

## Public Health in India.\*

IT is unfortunate that the Public Health Commissioner's Report for a particular year does not usually appear until about 2 years later. The delay is due to the large mass of material which has to be collected from the provinces and digested in the Central Health Department. Progress in the field of public health in India is not, however, as yet very rapid, and the situation 2 years ago is not likely to be widely different from that existing to-day. It may be added that the present Report contains a good deal of information about developments which have occurred in 1936 and 1937.

In the introductory chapter, the Public Health Commissioner states guardedly that "the year under review was, if anything, less unhealthy than usual." There were 41,000 more births than in 1934 and 2,88,000 fewer deaths. Mortality from cholera and plague decreased, while small-pox showed some increase. But the number of deaths due to these major epidemic diseases is relatively small in comparison with the number which can be ascribed to other lethal agents. Malaria may cause one and a quarter million deaths—a fact to be viewed in conjunction with the estimate that annual consumption of quinine in India is about one-sixth of total requirements. Tuberculosis has particularly rapidly increased during the last three decades, in urban and industrial areas. There are now signs that the disease is spreading in rural areas, and the infection of non-immunised village populations may produce catastrophic results. Leprosy is not a major cause of death, but the million or so lepers in India represent a very serious public health problem; probably 350,000 of these are a public danger. About one million and a quarter infants died before they reached the age of one year, while approximately 15,000 women died in childbirth or from causes associated with childbirth.

Malaria, tuberculosis, leprosy, infant mortality and maternal mortality—all these are formidable public health problems in India. The Public Health Commissioner goes on to suggest that "in all four groups there exists a common predisposing aetiological factor which is of vital importance. . . . This predisposing factor is malnutrition.

"No preventive campaign against malaria, against tuberculosis or against leprosy, no maternity relief or child welfare activities are likely to achieve any great success unless those responsible recognise the vital importance of defective nutrition and from the very start give it their most serious attention. Abundant supplies of quinine and the multiplication of tuberculosis hospitals, sanatoria, leprosy colonies and Maternity and Child welfare Centres are no doubt desirable, if not essential, but none of these go to the root of the matter. The first essentials for the prevention of disease are a higher standard of health, a better physique and a greater power of resistance to infection. These can only be obtained if the food of the people is such as will give all the physiological and nutritional requirements of the human frame."

The population problem is considered, and it is pointed out that in no period in India for

which statistics are available has the natural increase in population been maintained at such a high level as in recent years. The birth-rate appears to be almost stationary, while the death-rate is unquestionably falling. When the next census is taken in 1941, the population of India will probably be in the neighbourhood of 400 millions. There is obviously a close association between population, food supply and the nutrition and health of the people.

The Report emphasises the defects of existing vital statistics. The following is given as an example: "In N.W.F.P. as many as 13,690 births or 18% of the total and 3,620 deaths or 8% of the total were discovered to be unregistered." A death-rate of 14 per *mille* is recorded under the vague heading of "Fever", and the uninformative title of "Other Causes" accounts for a death-rate as high as 6 per *mille*. No precise information exists about the real incidence of such diseases as pulmonary tuberculosis and enteric fever. Morbidity and mortality data in rural areas are particularly defective. In such circumstances preventive medicine is severely handicapped, since in any given area it must necessarily be based on the conditions present in that area.

There are many other matters dealt with in the Report which are worthy of study. A few of these may be briefly mentioned.

Medical officers of health must have secured positions if they are to deal effectively with abuses. If there is danger of dismissal as soon as their activities clash with vested interests on Municipal Councils, little can be accomplished. Suitable emoluments are necessary to induce young medical graduates to take up public health work.

The establishment of Health Units in rural areas is a promising departure.

One of the most crying and widespread needs in India is the provision of a safe supply of drinking water.

While some 800 infant welfare centres were in existence in 1935, the development of this branch of public health work is far from satisfactory. A considerable number of the centres are badly organised, their work is un-co-ordinated, their records are not properly kept, and the information which is collected is not made available for future planning.

Energetic measures have been taken to prevent the entry of yellow fever into India.

The Report deals with Medical Research, Medical Institutions and Voluntary Health Organisations, etc. A chapter is devoted to nutrition, in which stress is laid on the importance of making the results of research widely available. An interesting account is given of sanitary measures taken after the Quetta earthquake.

In general the Report, like its predecessors, paints a gloomy picture of the state of public health in India and demonstrates the glaring defects and deficiencies of existing public health organisation. In effect, however, it is not altogether pessimistic. Much is being done in various fields, and progress is taking place, if slowly. By degrees it may be realised in India that the wide-spread existence of preventable disease is a disgrace to the community which tolerates it.

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## International Locust Conference, Cairo, 1936.\*

THE report of the Proceedings of the Fourth International Locust Conference (or, Conference for Anti-Locust Researches, as termed in French), which assembled at Cairo from the 14th to the 22nd April 1936 at the invitation of the Egyptian Government has recently been published. It may be recalled that the First International Locust Conference was held at Rome in September 1931 under the auspices of the Italian Government, the Second, at Paris in July 1932 at the invitation of the French Government, and the Third, at London in September 1934 under the patronage of the Government of His Britannic Majesty. In regard to the first three conferences, invitations had been restricted to the countries of Africa and Western Asia, chiefly affected by the depredations of Locust swarms, but in the case of the present conference, invitations were extended to all the countries of the Old, as well as the New World interested in the control of injurious locusts and grasshoppers. Consequently, as many as 23 different countries, represented by 62 delegates and advisers responded to the invitation, as compared with 13 countries represented by 52 delegates and advisers in 1934. At Cairo, India was represented by Khan Bahadur M. Afzal Husain, M.A. (Cantab.), I.A.S., Punjab Government Entomologist, Lyallpur. The following countries took part in the Conference for the first time: Saudi Arabia, Iran, Iraq, Bulgaria, Greece, Rumania, Yugoslavia, Canada, U.S.A., Argentina, Chile, Mexico, Uruguay and Australia. Italy and Afghanistan were, however, unrepresented at the Cairo Meeting.

While only 23 papers and reports were considered at the Third Conference, as many as 51 reports and papers were discussed at the Cairo Meeting, and in view of the wider scope of the subject-matter submitted for deliberation, the problems concerning injurious locusts and grasshoppers were considered in a more comprehensive manner than during previous conferences. In addition to the general discussions which took place during the plenary sessions of the Conference, technical questions were referred to a special Technical Committee composed of members interested in particular subjects, while a special Drafting Committee was commissioned with the editing of the text of the resolutions in English and French for final passing by the Conference.

As many as 25 different resolutions touching on the various aspects of the problem of locust and grasshopper pests were passed by the Conference, which partly took the form of a summing up of the available information on the subject under consideration, and partly of offering suggestions for further investigation by such organisations and governments as were interested in particular problems.

The resolution that received attention, first, was one emphasizing the economic importance of the locust and grasshopper problem, and

suggesting a regular compilation of statistics in each country, in regard to the losses sustained annually from the attacks of locust or grasshopper pests, for forwardal to the International Centre for Locust Research at London.

In view of the fact that the phenomenon of phase transformation (*i.e.*, the change from the relatively harmless solitary phase into the gregarious one forming huge and destructive swarms) provides a reliable basis for framing a policy for the prevention of outbreaks, it was resolved that a study of the phases of locusts and grasshoppers was not merely a matter of academic interest, but one of immense practical importance, and a closer study of the phase problem from the ecological and bio-metrical points of view was recommended. An intensive study from all points of view, of the various factors controlling locust populations was also considered to be of much importance.

In regard to the subject of migrations, the resolutions passed at the Third International Conference were re-affirmed and emphasis was laid on the importance of a close study of the meteorological factors concerned therein. It was also suggested that attention should be paid to a study of the migrations of isolated locusts and grasshoppers of all phases, direct evidence being sought to be obtained, wherever possible, by marking individuals.

Studies of the ecology of the solitary phase of locusts and grasshoppers in their outbreak areas, and of the changes in the ecological conditions necessary to cause the transformation of phase for each species in its outbreak centres, were specially recommended. Emphasis was also laid on the great practical importance of studying the exact factors controlling the activity of locusts and grasshoppers pest, paying special attention to external factors, such as atmospheric temperature and humidity, radiation, and air-currents and at the same time to internal factors like the physiological state of the organism at the time being.

The Conference also recommended that particular attention should be paid, in all future investigations on locusts and grasshoppers, to the influence on their life and ecology of various forms of human activity, such as agriculture, deforestation, grass-burning, etc.

Adverting to the question of Locust Control, the Conference was of opinion that the most effective and economical method of direct control at present available was that of baits poisoned with sodium arsenite, but suggested the advisability of finding an equally effective, but less dangerous, insecticide, in view of the general risk of causing cattle poisoning. The Conference also emphasised the great practical importance of a system of conveying timely warnings direct to the countries concerned of the arrival of swarms in neighbouring territories.

With reference to the experimental trials made in 1934 of tackling flying swarms by a discharge of poison dust from aircraft, the results of investigations since made, on the mode of action of the poison dust on locusts, have shown that the aircraft method had really

\* *Proceedings of the Fourth International Locust Conference, Cairo, April 22, 1936.* Government Press, Bulaq, Cairo, 1937.