1905 stands out among somewhat frequent years of epidemic prevalence. During and after the Great War every country in Europe suffered from invasions of this kind, and it is particularly this wave of epidemic malaria that has attracted the attention, not only of the nations primarily concerned, but also of the League of Nations Health Organization, who appointed a Malaria Commission.

In 1924 certain of the members of the Commission made a study tour in Russia, the kingdom of the Serbs, Croats, and Slovenes, Greece, Rumania, Bulgaria, and Italy.

Except in Italy no statistics were available from which the extent of the disease and its mortality could be exactly ascertained. It was evident that the European epidemics were very much less severe than those in the tropics; no evidence of high fatality and universal severity during the epidemic period was forthcoming. In the tropics, the illness which arises during ordinary years, whether it is due to so-called 'benign' forms of the malaria parasite (*Plasmodium vivax* and *P. malariae*) or to the so-called malignant form (*P. falciparum*), is comparatively mild and is only rarely followed by a fatal issue; the illness contracted during epidemic years or conditions is always serious and is directly responsible for a large number of deaths among persons who have acquired a considerable degree of tolerance to the usual endemic affection.

In Russia epidemic malaria reached its maximum in 1923, when the deaths due to the disease were estimated at 60,000 (0.4 per 1,000 of the population), a figure hardly comparable with the average death-rate in badly infected districts in British India, where the disease usually causes a death-rate at least ten times that figure. In the Middle Volga district, the most malarial part of the country before the War, 400 cases of malaria for every 10,000 inhabitants were registered there yearly; in 1923, in the German Republic of the Volga approximately half the inhabitants were infected. This extraordinary spread of malaria in the Volga district, as indeed in the whole of Russia, was largely a result of the European War, aided by the civil war in Russia with all its consequences. The population was forced through fear of starvation to emigrate to Turkestan, Bokhara, and the Caucasus, whence the severe forms (subtertian parasite) were imported. In the Volga district the geographical features of the river are mainly responsible for the spread of the disease.

The meadows on each side of the river are inundated in spring-time, and on subsidence of the floods permanent pools

remain to serve as breeding grounds for the mosquitoes. In this district there are, as a rule, two rises of malaria incidence during the year; the spring increase commences in March, when the anophelines are not found; the autumn epidemic, commencing about August, is undoubtedly spread by the newly-hatched mosquitoes which then abound. The spring epidemic consists, as has been noted in Salonica, Palestine, and elsewhere, almost entirely of benign tertian malaria, probably relapses of a previous infection; in August and September the subtertian parasite predominates, and has accounted for 85 per cent of the cases. The quartan form appears to occur only at the cold season of the year.

The Commission found malaria to be prevalent in certain limited areas of all the countries visited; a high percentage of splenic enlargement was found among children in some localities in each country, but the effects of malaria on the general health of the children were not conspicuous. In normal seasons the mortality, and even the morbidity, caused by the disease was not so great as to be obvious without careful local inquiry, including examination for splenic enlargement. As regards the relative value of the different methods of determining the prevalence, the Commission considered that they could be ranged in the following order of importance: examination of the spleen of all school children and if possible of pre-school infants; spring and autumn blood examination of all school children as well as diagnosis of infected children as they fall ill; examination of groups of workers in factories (especially in Russia), industries, farms and villages, the spleen as well as the blood being examined; exact diagnosis of sick patients and detection of infected carriers; after this would come the more detailed investigations with concurrent entomological inquiries by a specially trained personnel who can move from point to point and develop a comprehensive general survey of the anophelism of the country. Colonel James thought that the studies of the effects of endemic malaria in various countries should perhaps begin with

comparisons of the yearly and monthly birth- and death-rates in highly endemic areas with those in healthy areas.

In the recent European epidemic important factors were the importation of new cases and carriers into areas where malaria was already endemic; the importation and aggregation of susceptible people, particularly in connexion with the settlement of refugees and colonists in the endemic areas; the importation of new strains of the parasite and especially of the malignant tertian played a large part. After the War large masses of soldiers returned from distant countries where they had been exposed to the freest infection. From Serbian and Greek Macedonia which have long been endemic centres of malignant (tropical) malaria, *P. falciparum* has been scattered not only throughout the Balkans but far beyond.

Local medical officers almost everywhere had observed a great importation and subsequent spread of malignant tertian parasites (*P. falciparum*), one result in some localities being to produce a change in the seasonal incidence and character of the local affection. When conditions became more stable and when the present movement of population ceases, this form of parasite probably will be the first to disappear.

Very much the same phenomenon occurs regularly in Italy where over half a million agricultural labourers come down to the rich agricultural plains in the summer; the peasants of the Pontine marshes leave for the high hills at this time of year. Certain of these migrants carry away to their own domestic circle a strain of infection alien to that of their own district. This mass movement of population has however been going on so long that any increase of malaria so produced is not readily detected.

When visiting Spain the Malaria Commission convinced itself of the importance of the seasonal migration of agricultural labourers in the propagation of malaria in certain districts of Spain.

Various social and economic circumstances tended to delay recovery and to favour relapses and a state of continuous malaria infection; of especial importance in some countries was a great lack of quinine. Undoubtedly, if

the countries concerned had had a properly organized medical or sanitary service much could have been done to eliminate nearly all these factors. The examination, treatment and subsequent supervision of all new arrivals is a plan of campaign which offers much prospect of success.

Endemic malaria in Europe is practically always contracted in the dwellings of the people; its spread is very largely from member to member of the same family or group of people who occupy the same dwelling. The only place in this country where native malaria exists is the Medway estuary; then it has been found to be focused in a particular street or a particular house where the mosquitoes make themselves at home.

Most of the European infection is due to the benign tertian form of the parasite; quartan infections were but rarely seen except in Dalmatia, where they appeared to form about 10 per cent of all cases, slightly in Serbian Macedonia and to a varying extent in certain districts of Russia. The prevailing vector was found by the Commission to be *Anopheles maculipennis*, no other domestic species being caught by them except a small percentage of *A. elutus* in Southern Dalmatia. Other species, e.g. *A. sinensis* and *pseudopictus*, occur and play a certain part, but for practical purposes only one species of anopheles mosquito (*maculipennis*) has to be considered in Europe; malaria continues in endemic form because a very few sluggish 'domesticated' female individuals of this species which have entered particular houses remain in them long enough to become infected and in their turn to infect all the occupants.

*Anopheles maculipennis* spends nearly the whole of its life in a particular dwelling in which it is sheltered from wind, rain and sun and has easy access to its food—human blood. After biting an infected person it certainly remains long enough in the dwelling to reinfect several times every occupant of the house. Daylight and well-ventilated rooms are not attractive to mosquitoes; sleeping-rooms which



are frequently kept clean and free from cobwebs and frequently whitewashed do not harbour mosquitoes to anything like the same extent as dirty and ill-kept rooms.

In the villages visited many of the dwellings afford ideal conditions for mosquitoes who are given the freest access and the greatest facilities for feeding and resting with the least probability of disturbance. The majority of these small houses are kept well warmed by their human and animal inhabitants; they are ill-ventilated, insufficiently lit and without ceilings, the rafters are used for storage purposes and provide many corners to serve as resting-places for innumerable anophelines. Separation of the sleeping-rooms from the remainder of the house is very desirable, as is the provision of mechanical protection (wire gauze windows, double doors) possible only in suitably constructed houses. Stables and other buildings for animals act as traps, the mosquitoes evidently prefer a cattle shed or a stable even when empty to a well-constructed house even when it is inhabited.

Much is to be learnt from a study of the anti-malarial work in Italy, where the geographical and climatological conditions favour very greatly the existence and spread of the disease. Near the sea coast (e.g. near Rome) are to be found low-lying marshy zones where the mountain torrents from the Alps and the backbone range of the Apennines slow up and deposit their alluvial silt; sand dunes bank up wide-reaching lagoons along the coast. Crater ponds also play their part. Man by ruthlessly cutting down forests has reduced the absorption from the soil of water which now collects in natural hollows. Invasions following one after another in the course of centuries have brought about the neglect of a former intensive agriculture and helped to produce vast abandoned and water-logged areas which are among the most notorious malarial zones. About 40 per cent of the people of Italy live in areas which have officially been declared 'infected'. The extent of the infected areas,

i.e. those with a notable endemic incidence, comprises 30 per cent of the total area of the country. But the deaths per million from malaria have fallen more or less steadily from over 700 in 1887 to some 60 in 1914; during the War the numbers increased till 1918, since then the deaths have dropped steadily to the pre-War rate. The enormous reduction in the number of patients admitted to hospital each summer for malaria since 1911 is evidence of the decrease in extent of the disease, although the more strict enforcement of compulsory notification shows an apparent increase in the extent of the disease.

The increase of the Italian population has required an increase of the limited area available for cultivation; the marshy land must be redeemed; vast sums in consequence have been spent on its reclamation. The health of the people living in the vicinity has been improved; the amount of malaria and the death-rate, both general and malarial, have been lessened. Even a cursory examination of the open drainage channels frequently shows the presence of larvae, and it is doubtful whether the area of breeding surface is reduced appreciably; the improvement in health, however, is largely brought about by the larger wages earned, rendered possible by the cultivation of the rich new ground; extra money spent on better housing and feeding increases the bodily resistance of the inhabitants. The opinion held after seeing these Italian engineering schemes was that they cannot of themselves be expected to effect any immediate or absolutely certain change in the malaria situation except in a few limited areas, although they produce conditions which considerably increase the prospects of success of an intensified public health effort.

After a subsequent visit to Palestine and Syria the Commission were very much impressed by the effectiveness of a well-conducted campaign of drainage. In the urban districts the habitat of the mosquitoes was confined to cisterns and wells which were fairly easy to locate and then to seal up or cover with petroleum; the

anti-anopheles work was not so easy in the country where there were marshes to be drained.

The prevention of malaria is intimately bound up with therapy; the Commission called attention to the extreme difficulty of waging a long and costly anti-anopheles war; practically everywhere the Commission found that the treatment of patients by quinine was the basis of the anti-malarial work. On account of the lack of quinine supplies necessary to treat all infected individuals thoroughly and radically in many of the areas visited the treatment was to a large extent only palliative and only patients who presented themselves were treated. The ideal is to search out all the infected persons in the community and to give them thorough courses of treatment: this must be done not only during the malaria season, but also during winter and spring. In the different countries visited this ideal is only attained to a varying and often limited extent, partly by reason of the different directive schemes of the national organizations and partly for economic reasons. For routine use the Commission recommended quinine treatment by mouth under proper observation and control. Notices giving information on the standard treatment of the usual case of malaria should be displayed in the dispensaries and malaria stations; they should tell the public the quantity of quinine which has to be administered and the need for keeping on the treatment long enough, also the advantages of small doses taken at frequent intervals during the twenty-four hours. As soon as possible, i.e. when more malaria posts or ambulances and medical officers become available, the practice of giving out large quantities of quinine to be taken later, should be done away with; this system has marked disadvantages of lack of control, dependence on subordinate personnel, uncertainty as to the fact or regularity of consumption, and tends to facilitate the abstention of patients from further attendance until their next relapse.

The subordinate and lay personnel should be given some

general indications to enable them to recognize when a case is unusual by the way it reacts to treatment. Adjuvant treatment especially for cachexia, such as the use of iron and arsenic, might with advantage be more widely provided. 'It is gratifying to record the general appreciation of the importance of controlling quinine issues by microscopic examinations, blood films being generally taken at the first visit of the new patients and frequently, also, as a check on the treatment again after some weeks.'

The thorough treatment and 'after treatment' of cases and carriers discovered by house-to-house inspection is essential; whenever practicable, persons with parasites in their blood should be provided with mosquito nets and taught when and how to use them. The issue of quinine for prophylactic purposes does not seem advisable. Prophylaxis can only be assured where the drug is really taken regularly, consistently and in adequate amounts, a state of affairs only possible among bodies of individuals under discipline who can be kept under rigid control and who arrive in a healthy condition in an endemic area where they must be kept healthy and fit for definite pieces of work; even this is only possible for a limited period.

To diminish endemic malaria in Europe the most practicable and efficient measure that could be taken at once and continued permanently is the daily catching and killing of all anopheles mosquitoes present in the interior of every house. Swatting of adult mosquitoes in the corners is a simple and quite effective procedure readily carried out by children; it is of course more applicable in the better-built houses where hard walls and a sufficiency of light permit of the tracking down of the mosquitoes. This is really a campaign against infected mosquitoes instead of against all adult anopheles mosquitoes; they must be attacked in the rooms in which people sleep if one wishes to kill the infected mosquitoes.

Lt.-Col. S. P. James says: 'In these simple ways more good

will be done than by the most extensive measures against larvae and adult insects in the environment. Unfortunately, it is necessary to overcome the well-recognized difficulty that medical officers and sanitarians who have become interested in the elimination of breeding places and in engineering problems of drainage are usually loth to discard these measures.'

An adequate dietary is evidently important in maintaining resistance of the inhabitants, and especially of the infants and school children. Malaria is now coming to be recognized as a social disease and like tuberculosis can be appreciably reduced in extent by improvement of housing conditions and feeding.

The rank which malaria takes as a cause of mortality and sickness should be ascertained and from this the proportion of the funds available for combating infectious disease that can be properly devoted to special anti-malarial work calculated; this is done in England and Holland.

To supply the lack of trained medical men the Health Committee of the League of Nations provided theoretical courses of study in malariology at institutions in London, Paris and Hamburg in 1926; the participants went on to study in two malarial regions (Corsica, Sardinia, Italy, the Kingdom of the Serbs, Croats and Slovenes and Spain) under the direction of a competent malariologist, the daily work of an anti-malaria station including the application of measures for the control of larva and drainage works.

Researches as to the value of methods of treating the soil such as the Italian 'bonifactions' and the Dutch system of canals are also being arranged.

### THE QUININE PROBLEM

Unfortunately, the world's supply of quinine falls far short of its requirements; the high cost of production of quinine is an obstacle to its use; many countries have been unable to buy the stocks of quinine necessary for the intensive treatment of their large number of malarial patients. An

increase in the cultivation of cinchona must be arranged; in the meantime investigations are being made by the Malaria Commission as to the therapeutic value of such secondary alkaloids as cinchonine (half the price of quinine), present in cinchona bark, which have hitherto been regarded as useless by-products; the effect of the quinetum and the hydrochlorate of cinchonine on malarial patients are being tried. It will be interesting to see whether the new German synthetic product plasmochin (plasmoquin) will in any measure fill the gap.<sup>1</sup>

#### COMMISSION OF EXPERTS ON SLEEPING SICKNESS AND TUBERCULOSIS IN EQUATORIAL AFRICA

Although remarkable progress has been made in tropical medicine during the last thirty years, much remains to be done especially on behalf of the native population. In Africa tuberculosis, a disease which was formerly almost unknown, is at present increasing to an alarming extent; this spread is due to contact with the white races. Sleeping sickness, which in the last century was very localized, has spread owing to the constant increase in communications. It now occurs over a vast area of Equatorial Africa, causing a high mortality and a considerable diminution in the birth-rate. Labour has become scarce and this is having an effect on the economic development of the country. Although sustained efforts are being made by various Governments, the size of the infected areas is immense and the medical personnel very limited; consequently the different groups of workers are widely separated.

Our knowledge of sleeping sickness is very limited: we do not know, for instance, if animals as well as man harbour the parasite.

Apart from the African trypanosomiasis, there is an American

<sup>1</sup> See *British Medical Journal*, 12 March 1927, pp. 466 and 484. Dr. Manson-Bahr considers this substance as the starting point of a number of new substances for the treatment of malaria.

trypanosomiasis caused by a parasite which is biologically quite distinct. The epidemiology of the two diseases presents certain points of contrast and certain points of resemblance; the comparative study of these two parallel diseases may throw some light on the problem as a whole and may make it possible in the near future to reach a wholly satisfactory solution, both from a prophylactic and a therapeutic point of view.

The Health Committee of the League of Nations recommended that the Governments of the infected countries should afford facilities for conferences between administrators and medical officers on both sides of the frontier in charge of the campaign against sleeping sickness and that there should be co-operation in order to ascertain what zones are affected, the prevalence of the tsetse fly and the migrations and movements of the population—all factors favourable to the communication of the disease. They pointed out the need of a medical service proportionate to the number of the population and the extent of the districts to be inspected, and considered that a conference of the representatives of the various Governments concerned should take place.

At this Conference held in London in 1925, recommendations were made as to the establishment of relations between medical officers and administrative staffs stationed on both sides of frontiers, the introduction of a sanitary passport for natives desiring to cross from one country to another and the desirability of a uniform method of recording cases of sleeping sickness. The way was paved for the formation of an international commission to study in Equatorial Africa (actually at Entebbe in Uganda) such problems as to whether any persons are immune from trypanosomiasis, the comparative value for prevention and treatment of the various drugs used for killing the parasite and the part played by wild and domestic animals as breeding grounds of the parasite. Funds were provided by the various governments represented.

In 1926 the study of human immunity to trypanosomes was undertaken by epidemiological investigation of a most extended nature in infected territories. This study has been entrusted to

Dr. Van Hoof (the Belgian member) and Dr. Kleine (the German member), the first working in Bydama and Musoma, the second in Kavirondo and Sevaliki. These epidemiological inquiries include a search for other than human hosts of the virus. Strains of trypanosomes sent in from the field are subjected to careful morphological study in the laboratory of Entebbe. The inquiry in regard to the precipitation test has met with some difficulties but is still being pursued. The laboratory studies, including careful morphological studies of human trypanosomes with especial reference to resistant and transmissible forms of the parasite; and attempts to infect baboons after reducing their resistance by chemical and biological agents, have been entrusted to Dr. Lavier (the French member of the Commission); Dr. Prates (the Portuguese member) is engaged in preparing precipitation sera in connexion with the testing of the blood in the alimentary canal of the tsetse fly by the precipitation reaction, and Dr. Duke (the Chairman), with the assistance of Dr. Prates, is carrying on transmission experiments and studying human immunity; his work also includes a study of the effect of Bayer 205 on tsetse trypanosomes.'

A Commission of experts—Drs. Andrew Balfour, A. G. Bagshawe (England), G. Martin (France) and E. van Campenhout (Belgium)—was appointed; they have published information in reports of priceless convenience.

In view of their importance a summary of the reports of the Commission of experts is given. Reviewing the extent of tuberculosis they found that the disease seems to have become commoner since the European occupation and has increased considerably since the repatriation of native troops who served in Europe during the war—these evidences of increase being most apparent in Senegal, the oldest of the French possessions in Africa. In Senegal, too, as also in Dahomey, tuberculosis is known to exist among indigenous cattle. The influences at work in the propagation of infection among the native African communities are considered to be the same as in Europe, namely overcrowding, bad housing and certain predisposing industries.

In the Belgian Congo tuberculosis is believed to have been non-existent at the beginning of the present century. In recent years,



however, so many cases have been reported that copious and stringent preventive legislation has been instituted. Its spread was insidious, diseases that had been treated as pneumonia and dysentery turning out to be acute pulmonary and intestinal tuberculosis. As is usual, the infection tends to run a rapidly fatal course in this virgin soil.

In the British Colonies there appears not to have been any systematic investigation of tuberculosis such as has been going on in French Africa—except in the case of the mandated territories formerly occupied by Germany, notably Tanganyika Territory, where the spread of the disease was attributed in the first instance to Indians. The annual reports of the British Colonies state that tuberculosis is established in every one, though it is said to be most common in Rhodesia and not much in evidence in Uganda; its inception is generally ascribed to European intercourse, but in Zanzibar to Indians. The disease is probably more widely spread than is realized, many cases being undetected during life; it is of a virulent type and undoubtedly extending, working havoc in susceptible material. In Nyasaland tuberculosis is being disseminated by natives repatriated from the South African mines, in Kenya possibly by European invalids coming to Nairobi in the mistaken belief that the climate is specially beneficial, and in Uganda by itinerant Bahima 'cowmen'. In the Anglo-Egyptian Sudan, the disease is held by Archibald to be of ancient origin, independent of Europe.

From the Portuguese possessions little direct information has been collected; but there is Portuguese medical testimony to the effect that tuberculosis is of frequent occurrence throughout Mozambique, particularly in Lourenco Marquez, and that it claims many victims in Angola, particularly in Loanda.

#### SLEEPING SICKNESS

In French Equatorial Africa, unlike French West Africa, where the disease is localized in well-defined areas, sleeping sickness is spreading like a plague, striking down all the members of a family as if it were 'a family disease favoured by cohabitation' and spread by other biting insects ancillary to the primally-necessary tsetse fly; it has wiped out whole villages; along the right bank of the lower Congo practically no traces of the aboriginal inhabitants

remain. The prophylactic measures instituted vary according to local circumstances. In French West Africa, where the infection is limited, discomfiture of the fly by clearing and partial deforestation has been efficacious along with the restriction and regulation of the movements of natives. In Equatorial Africa, where there are few areas completely immune from infection, sterilization of the blood of infected persons by trypanocide drugs is the principal aim. For this purpose the territory in question is divided into 'large prophylactic areas', each with its own travelling medical staff. In the course of systematic tours cases of sleeping sickness are detected and treated.<sup>1</sup>

The itinerant medical officers also search for the breeding places of the tsetse fly and suggest measures such as partial deforestation, removal of villages, isolation of cases, which may tend to arrest the spread of disease. The authorities have also established sanitary cordons, observation posts, and isolation camps together with other fixed stations where cases are methodically treated with atoxyl. There are in addition three central laboratories, for the study of trypanosomiasis and the training of doctors and of Europeans and native hospital assistants. Attention is paid to the improvement of the general conditions of native life, the encouragement of settled civilization, and the sanitary education of the native.

Dr. Van Campenhout reported that of all the endemic diseases in the Belgian Congo, sleeping sickness was the widest spread, and the most severe. All the principles of prophylaxis—isolation, restriction of intercourse, quarantine stations and treatment, partial deforestation, settled cultivation, transplantation of villages—have in the course of time and experience been tried, but the most feasible and efficacious method has proved to be the detection of infected persons and their sterilizing treatment with a trypanocide. This treatment is carried out either in quarantine stations and other fixed centres, or during visits to villages. Medical Officers are empowered to examine infected or suspected persons practically in any situation of life; infected persons must submit to treatment, irrespective of nationality or sex. Suspected persons may be detained for observation; patients in the late

<sup>1</sup> The standard treatment (for adults) consists in the injection of two doses of 1 gm. of atoxyl at an interval of 8 days, repeated when necessary.

stage of the disease are to be isolated in hospital or quarantine station.

The Report gives brief *résumés* of recent observations in those *British colonies* (Gambia, Sierra Leone, Gold Coast, Nigeria, S. Rhodesia, Kenya) where the infection is more or less quiescent and sporadic; some details of its distribution in Tanganyika Territory; much detail of its history in Uganda since 1912; and fairly copious detail of its discovery and progress in N. Rhodesia and in the southern confines of the Anglo-Egyptian Sudan.

As regards *Portuguese territories*, in Angola the infection is *Trypanosoma gambiense* and the carrier *Glossina palpalis*; among possible reservoirs of the disease the pacaca cattle (*Bos brachycercus*) are mentioned. The prophylactic measures employed are treatment in concentration camps, and in certain places, clearing. In Mozambique *T. rhodiense* is the infection and *G. morsitans* the carrier; but cases are few.

Closure and sanitary surveillance of roads from Rhodesia and Nyasaland constitute the chief precautionary measures.

In the report Da Costa's story of the clearing of the island of Principe from *Glossina palpalis* and the concurrent extinction of sleeping sickness is summarized. The island, which lies about 120 miles off the west coast of Africa in lat.  $1^{\circ} 4''$  N., has an area of about 48 square miles, much of its surface where uncultivated was covered with tropical jungle intersected with streams and swamps. Tsetse fly and sleeping sickness are supposed to have been introduced with cattle and slaves from the mainland, about 1825. In 1902 the population was over 4,000; in 1907 owing to the ravages of sleeping sickness it had fallen to 3,000, notwithstanding the continued importation of labourers. A methodical campaign of clearing, drainage, the extermination of wild pigs and dogs and the thinning of the local fauna of civets and monkeys, and of catching the tsetse-flies by means of perambulating negroes wearing a back-piece of dark-coloured bird-limed cloth, resulted in the course of a few years, in the extinction of the fly. At the same time the blood of the entire population was examined every three

months, and every infected individual was isolated and treated with atoxyl.<sup>1</sup>

As regards Spanish territories in the Gulf of Guinea, sleeping sickness is endemic in the island of Fernando Po, and on the mainland there are scattered foci in the numerous river basins. Modern methods of treatment are current, but as regards prevention, 'any form of prophylaxis is difficult to apply, owing to the ignorance and the obstinacy of the people'.

As regards other parts of Africa, there are some who think that sleeping sickness may exist in the lowlands of Abyssinia, but nothing certain is known.

#### SMALL-POX

A small-pox conference, arranged by the Health Committee of the League of Nations, met at The Hague in 1926, to examine outstanding questions in connexion with small-pox, alastrim and vaccinia. A series of conclusions was formulated on the methods to be adopted for continuing and intensifying the research work now going on. It was decided:

- (1) To pursue the study of alastrim as fully as possible, from a clinical as well as from an epidemiological point of view.
- (2) To carry out certain inquiries at vaccine institutes with a view to formulating conclusions as to the essential matters over which Government control should be uniformly exercised, and also to secure data for comparison of the different tests proposed for measuring the potency of vaccine lymph.
- (3) To give close attention to the affections of the central nervous system which have been reported to have followed vaccination in some countries. The nature of these cases, which are extremely rare in comparison with the large number of vaccinations performed, is not yet determined, and for this very reason inquiry is needed.

<sup>1</sup> In writing about this report I have used freely the abstracts published in the Bulletin of Tropical Diseases which cannot be improved upon.

## VISCERAL LEISHMANIASIS IN SPAIN

At the request of the Health Committee, Prof. Pittaluga made a preliminary inquiry into the incidence of infantile leishmaniasis in Spain. Since 1912 microbiological diagnosis has been carried out by means of puncture of the spleen; about 350 cases have been diagnosed in this way in localities near centres of specialized medical teaching and research. In areas with intense endemic malaria, for example the Ebro Delta, it has been ascertained that a certain proportion of the infantile deaths certified as due to anæmia, pseudoleukæmia, splenomegalic anæmia and 'atrepsie' should have been attributed to leishmaniasis.

The interest aroused has caused the medical practitioners to carefully distinguish by clinical examination kala-azar from chronic malaria. Cases occurred also among adults. The disease tends to spread from house to house. Dogs, although not the only possible depository of the virus, may be responsible, the disease possibly being transmitted by fleas: it may be found that phlebotomi, which feed on the smaller saurians, are responsible. Prof. Pittaluga thinks the disease is endemic and only a proportion of the serious cases are discovered.

Dr. Raynaud pointed out that cases of kala-azar (visceral leishmaniasis) and Oriental sore (cutaneous leishmaniasis) occurred in Algeria and North Africa, adults were affected as well as children; two foci had been discovered—at Marseilles and Nice. There were probably several thousand cases in the Mediterranean basin instead of the thousand which had been noted. The investigation is to be extended to the whole of the Mediterranean area.

## PERMANENT STANDARDIZATION COMMITTEE

In 1921 the Health Committee decided to begin the study of the standardization of the units employed in various countries for the determination of the strength (titration) of certain therapeutic sera; the work was planned out and entrusted to certain institutes and laboratories in various countries of Europe, in the United States and Japan.

In the treatment of infectious diseases by serums it is necessary to know, just as in the treatment of other diseases

by drugs, the exact strength of the serum used; to effect this the serum would have to be titrated and compared to a fixed standard, usually a standard serum preserved either in a liquid or dried form. Unfortunately, this is not generally done at present; there is no certainty that a quantity of anti-diphtheritic serum made by a French firm is of the same strength as a supposed equivalent quantity of such serum made in England. The advantage of such uniformity would be that the usefulness of a serum could be more extensively determined, doctors of different nations would be able to compare the results of their treatment and sera made in one country could be easily used in another. As there has hitherto been considerable variation in the standards adopted and the methods used to determine the strength of the sera, there has been ample scope for the activity of the Standardization Committee.

Anti-diphtheria serum was first dealt with. The international standard used up to 1914 was the antitoxic unit prepared by Ehrlich which had been preserved at Frankfort; this standard was adopted as the new international unit and its preservation entrusted to the Danish State Sero-therapeutic Institute. The Committee recommended that 10,000 anti-toxin units should be used as a therapeutic dose and 1,000 units as a preventive dose.

Subsequently in 1926 the international unit for anti-tetanus serum was defined as double the American unit; it will be kept at the Danish Institute.

Research on the standardization of anti-dysentery serum is proceeding, a desiccated serum is being used; inquiry is being made into the possibility of fixing a standard for anti-anthrax serum.

Inquiries into the methods of preparation of tuberculin used either for diagnosis of human or bovine tuberculosis showed that considerable lack of uniformity existed; research work, instituted at the Pasteur Institute under Professor Calmette, has led to the devising of a method for the titration

of tuberculin which may eventually be adopted as the standard method.

### BIOLOGICAL STANDARDIZATION

For the treatment of patients it is essential that the efficacy and toxicity of certain very powerful drugs which cannot be assayed by chemical means should be accurately determined by identical biological methods.

The strength of insulin used for diabetes, of digitalis—the most useful of heart tonics—of the arseno-benzols used for the treatment of syphilis must all be tested on animal tissues; up to the present the titration of such remedies has not been regulated, with the consequence that many of such preparations placed on sale are almost useless. Fortunately already a number of States to protect themselves nowadays require that certain preparations before importation shall have been titrated in the manner advocated by their official testing institutes. The Health Committee convened an International Conference in Edinburgh in 1923 which adopted resolutions on the standardization of adrenalin and *Filix mas*. Research work was arranged, and at the Second International Conference at Geneva in 1925 much progress was reported. Various resolutions were adopted as to international standards. For pituitrin it was decided that the dried extracted substances of the posterior lobe of the gland to be kept at Washington should be taken as the standard; one milligram of a dried preparation of insulin hydrochloride presumably to be kept at Toronto was to be regarded as containing eight units of insulin. Digitalis prepared by the method laid down by the previous Conference at Edinburgh and to be kept at Utrecht was to be the standard. Samples of the most important arsenic derivatives are to be kept at Frankfurt or Washington; before issue for treatment each batch of arseno-benzol must have been tested on normal animals for toxicity and on animals artificially infected with a strain of trypanosomes for therapeutic potency. In testing thyroid

gland extract a determination of the amount of iodine was decided to be sufficient; at Harvard there is to be kept a sample of healthy thyroid gland extract with an iodine content of 0.2 per cent. Ergot, oil of chenopodium, vitamin A and the other vitamins, parathyroid extract and ovarian extract are to be the subject of further research work. The Conference decided in favour of the international control of traffic in secret remedies and proprietary medicines.

An International Conference on the Unification of the Formulæ of Powerful Medicaments held at Brussels in 1925 supported these resolutions: they went further and decided that it was desirable to set up an international organization for the unification of pharmacopæias so that the prescriptions written by doctors of all nationalities could be identical. They also recommended that two international committees should be set up to study the standardization of methods for the chemical titration of powerful drugs and of the methods of preparing powerful officinal medicaments.

#### SEROLOGICAL TESTS FOR SYPHILIS

The International Conference at Paris in 1922 laid stress on the desirability of providing that serological examinations should be made free of charge and of entrusting serological tests for syphilis only to a properly qualified staff who should keep in close touch with the doctors carrying out the treatment. They advocated that a uniform system of writing down the results should be adopted so that these could be understood internationally.<sup>1</sup> Agreement as to the system to be recommended was arrived at in Copenhagen in 1923 where several serological experts had been assembled for a cognate purpose, viz. the search for a standard serological method for the diagnosis of syphilis; these experts tried the method they advocated on the same sera in order to find out the reason for any difference in their results.

<sup>1</sup> The usefulness of this is readily seen in connexion with the treatment of seamen.



It would be easier to obtain directly comparable results, if the extracts of organs, e.g. liver, used in the serological diagnosis of syphilis were made in exactly the same way; research is being directed towards this end.

### CANCER COMMISSION

In 1923, Sir George Buchanan proposed to the Health Committee that the investigations which had been begun in Great Britain to determine the causes of the considerable excess of deaths from cancer of the breast and of the uterus in Great Britain as compared with Holland and Italy should be carried out internationally. It was suggested that studies should be made both of demographical factors such as age, personal status, race and clinical factors such as fecundity, lactation and surgical treatment.

A special committee of statisticians satisfied themselves that the difference in mortality was real and not due to artificial statistical data. It was also established that it is among unmarried women that the death-rate from cancer of the breast is highest and the death-rate from cancer of the uterus is lowest, and that the incidence of cancer of the breast and of the uterus is in inverse proportion to the number of children born.

Inquiries were made on uniform lines in England, Holland and Italy as to the clinical antecedents of an equal number of women who were suffering from cancer of the breast and of women not so suffering, in order to discover the incidence of abortion in the two sets of women and the possible influence of heredity, lactation, the ages at menstruation and menopause and of trauma during parturition.

The investigation of the results is proceeding; it has already brought about the fact that in each of these three countries at least a third of the women suffering from cancer of the breast die without having undergone a radical operation. Surgical treatment is shown to have prolonged the lives of

patients by at least three years and sometimes under favourable conditions by as much as ten years.

Stimulated by the investigation in the United States, which seems to show that the predisposition to cancer is more pronounced in America among women of British than among those of Italian origin, the Cancer Commission have made arrangements for a study of the influence of race on the incidence of cancer mortality.

### TUBERCULOSIS COMMISSION

The Tuberculosis Commission was set up in 1925; to it was submitted a report by Dr. Y. Biraud on the decline of tuberculosis mortality in different countries. He found that a decline *had* taken place, but it had occurred at different rates and had not reached the same point; in the various countries considered the pulmonary form had declined faster than any other clinical form. The explanation of the decline lay, he thought, not in an alteration of the virulence of the tubercle bacillus but in the improvement of the standard of living especially as regards food and housing, the segregation of infectious patients in hospitals and sanatoria and the increase in the knowledge of preventive measures among patients and their families. The Commission are to make investigations in Denmark, Norway and Sweden; the inquiry is to cover a comparative study of the tuberculosis death-rate and the death-rate from all causes, the influence of food, the relationship between the amount of milk consumed and infantile mortality, the influence of industrial work and the part played by direct anti-tuberculosis measures. Other important factors to be studied are the part played by conditions of labour and conditions of life in agriculture and trade, also by works of general sanitary improvements in towns and, in particular, housing improvements and the relationship between alcoholism and tuberculosis. Simultaneously a general inquiry was arranged into the influence of the various factors

in tuberculosis mortality in France and more particularly in Paris.

A comparison of the mortality figures for England and Wales, Bavaria and Switzerland showed that the mortality from tuberculosis had of late years declined more rapidly than mortality from all causes, although the rate of decline was the same up to 1900.

The Commission are to co-operate with the South African Union Authorities in an inquiry into tuberculosis among the native tribes of South Africa with special reference to the incidence, prophylaxis and treatment of the disease among the natives employed in the South African mines.

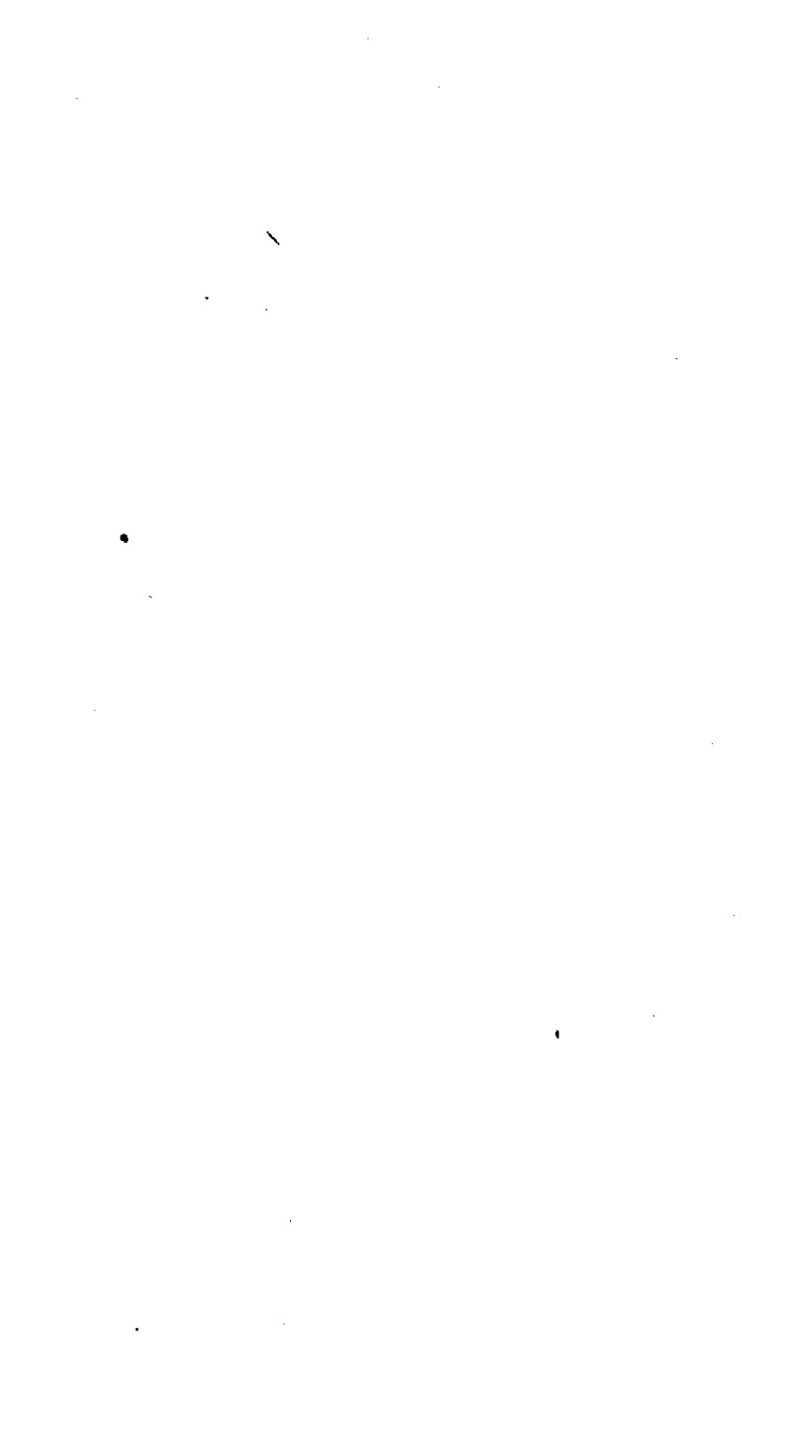
A Commission has also investigated *the training afforded in Public Health* to medical men in various countries.

#### INTERCHANGES OF PUBLIC HEALTH PERSONNEL

Some of the most useful work of the Health Organization of the League of Nations consists in the promotion of international co-operation in the field of public health by arranging a system of interchanges of public health personnel. In this way they have brought the administrative health authorities of different countries into closer touch with one another. The League were able to initiate the system of interchanges owing to the generosity of the International Health Board of the Rockefeller Foundation which granted a subvention to pay the expenses of the first study tours and has subsequently increased its contribution; increasing amounts have also been spent from the League's budget.

From 1921 onwards all kinds of interchanges have been made; parties of medical officers engaged in public health work in different countries have been shown the general public health activities of various countries; interchanges have been arranged for different parties of medical men especially concerned with malaria, tuberculosis and school hygiene. In 1925 interchange tours were conducted in Great

Britain, public health officers from Latin America visited North America and Europe, an interchange took place in Belgium, another in the Kingdom of the Serbs, Croats and Slovenes, and one in Japan restricted to health officers of Far Eastern Administrations. Interchanges of specialist health officers also were arranged; medical inspectors of labour visited Belgium, Great Britain, France, and Holland, medical statisticians met at Geneva, port health officers visited the chief Mediterranean ports and were able to learn the methods practised in ports having maritime connexion with their own. A new departure was made; a number of public health officers were afforded the opportunity of studying the health work in other countries by a system of single missions. In 1926 an experiment was made to combine the advantages of single and collective missions. An interchange of sanitary engineers was held in Great Britain; port medical officers visited the North Sea and Baltic area. Having taken part in the interchange to Austria, the writer can, from personal experience, vouch for the value of these interchanges, but he cannot improve on the words used by Sir Alexander Houston, M.D.: 'The world is richer by these visits—it is not only a question of an interchange of ideas, but a tightening of the bonds which we hope will make eventually for a universal brotherhood of all peoples and nations. As park may kindle a conflagration, but so also may a kind thought or deed spread to the uttermost ends of the earth.'



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