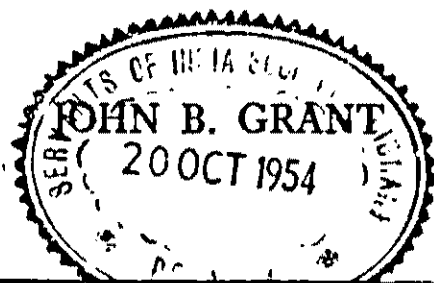


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THE HEALTH OF INDIA

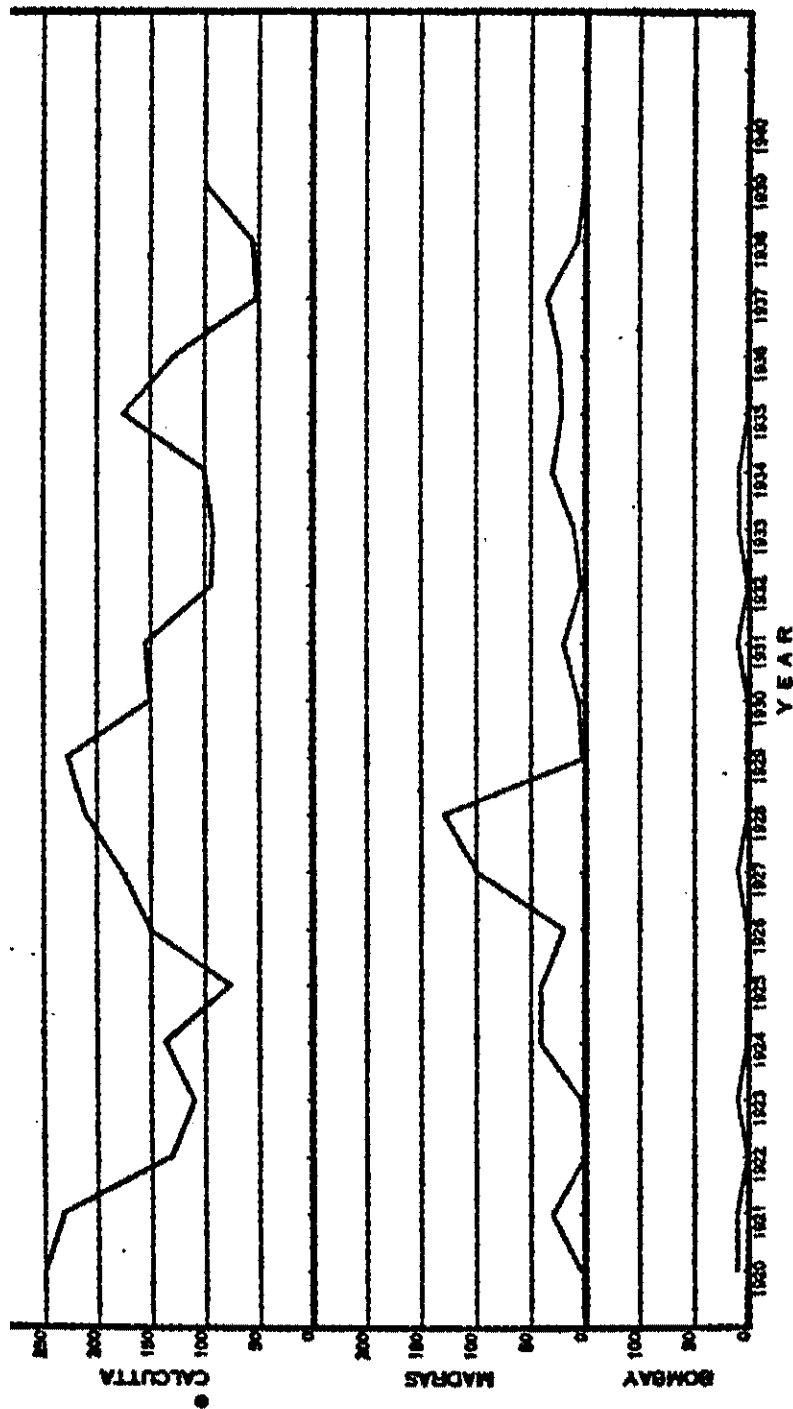


**OXFORD PAMPHLETS
ON INDIAN AFFAIRS**



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DEATHS PER LAKH FROM CHOLERA IN CALCUTTA*, MADRAS AND BOMBAY

Nearly all deaths from cholera are eliminated if safe water is made available. In other words, the cholera death rate varies inversely with the efficiency of the water-works in any area where the population uses only water derived from

OXFORD PAMPHLETS ON INDIAN AFFAIRS

No. 12.

THE HEALTH OF INDIA

BY

JOHN B. GRANT



HUMPHREY MILFORD
OXFORD UNIVERSITY PRESS

THE health of a community depends upon its standard of living, its education, and the organized public health services designed to prevent disease and ensure early treatment. In India the standard of living is low, health education almost entirely lacking, and the public health services very partially developed. It is therefore not surprising that the level of health is low, that preventible epidemic diseases are widespread, and that the expectation of life is stated to be 27 years. In this pamphlet the author indicates the underlying causes of India's lack of health and gives an outline of the present public health and medical organization of the country. Marked improvement can, he suggests, be made along four lines: (1) Consolidated Public Health Acts like the Madras Act of 1939; (2) scientific training and supervision of the social services; (3) better central and provincial planning; and (4) the training of an adequate number of doctors, nurses and health visitors.

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THE level of health in India is low. Preventible epidemic diseases such as smallpox, typhoid, dysenteries, cholera and malaria are widespread. Out of 6,165,234 deaths in 1939 malaria accounted for 1,411,614, smallpox for 48,103, cholera for 97,566 and dysenteries and diarrhoeas for 260,300. Tuberculosis is spreading and each year presents a more menacing problem. The resistance of the population to disease is low. Malnutrition and nutritional diseases are omnipresent. These in part account for the anæmia which is particularly widespread among women and children. The heavy incidence of disease is reflected in the high mortality figures:

COMPARATIVE VITAL STATISTICS FOR THE YEAR 1937

India and Selected Countries

	Death rate per 1,000 population	Birth rate per 1,000 population	Infant Mortality per 1,000 births
India	22.4	34.5	162
Australia	9.4	17.4	38
U.S.A.	11.2	17.0	54
England-Wales	12.4	14.9	58
Ceylon	21.7	37.8	158
Java	18.8	28.3	...
Japan	17.0	30.6	106

The low level of health is reflected in the expectation of life in British India which is stated to be 27 years, in contrast to an expectation of 67 years in Australia, of 63

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years in England-Wales, of 63 years in Germany and of 47 years in Japan.

In this pamphlet it is proposed to indicate the underlying causes of India's lack of health while giving an outline of the present public health and medical organization of the country.

The health of a community depends on three factors: (1) The higher the standard of living the better the health. Machinery to assure *living standards* adequate for the maintenance of health has to be provided. (2) The higher the standard of *education* the better the health. Teaching people how to keep healthy, how to prevent disease from attacking them and how to secure early diagnosis and treatment has to be an essential part of education. (3) An organized *public health service* to prevent disease and arrange for early diagnosis and early treatment.

Each factor is essential and each supplements the others: it is difficult to dissociate their results. In India the standard of living is low and there is no social or economic machinery with which to level it up. Education is limited and poor in quality. At present some 88 per cent of the population is illiterate. So far only the third essential has been provided in some measure, and this service is still incomplete and still only in the initial stage.

Any description of public health in India in 1943 has to be interpreted by comparison with the trends of health policy in other countries as this will indicate the relative level of India and the probable imminent developments. In advanced countries public health has now become social medicine, a field of social service directed towards the medical protection of the community and its individuals through organized collective effort. Five administrative channels have been differentiated to attain the goal of maintaining health, preventing disease and curing disease. The most essential of these five channels is the social machinery to assure a standard of individual living. In the same category of importance is the education of the individual in the principles of personal hygiene and of preventive medicine. The other three channels, constituting what is ordinarily termed 'public health', are: hygiene of environment; control of community

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disease; organization of medical and nursing service for the early diagnosis and preventive treatment of disease in the individual.

Adequate plans for public health service can be undertaken only with a knowledge of the realities of the economic situation. The results of any social service administration depend upon the money available and the way in which it is spent. Much ineffective administration results from violating this principle. It is obvious that there can be no results if a school medical service in India, with its annual *per capita* income of Rs. 65 (£5), is planned on the same administrative basis as in England—a country with an annual *per capita* income of £76 (1936) where the school medical service alone costs 7s. *per capita* of school population per annum. The economic problem must first be solved in India before there can be a significant school health programme. The solution lies in the development of a plan whereby the facilities purchased elsewhere at a cost of 7s. *per capita* can be obtained with the local economic resources. It can be done and has been done in other countries of relatively low economic standard. Limited funds do not make an adequate and good service impossible provided the people want the service and are prepared to contribute work in lieu of money, and provided there are people with the knowledge to plan such a service.

1. SOCIAL ASSURANCE AND WELFARE

Social assurance covers not only activities collectively undertaken to provide security through health insurance, unemployment insurance, workmen's compensation, old age pensions, but also through family allowances, housing, etc. These measures to maintain health and prevent disease constitute what may be termed pre-medical public health activities. Whether a country's medical policy is abreast of the modern trend which emphasizes *health* administration rather than *disease* administration is determined by the extent of such measures in that country. India's medical health policy, unfortunately, is still in the preliminary stage of being chiefly a disease policy. The latter is, of

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course, necessary and will continue to be, although becoming less necessary as it is recognized that disease is as much a result of social and economic maladjustments as of infections. The new 'traditional' public health medical administration is chiefly a growth of the past half-century from the epoch-making work of Pasteur and Koch. New developments in the next half-century will mainly be to provide social machinery to assure living standards adequate to maintain health and prevent disease through social and economic measures, although there also will be extensions of the existing types of service, especially in countries such as India where they are still very deficient.

India almost entirely lacks effective social or economic measures for the maintenance of health. Social welfare invariably originates through labour legislation. *Indian Labour Legislation* by R. K. Das (1938) gives fuller particulars of present social welfare measures. Also the Royal Commission on Labour (1931) made detailed recommendations important in the social field. Social insurance has been introduced only in the case of workmen's compensation and maternity benefit. Workmen's compensation was provided in the Factories Act 1922, followed by several amending acts culminating in that of 1934. Provision is included for permanent disablement and death, and the Act covers some six million workers. Maternity benefit has been enforced by six Provincial Governments, beginning with Bombay in 1929. The entire cost is borne by employers. In general the leave features with cash benefit are similar to those elsewhere throughout the world; namely one month before and one month after the birth of the child with benefit approximating 8 annas per day. Besides workmen's compensation and maternity benefits, other minor recommendations of the Commission relating to labourers employed in factories, mines, plantations and docks have been put into effect. These however do not go far, and definite improvement in the health of the labour population will have to await implementation of many of the major recommendations of the Royal Commission. There is yet no provision for unemployment or pension insurance. Health insurance is under active consideration. In brief, social insurance in India is in its

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infancy. One may anticipate rapid growth in the coming two decades.

The Royal Commission on Labour (1931) made important recommendations to improve the present housing conditions. These included town-planning acts to provide housing for the working class; the survey of industrial areas to determine and plan for housing needs including sanitation; minimum standards of housing, etc. Individual firms have effected marked improvement under the permissive legislation in the housing accommodation of their workers; but Governments, both Central and Provincial, have not as yet undertaken the solution of the problem in any significant manner, although small beginnings have been made in the larger metropolitan cities and in Delhi province. The Labour Commission also appreciated the importance of nutrition in improving the health of workers. As yet, however, little of significance has been effected in this field so essential for the maintenance of health and prevention of disease. Elsewhere reference is made to the initial steps taken by the Central Government, such as research at the Nutrition Research Laboratories, Coonoor, and the appointment of Nutrition Officers in the larger provinces through the stimulus of the Central Advisory Board of Health. Bengal has a sub-committee on nutrition under the sanitary board of the Government of Bengal. The Central Advisory Board of Health in their School Health Report (1941) recommend that all children should be given a midday meal, to be brought from their homes or provided at the school; and that the fundamental principles of nutrition should be made available in the different Indian languages and taught to both the children and their parents. A limited amount of free milk is provided in most of the maternity and child welfare centres. But these centres serve a very small proportion of the population, so small as to be insignificant. With a purchasing capacity of only about 2½ annas a day, the average Indian is only able to meet his energy requirements with cheap carbohydrate foods like rice and cannot afford sufficient protective foods. Deficiencies in diet such as animal protein, calcium and vitamins A and C are widespread. The result is poor physique, high

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maternal and infantile mortality rates and a low expectation of life. The importance of malnutrition is emphasized by the Director of the Nutrition Research Laboratories, Coonoor, who records that 'half the mortality recorded in India occurs in children under ten years. Malnutrition is one of the chief causes of the rapid exit of young human beings from the world so soon after their arrival in it'.

The relatively little space given to discussing social welfare measures for the maintenance of health in India merely reflects their absence and not their unimportance. Bernal in his *Social Functions of Science* writes:

'It is probable that an overwhelming majority of diseases that occur throughout the world are due directly or indirectly to the lack of primary necessities, generally food, and many of the remainder . . . to bad living conditions.'

In the past, states regarded these questions as responsibilities of the individual, but today progressive states recognize the need for providing such necessary services as one is unable to obtain as an individual. This is fundamental to modern organized life. Included in these is the right to food and everything necessary to maintain health. It is only when such a health policy is adopted that the important pre-medical causes of disease can be rooted out.

2. HEALTH EDUCATION

The aim of modern education in general is to equip the future citizen to take his place in society as efficiently and fully as possible. India almost entirely lacks public education of the kind summarized by Hughes (1939): '(i) To present definite knowledge essential to intelligent citizenship and to an understanding of current conditions and problems. (ii) To promote worthy civic ideals, attitudes, habits, skills which will operate helpfully in the lives of the pupils. (iii) To provide practice in constructive thinking, reason and critical judgement. (iv) To fit the pupil for effective participation in the activities of his community, state and nation, and of the world. (v) To help the pupil to develop sound economic

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ideas and to apply them in everyday life.' Health education discharges this responsibility specifically as it relates to the health of the citizen. He should on the completion of his secondary education have developed abilities and habits for maintaining health and preventing disease.

Measures to assure satisfactory housing, nutrition and security on the one hand, and on the other, public health measures for sanitation, communicable diseases control, maternity and child welfare, school and industrial health, etc., are robbed of much of their effectiveness unless the individual is educated to avail himself intelligently and consciously of the health benefits deriving from such measures. But health instruction in primary and secondary education cannot develop beyond the general level of education, which in India is very limited, as reflected in the illiteracy rate of 88 per cent. That even this limited education is of poor standard is shown by the following report of the Special Officer for Secondary Education, Bengal, in 1939: 'Because of the poor primary school education not more than 5,000 of the Government's 64,000 primary schools in Bengal are contributing to the removal of illiteracy.' This situation seems to prevail generally throughout India, as was noted in the Simon Report: 'We are inevitably driven to the conclusion that the efforts of the past few years have resulted in much less real advance towards the attainment of the goal of a literate population in British India than gross total of numbers under instruction might suggest, and that, if these efforts are continued on the same lines, they afford little promise for the future. While the ignorance and indifference in matters of education which still, though to a diminishing degree, envelop the ordinary Indian household constitute the main obstacle to real progress, we cannot resist the conclusion that the failure, even in existing circumstances, to achieve more substantial results is due mainly to ineffective control, direction and administration. Until these are improved, figures of quantitative expansion will be wholly illusory as an index of increasing literacy, and much of the present expenditure of money, enthusiasm and effort will be futile.' General education being what it is one can hardly expect health education in India to be regarded as of

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any significance, and until this defect is corrected India's health will not improve. The recommendations of the Board of Education, London, during the past ten years bring home the realization that health instruction is healthy living, rather than a subject to be taught, and that instruction is ineffective where theory is separated from practice. Modern health education forms an integral part of physical training, house-craft, geography, history, and—particularly—the natural sciences in their biological aspect especially. As such methods of teaching are absent in India, health education on modern lines cannot be given.

The urgent need for adequate health instruction in India cannot be over-emphasized. Fortunately the Joint Committee appointed by the Central Advisory Boards of Health and of Education appreciates the situation and its urgency, as is evidenced by its 1941 report in which the teaching of hygiene in schools, training schools and colleges is emphasized. Among other things in substantiation of the foregoing remarks, the report states:

'In regard to the teaching of hygiene to children the instruction now given in primary schools in several provinces is inappropriate to the age of the child. The training of the child in health habits does not begin sufficiently early and the approach to the subject is through disease rather than through a study of the requirements for health. The Committee consider that instruction in hygiene should begin at the earliest age possible. At the beginning the instruction should be wholly on practical lines and devoted mainly to personal hygiene, while at a later age the child's interest can be directed to environmental hygiene and the health of the community. The Committee wish to emphasize that unless greater attention is given by the responsible authorities to the planning of school buildings and to the provision of equipment which will make the practice of healthy habits possible, progress will be difficult. It is futile to try to awaken in the child an interest in and a sense of responsibility for his own health and for the sanitary condition of his surroundings so long as the schools themselves fall short of reasonable hygienic

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standards. As the teacher should be the model for the child to follow in personal standards, the school should be the model for the home in regard to environmental cleanliness.'

India requires the development of health education in a modern educational system before its health can reach any satisfactory level.

3. PUBLIC HEALTH

Factual statements and figures are uninteresting but necessary to understand the status of health in India. To be able to do this it is also necessary to outline the history and structure of various aspects of medical activities.

History

The recruitment of ship's surgeons by the East India Company led to the establishment of civil and military services by the Company in the middle of the eighteenth century, and in turn to the training of assistants to serve as dressers, etc. These services were originally designed to protect the health of the Army and of the Europeans. The report in 1859 of the Royal Commission on the sanitary state of the Army pointed out that to maintain the health of the Army it was necessary to establish in each Presidency a 'Commission of Public Health' to supervise the sanitary conditions of the general population, to improve the sanitary conditions of Indian cities, to prevent epidemics, to construct drainage and water supplies, etc. These Commissions were appointed in 1864 in the three Presidencies to improve the health primarily of the military and secondarily of the general population. In 1869 a Sanitary Commissioner and Statistical Officer were appointed with the Government of India. Sanitary Commissioners were appointed in the same year for the three Presidency provinces as well as the North-Western Provinces, Oudh, the Punjab, the Central Provinces and Burma, whose duties were purely advisory. Local self-government, constituting various local

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bodies, came into effect in 1885; and in 1888 the Government of India laid down that the promotion of sanitation should be regarded as one of the most important duties of local bodies. The plague epidemic of 1896, and the report in 1904 of the Plague Commission, resulted in the revival of the office of the Sanitary Commissioner with the Government of India, an office which since 1888 had been merged in that of the Director-General, Indian Medical Service. In 1912 the Government of India authorized local governments to select their own sanitary commissioners, throwing open the higher posts to qualified Indians, and sanctioned the appointment of eight additional deputy sanitary commissioners for the provinces as well as of health officers graded according to qualification.

The Government of India Act 1919 transferred the responsibility for local medical and public health administration to the Provincial Governments; and this transfer was confirmed by the Government of India Act 1935. The Reforms' effect on public health administration was twofold. Ministers responsible to the legislatures were anxious to help the growth of education, medical relief and sanitation as much as the funds permitted. The organization of fully trained sanitary staff for both rural and municipal areas, which the Public Health Commissions recommended in the sixties of the last century (when their recommendations were pigeon-holed), was now taken up in earnest; and in the years succeeding the introduction of the Reforms, public health officers were recruited in all the provinces. Although there has been quantitative expansion of public health activity in the provinces since 1921, the quality of work suffers from the weak control of the local Governments over the local bodies. The Simon Commission (1930) states:

'The result of the legislative and administrative action taken in accordance with the scheme of the Reforms was, in effect, to deprive the new Ministers of Local Self-Government of powers which were essential if they were to perform their tasks successfully. . . . We have heard the criticism that the only effective powers possessed by provincial Governments, namely those of suspension and dissolution, have left the Ministers powerless in the face of misconduct calling for less

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drastic treatment, and we think that this criticism is well founded.'

As the Report pointed out, prior to the 1919 Reforms local self-government in India was of the Continental, highly centralized type. The Act of 1919 decentralized local self-government before experienced traditions and public opinion had had time to develop, with the result predicted in Lord Ripon's Resolution of 1882: 'But at starting [local self-government] there will doubtless be many failures, calculated to discourage exaggerated hopes, and even in some cases to cast apparent discredit upon the practice of self-government itself.' Eventually there will be substantial progress, as the same Resolution pointed out, for 'as education advances, there is rapidly growing up all over the country an intelligent class of public-spirited men'. However, this 'education' has not so far advanced sufficiently to hold out promise of immediate efficient local government in the social welfare fields. In the interim it was unwise so completely to relinquish the Provincial Governments' control over local bodies to the extent seen particularly in Bengal; and it might be wise for Governments to centralize the welfare services for a given period.

Central Government Organization

Although a major part of the medical services has been transferred to Provincial Governments, the Central Government is still responsible for certain research and technical training institutions, the census, emigration and immigration, port quarantine and the constitution and powers of port authorities, air-port quarantine, the regulation and conditions of labour and safety in mines and oil-fields.

The Provincial Governments are responsible for health conditions in prisons, local government in relation to health including sanitation, hospitalization, registration of births and deaths, pilgrimages within India, water-supplies, and the control of foods and drugs.

A concurrent list of medical and public health matters is the joint responsibility of Central and Provincial legislatures. Part I of this list includes marriage; care of infants, minors

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and the mentally deficient; poisons and dangerous drugs. The executive authority for these matters lies with the province. Part II includes factory health, labour welfare, and control of epidemics which may extend from one province to another. Central legislation on the subjects in Part II may authorize the giving of directions to a province by the Central Government as to the carrying into execution of such legislation.

The Central medical and public health administration of the civil population in British India comes under the Department of Education, Health and Lands; that of the Indian States under the Political Department; and that of jails under provinces. The technical head on all medical questions is the Director-General, Indian Medical Service, under whom comes the Public Health Commissioner together with other assistants. The Public Health Commissioner deals directly with the Government of India with respect to quarantine and sea- and air-port administration, international health, advice on all public health matters, the Central Advisory Board of Health, and the collection, compilation and dissemination of statistics. For certain institutions, e.g. the Malaria Institute, the All-India Institute of Hygiene and Public Health, and the Medical Research Department, he acts as Staff Officer to the Director-General.

The Central Advisory Board of Health constituted in 1937 has great potentialities for planning, so essential to effective health protection. Although restricted to an advisory capacity, it has stimulated the development of specific provincial organs for dealing with nutrition, malaria and school health. The Board is representative not only of the provinces, but also of the Indian States. The Public Health Commissioner is the Secretary of the Board. It provides the nucleus from which will evolve the federal administration that will eventually prove essential.

Provincial Organization

Three stages of evolution may be noted: the period with personnel only advisory and limited to the Provincial Government itself; the addition of deputy sanitary com-

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missioners, later called Assistant Directors of Public Health to supervise administrative ranges; the appearance of health officers appointed to districts. The objective throughout this period was largely control of epidemics, particularly cholera, smallpox and plague. A fourth stage is now emerging with the addition to the centralized (horizontal) administration of specific vertical functional organizations, particularly for malaria, maternity and child welfare, nutrition, and—very shortly—for school health. The stage of evolution varies in the individual provinces but is along the same lines. The provincial public health departments are mainly concerned with rural public health. The organization and administration is autonomous in such provincial capitals as have Self-Government Acts of their own, e.g. Calcutta, Madras, Bombay and Karachi. All other municipalities in these provinces come within the scope of the provincial municipal acts, e.g. the Bengal Municipal Act. But even the autonomous cities like Calcutta and Bombay are subject to the control of the respective Provincial Governments.

Rural Health Administration

The Bengal organization is comparable to that of other provinces. The present average peripheral unit is a health circle around 80,000 of population and 80 square miles. This unit has come into existence only during the past decade and a half. Its establishment was also primarily for the purpose of controlling epidemics, especially smallpox and cholera, and for prevention of adulteration of food. The staff consists generally of a sanitary inspector, assisted by one health assistant, one or more vaccinators and a medicine carrier. The sanitary inspectors are appointed by the Government, the rest by the district board and supervised by the district health officer. The whole cost (Rs. 12 lakhs in Bengal) is borne by the Government on condition that the district board should not reduce their expenditure on public health. In some provinces there is a gradual emergence of sub-divisional health officers, in between the health circle and the district, supervising five to eight

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peripheral units. Thus, Bengal with a population of 60 millions has today a total cadre for the type of organization described of 29 district health officers, 681 sanitary inspectors, 2,843 vaccinators, and 575 health assistants, supervised by four Assistant Directors of Public Health.

There are altogether 6,500 curative dispensaries and hospitals in India, which can treat annually only a total of 35 million new and old patients. The bulk of medical relief for India's 400 millions, of whom more than 80 per cent live in villages, is still provided through the indigenous pre-scientific systems of medicine and their practitioners. It cannot be otherwise with the relatively small provision of modern services. The purpose of this pamphlet is not to discuss either the indigenous systems of medicine or the *dai* midwifery service which have come down through the centuries. As modern social services come into being, with personnel trained for their discharge, the old systems will disappear even as they did in Japan in the past half-century.

Parallel with, but separate from, the foregoing health organization and administration is the organization for medical relief in the department of the Surgeons-General for the Presidency provinces and Inspectors-General of Civil Hospitals for other provinces. Each district is provided with at least one hospital under a civil surgeon, with or without hospitals at sub-divisional headquarters under assistant surgeons. Bengal has 217 hospitals with 6,189 beds, in addition to 1,214 dispensaries which are staffed by 460 medical officers and 1,819 sub-assistant surgeons. The hospitals and dispensaries are in general supported by the district boards or union boards. Generally in the first instance the hospital or building in question is the gift of some citizen.

The district public health and medical expenditure is usually subsidized by the Government and local bodies to approximately 60 per cent. Theoretically the Government grant-in-aid carries the right to nominate and to remove health and medical officers. In reality this power rests with the district board.

The foregoing outlines the basic organization. Before proceeding further it is necessary to examine the achievements of this basic organization, particularly in the field of

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public health. These cannot be considered good in comparison with results in other Asiatic countries if continued heavy smallpox and cholera are the criteria. It must be recalled that at the turn of the century the death rates over ten-year periods in Asiatic countries from smallpox and cholera were practically the same. The following table indicates the position over the last reported ten-year period for which figures are available in these two diseases:

**DEATH RATES FOR SMALLPOX AND CHOLERA IN
ASIATIC COUNTRIES**
(Mortality rate per 100,000 Population)

		British India	Burma	Japan	Philippines	French Indo-China	Netherlands East Indies	Thailand (Siam)
SMALLPOX—								
1928.	...	28.5	19.3	0.1	•	1.6	10.0	0.2
1929	...	21.6	12.6	0.02	•	7.3	69.0	0.5
1930	...	21.5	4.4	0.006	•	7.8	85.0	0.1
1931	...	11.0	3.3	0.001	0.007	2.4	8.0	0.04
1932	...	13.3	16.9	0.06	0.0	6.7	2.0	0.03
1933	...	30.7	10.3	0.08	0.0	4.4	0.0	0.1
1934	...	24.8	10.9	0.05	0.0	2.7	0.0	0.2
1935	...	26.5	8.6	0.02	0.0	2.2	0.0	0.03
1936	...	30.6	9.2	0.04	0.0	1.0	0.0	0.0
1937	...	16.2	9.3	0.008	0.0	3.0	0.0	0.08
CHOLERA—								
1928	...	100	49	0.001	0.1	21.3	0.002	9.5
1929	...	84	54	0.2	0.0	17.0	0.0	14.4
1930	...	107	41	0.0	•	•	0.0	0.6
1931	...	65.4	3.6	0.0	5.8	6.8	0.0	0.1
1932	...	19.9	7.4	0.001	3.3	1.6	0.0	0.1
1933	...	20.2	1.2	0.0	13.4	0.8	0.0	0.2
1934	...	59.1	5.6	0.0	4.7	0.4	0.0	0.04
1935	...	62.2	46.6	0.0	0.02	0.4	•	6.3
1936	...	47.1	6.7	0.0	0.01	0.3	•	21.6
1937	...	29.3	23.7	0.01	0.01	38.3	•	41.1

• Figures not available.

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The relatively poor result in India has not been due to either lack of funds or personnel. Bengal has 3,018 vaccinators and spent Rs. 4,70,644 in 1940 specifically to control smallpox. One important reason for this poor result undoubtedly has been the greater decentralization of local self-government in India than in other countries. Decentralization before the level of technical public opinion in local bodies has reached a certain stage is dangerous.

Reference has been made already to the gradual appearance of administration by function, particularly malaria, nutrition, maternity and child welfare and school health. This trend is due primarily to the stimulus of the Central Government, particularly in malaria where substantial grants-in-aid have been made to certain provinces. Malaria is probably India's chief disease, and unfortunately much of it has been man-made by watertight departments, because large irrigation projects, railways and roads were built without reference to the possibility of extension of this disease. Results to date from the new control measures are negligible owing to the short period of their operation, and more so because significant improvement in the malaria situation must await social, economic and educational progress. Six of the twelve provinces are now developing malarial organizations. It should be noted that a laboratory is essential.

The origin of maternity and child welfare is referred to later. Provincial organizations for nutrition and school health work have as yet reached only an initial stage. The recommendation of the Central Advisory Board of Health is already stimulating progress. Three provinces and one State now have sections for nutrition. Seven of the provinces and three States now have sections for school health.

The most acute problem in India at present is that of bringing medical protection to the individual villager who has hitherto been largely neglected. Its urgency has, as might be expected, resulted in varying view-points as to its solution. Two chief trends are observable during the past decade. On the one hand there is the policy inaugurated in Madras in 1925 of subsidizing rural practitioners with Rs. 50 a month to induce them to live in the mofussil. It was carried one step further in 1934 by the payment of an

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additional subsidy of Rs. 15 per month to practitioners who after a short course of training would discharge certain public health functions. Results to date have not been good. The other trend, exemplified best in the Punjab, is to combine curative and preventive functions at the periphery, and to add public health to the curative responsibilities of the dispensary physician. This was inaugurated in 1938. The war suspended the execution of a plan in Bengal that went beyond that of the Punjab, although based upon the same principles, whereby a peripheral unit for each 20,000 population was to be established to discharge both curative and preventive functions under a sub-assistant surgeon. Medical co-operatives which also discharged health functions had been tried in the Punjab. The unification of curative and preventive functions under a single administration is essential and has become an axiom in public health. This is particularly so in India, and Major-General Sir John Megaw, late Director-General, Indian Medical Service, pointed out that 'it is impracticable to draw a sharp line of distinction between medical relief and disease prevention. The ideal to be aimed at is to have effective co-operation between the workers who are engaged in these two forms of medical activity. Division of labour is desirable and even essential in certain matters but when we come down to the small units, such as village dispensaries, India cannot afford to maintain two experts in each centre of population. There is no reason why the dispensary doctor should not assume responsibility for the general supervision of the health of the area in which he works.'

Urban Health Administration

The conclusion reached by the Royal Commission on Labour (1931) on urban administration, in the decade since past, may be amplified but not modified except in respect to the qualification of health officers, which is improving; although the Report of the second meeting of the Central Advisory Board of Health (1939) had occasion to state that, 'according to available information, nearly half the districts and three-quarters of the municipalities in British India still are without qualified health officers. . . .' 'Under the

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existing local self-government acts municipal councils have been given almost complete responsibility for public health, but in many of the areas visited by us we were unfavourably impressed with the standard of health administration and with the manner in which these duties have been performed. Health officers are to be found in most of the larger municipalities, but their work is too often ineffective because they have incomplete control of the health organizations or because their recommendations fail to receive active consideration from their councils. In the first place, only a minority have so far appointed qualified health officers and this defect should be remedied at the earliest possible opportunity, whilst municipal health organizations should also be improved and strengthened. Secondly, all by-laws and regulations dealing with health, housing and sanitation should be revised and brought up to date. Under the existing law the duty is given to municipal councils of framing by-laws on such matters, but instances are not wanting where these have never been prepared, and efficient enforcement of those in existence has rarely been practised. It should be the duty of the health officer, under instructions from his council, to see that all by-laws are impartially and vigorously applied. . . . We recognize that in all these matters progress will not be easy until the social conscience has been aroused. But we believe that the presence within municipal councils of even a few leaders determined that these bodies should accept responsibility would exercise an important influence in making the community face the situation.'

The comparative figures on p. 21 corroborate the foregoing conclusions.

There are first- and second-class municipalities according to whether the population is above or below 50,000. In addition there are the autonomous corporations of Calcutta, Bombay, Madras and Karachi. It is difficult to generalize about urban public health administration because of the wide range in scope and level of organization. Presumably in due course the first-class municipalities will evolve into corporations. Industrialization will increase the number of first-class municipalities, which at present are relatively few: of the 118 municipalities of Bengal only two are first-class.

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COMPARISON OF VITAL STATISTICS

	Calcutta	Madras	Bombay	New York	London
Population ...	2,110,051 ^a	768,798 ^a	1,421,498 ^a	7,521,000 ^a	4,095,000 ^a
Death rate per 1,000 ...	27.6 ^a	33.9 ^a	25.0 ^a	9.9 ^a	11.4 ^a
Infant mortality rate per 1,000 live births ...	212.0	205.8	201.4	30.8	48.0 ^a
Birth rate per 1,000 ...	26.1	43.2	33.4	13.6	15.0

CAUSE—SPECIFIC DEATH RATES PER 100,000

Tuberculosis ...	270.0	113.0	170.0	47.0	87.0
Dysentery and diarrhoea ...	250.0	436.0	252.0	0.0	0.0
Typhoid ...	90.0	16.0	40.0	0.2	0.4 ^a
Cholera ...	50.0	0.0	0.0	0.0	0.0

The level of health organization in Bengal is indicated by the fact that of the 116 second-class municipalities only 27 are provided with full-time medical officers of health. Twenty-eight do not have a sanitary inspector, while eleven do not have even a vaccinator, who is generally the first type of public health officer to be employed. Even the two first-class municipalities have only one whole-time medical officer. Urban public health may be said to have developed to any extent only in the corporations. In general the activities are mainly of the 'impersonal' type, relating particularly to registration, sanitation, food adulteration, etc. Exceptions are smallpox vaccination, malaria control and very considerable activity in maternity and child welfare. School and industrial health are markedly absent, as is control of venereal disease. The *per capita* annual budgets are not inconsiderable, as is illustrated by Calcutta (1941 population of 2,110,051), whose total expenditure for 1942-3

^a 1931 ^a 1937 ^a 1938 ^a 1940 ^a 1941

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was Rs. 1,08,51,180 of which the impersonal services received Rs. 1,06,22,280 compared with Rs. 2,28,900 for personal services. Administration, except for malaria control, lacks differentiation into specialized functions, with the occasional exception, such as Madras, where a woman medical officer is in charge of maternity and child welfare as a section. The result is absence of expert supervision of technical services for epidemiology, public health engineering, etc. The corporations have laboratories designed chiefly for examination of water and food. Free diagnostic service to general practitioners is practically unknown. The corporations may also manufacture their own typhoid and cholera vaccines. There is no Government standardization of biological products, and thus while the public cannot be assured of the quality of the vaccines being used, generally speaking the products turned out by Government laboratories are said to be satisfactory. A third defect is the absence of boards of health competent to provide technical advice. The health committees of the corporations are political bodies changing annually and selected from the councillors, most of whom have not had previous opportunity of considering public health or medical questions. Two illustrations of the varying range in administrative practices are afforded by water-works control and maternity and child welfare. Thus Calcutta with probably the largest entirely slow sand filters in the world only inaugurated a water-works laboratory in 1940, and that on a temporary basis; and 74 to 75 per cent of births in Bombay in 1939-40 were institutional as compared with 27.9 per cent in Calcutta during 1938-40.

Medical Education

A medical school was opened in 1822 and medical colleges in Madras and Calcutta in 1835, recognized by the Royal College of Surgeons in 1845. Medical education has developed in the past one hundred years and there are now ten University Medical Colleges, including one exclusively for women; and twenty-seven Medical Schools, of which eighteen are Government-owned. The medical colleges pass out approximately seven hundred doctors and the medical

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schools approximately one thousand sub-assistant surgeons per annum.

The university degree was registered with the General Medical Council of the United Kingdom from 1892 until 1933, thus implying that the standard of medical instruction had reached the minimum level obtaining in Great Britain in that period. The chief permissible comment on university medical education in India is the general absence of facilities for post-graduate instruction. While practically each of the medical colleges offers a Doctorate of Medicine, Master of Surgery, etc., the facilities are not of a category such as those of the British Post-Graduate Medical School or other international centres of graduate study. The specially organized nine-months' D.P.H. course at the All-India Institute of Hygiene and Public Health, and the six months' D.T.M. course at the School of Tropical Medicine, both at Calcutta, are exceptions. Several of the colleges have offered, or are offering, the D.P.H. (or equivalent) qualification in public health, namely the Medical College, Madras (B.S.Sc.); Grant Medical College, Bombay (B.Hy.); and King George Medical College, Lucknow (D.P.H.) (suspended). The Malaria Institute of India offers an annual six weeks' course. In general the level of undergraduate instruction in the medical colleges of any country is reflected in their ability to provide graduate instruction. Another reflection on the standard of university medical education is the relatively small amount of research of significance undertaken in comparison with university medical colleges in other countries.

A lower standard of medical qualification has proved an interim necessity in the evolution of medical education throughout the world. It is, however, a temporary phenomenon resulting eventually in the lower standard being raised to a university level or the school in question being abolished. This stage is now being reached in India and is expected to close in another quarter of a century. The admission requirement to medical schools is matriculation. The range between the best and the worst medical schools is very wide. Major-General Sir Cuthbert Sprawson, C.I.E., Director-General, Indian Medical Service, reported in 1935

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on the schools as they were at that time, and the low level of some at least is reflected in the fact that there were instances when 50 students were being taught pathology with only four microscopes. Every school at that time was deficient in one or all of the few very minimum requirements he deemed necessary.

Medical education in India includes a special provision for military medical students of the Indian Medical Department, which is a subordinate service established more than a hundred years ago for the military. A war reserve is provided by a portion of the personnel being seconded for civil employment. The Service consists of assistant surgeons, British and Indian cadres. The Government bears the total expenses of their education. But recently recruitment has also been made of other candidates. Recruitment is limited to Europeans, domiciled Europeans and Anglo-Indians for the British cadre, and to Indians for the Indian cadre.

Madras Medical College admitted women in 1874, and today all colleges and schools take a varying minimum number of women each year. In addition, one medical college and three medical schools are conducted exclusively for women.

Medical Registration

There are approximately 42,000 doctors, of whom two-thirds are licentiates. This total is less than Japan's for a population approximately the same as Bengal's. If there were one physician per 2,000 of population, India would require 200,000 doctors.

The Medical Council of India was constituted in 1933 along lines comparable to the General Medical Council of Great Britain. It does not, however, maintain a register nor exercise disciplinary powers, which are functions of the Provincial Councils. Its twofold responsibility is to maintain a uniform minimum standard of university medical qualifications for British India; and to further the recognition of these qualifications outside of British India, with the reciprocal recognition in British India of approved quali-

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fications. This reciprocity is still limited to the same countries as when this function of the Council of India was discharged by the General Medical Council of Great Britain.

The first Provincial Medical Council was established in Bombay in 1912, since when Councils have been established in all the provinces. The function of the Provincial Councils is to regulate the practice of scientific medicine without, however, interfering with the indigenous systems. The Councils maintain a register of qualified practitioners and in addition supervise medical education, inspect examinations and exercise disciplinary powers over medical practitioners. The Provincial Councils also advise local Governments in regard to recognition of various medical qualifications.

Nursing and Midwifery

There are less than 4,500 nurses throughout the country as compared with 42,000 doctors, and this is a measure of the present backward status of the profession.¹ The disproportion is traceable to the social circumstances of India, as it has only been in the past decade that any appreciable number of educated Indian women have taken to nursing as a profession. The implied social obstacle is gradually disappearing and the problem now chiefly awaits leadership from Indian women.

A sick-nursing certificate was provided in 1854 for candidates failing to secure a diploma in the first midwifery school in Madras. This Presidency established a scheme for training nurses in 1871. A hospital nurses' institution of Calcutta was founded at the Medical College Hospital in 1859. The movement spread until training was offered by all larger hospitals throughout the country. The candidates were mostly Anglo-Indians and Domiciled Europeans. Training was extended to three years in 1905. In the same year the organization of hospital matrons came into existence which has since become the Trained Nurses' Association of India, and now has a membership of 1,600 and publishes monthly

¹ There are 109,500 nurses and 61,420 doctors in Great Britain, or approximately two nurses to each practising doctor.

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the *Nursing Journal of India*. The Association has pointed out that the chief immediate defects to be remedied are inadequate teaching staff and bad housing accommodation provided for the pupil-nurses. The hours of work are unduly long which, with the overcrowding of wards, leads to overwork. Other comments which may be offered are that the pupil-nurses' training is limited to medical and surgical services without experience in obstetrics or in public health; there is practically no opportunity for specialized training such as theatre sisters, sister-tutors, etc. The last defect is in process of removal with plans for an all-India post-graduate school.

Madras, in 1926, passed the Nurses and Midwives Act constituting a Nurses and Midwives Council. Seven other provinces have since followed suit. An all-India Council is greatly needed and is under active consideration. The provincial Councils mostly have nurses' registrars who serve as the officers to maintain the provincial register of nurses, midwives and health visitors. The Councils, in general, supervise the minimum standards of education and are responsible for disciplinary measures when required. The training laid down follows very closely that of the General Nursing Council of England and Wales. The same situation exists in nursing as in medical education, where there are two standards of training and many hospitals are not registrable.

Midwifery training began in Madras in 1854 and has extended throughout the country. The syllabus is along the lines of the previous syllabus of the Midwives' Board of England providing training for 18 months, although several of the provinces still require only 12 months. The Midwives' Union was established in 1925.

The support of the Countess of Dufferin's Fund to medical relief for women and the establishment of the Women's Medical Service led eventually to the provision in 1918 of training of health visitors in Delhi. Since 1926 the training courses have been held at the institution now known as the Lady Reading Health School. In 1920 Lady Chelmsford founded a league for maternity and child welfare and the school became one of its activities. This League was

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amalgamated in 1931 with the Indian Red Cross and all maternity and child welfare work performed by both bodies was undertaken by a Maternity and Child Welfare Bureau. Additional health schools have since been established in Lahore, Madras, Calcutta, Nagpur, Lucknow, Poona and Bombay. The candidates in the majority of schools are matriculates who have had training in midwifery. The syllabus of health visitors' training covers 18 months in two schools (Calcutta and Delhi) and 12 months in the others. The Health Visitors' League was established in 1922.

The emphasis of health visiting in India is on maternity and child welfare. Students must first qualify as midwives before undertaking their 18 months' training in the health visitors' schools. Practice in the latter, to all intents and purposes, is limited to maternity and child welfare. Even in this single field of early diagnosis and preventive treatment of disease the demand for visitors far exceeds the supply. Only 350 of the 828 welfare centres were provided with certified visitors in 1938. Public Health nursing is as yet unknown in India. Until this comes into being there cannot be modern administrative services for the other fields of early diagnosis and preventive treatment, particularly school, industrial tuberculosis and venereal disease services.

Industrial Health

Industrial health is still chiefly a private responsibility and can scarcely be said to have become a major activity. There has been no significant improvement since the recommendations of the Royal Commission on Labour in India (1931), whose two chapters on Health and Housing for the industrial worker give a detailed description of the present situation. Their conclusion on housing can also be utilized for health:

'There can be no doubt that action is urgently necessary to counteract the serious effect on the health of the workers for which present conditions are responsible. Evidence is not lacking that part of the labour unrest which has characterized industrial development during recent years is due to the realization, however

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vague, on the part of the worker that his standard of living is too low. . . . This awakening sense might well be used to give him a truer understanding of what can be done to place him in more sanitary surroundings and what he can himself do to further that end. Much thought, energy and money will have to be expended before an appreciable advance can be effected, but of the urgent necessity for such advance there can be no question.'

A very considerable medical service is provided by the larger industrial concerns, but these are mainly concerned with medical relief and ordinary public health measures of prevention, such as anti-malarial work.

A few of the large industrial associations, e.g. the tea, jute and mining associations, have endowed research on diseases from which their employees are liable to suffer, but the factory worker, *in the factory*, has seldom been the subject of any direct investigation. The Royal Commission on Labour drew attention to the necessity for industry being conducted as efficiently as possible. The British Industrial Health Research Board and its researches were cited to indicate the importance of scientifically designed investigations to enable the various branches of industry to adopt improvements in practice which would lead to increased efficiency. The Commission recommended that comparable research in India was called for. The headings under which research has been carried out in Great Britain show the wide fields in which administration should be introduced. These cover hours of labour, environmental conditions such as lighting, ventilation, etc., and methods of work; vocational suitability; and industrial sickness including labour wastage and occupational disease.

The inauguration of an industrial health policy and programme is long overdue on the part of both Central and Provincial Governments. In this respect one cannot improve on the following, again taken from the Report of the Royal Commission:

'The proper treatment of problems of public health demands a considered programme; the attempt to deal

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with them piecemeal too often involves the frittering away of financial resources. It follows that progress in the provision of adequate medical facilities, the development of welfare schemes and the construction of working class houses must inevitably be gradual and that expenditure will be spaced over a considerable period of years. We do not suggest, therefore, that all our recommendations . . . can be dealt with either immediately or simultaneously, but we have attempted to lay down a policy and a programme ensuring gradual and progressive advance. We believe our proposals to be practicable and they are necessary if the workers' standards of living are to be raised to a reasonable level. It is from this point of view that they should be considered; with energy, goodwill and co-operation we are convinced that they can be successfully carried out.'

As has been pointed out earlier, while some recommendations of the Commission made in 1931 have been put into effect, the major ones still remain to be carried out despite the developments arising out of the war, which make the need for such action even more urgent.

CONCLUSION

The preceding pages show that although a considerable beginning has been made there is much to be done to improve the health of India. The weaknesses in the present situation may be summarized by the following four lines along which improvement might be markedly effected.

1. *Consolidated Health Acts.* The corner-stone of any organized community effort is law. Public health legislation in India is disconnected and incomplete. The importance of a comprehensive Public Health Act is obvious when one considers that improvements in England have been from such Consolidated Acts as those of 1875 and 1936. Madras introduced a Consolidated Act in 1939. The time is long past for similar acts in the other provinces. Also, the 1919 and 1935 Acts decentralized public health to an extent which will interfere with growth, and eventually they must be modified.

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2. *Principles of Health Administration.* Effective health administration depends upon six things: (i) recognizing that all the social services are interdependent; (ii) maintaining health by giving the public adequate education and knowledge; (iii) having a single governing body to administer the specialized functions of the health services; (iv) keeping the main goal before the mind when making compromises necessary on financial, political, superstitious or religious grounds; (v) seeing that the administration is carried on rationally, and within the available budget; (vi) training the administrative staff.

Medical protection has not yet been made available to the individual villager, even to the extent possible within the present economic resources if administration conformed to the principles enunciated above. Public health and medical activities are being undertaken by more than one Government agency without reference to others, resulting in overlapping. There is inadequate technical supervision and the efficiency of existing organizations is not checked. There is absence of investigation into and demonstration of the methods of applying medical knowledge to large groups of population. Existing administrative procedure is sometimes unworkable through lack of finance. The people themselves, as yet, lack education in, and practice of, health principles. There is no attempt at co-ordination in the related fields of social services. There has been no effort to formulate a complete design of public health in which the intermediate steps should eventually fit in as part of the whole. The initiative for stimulating developments along the foregoing lines rests in the first instance with the Central Advisory Board of Health. As noted already, this organization is discharging its responsibility with respect to health education. As elsewhere with Central Governments, stimulation should be accompanied by grants-in-aid to ensure that the first steps are taken.

3. *Co-ordination and Demonstration.* The broader aspects of the general problems in India in the medical field will find their counterparts in the other social services of agriculture, education and co-operatives. The interdependence of these fields requires co-ordinating and planning agencies both at the centre and in the provinces. The Central Advisory

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Board might take the initiative in creating a planning organization at the centre comprising the various sections of Government having to do with social welfare services either in existence or potential. Such an organization at the centre might very well outline a five-year programme. Experience has proved that for effective introduction of new measures successful demonstration of the proposed activity is necessary. As stated, the chief immediate administrative problem is to bring medical protection to the individual villager. The satisfactory solution lies in undertaking a controlled investigation and demonstration of the best means of applying medical knowledge to the health requirements of a large unit of population. While the problem is not so urgent, urban administrative policy requires the same form of treatment.

4. *Education and Number of Personnel.* Medical education has become markedly modified since the last war, particularly in its emphasis on preventive aspects. This is illustrated in the British Medical Association report of the Committee on Medical Education, 1934, that served as the point of departure for the final report and resolution of the General Medical Council on medical education, 1937. While it is true that medical education today is the most expensive branch of higher education, it should not prove insurmountable to incorporate progressive trends in India, especially in the preventive aspects of instruction. The provision of organized refresher courses is badly needed.

Reference has been made to the recommendations of the Trained Nurses Association of India for immediate steps to improve the training of nurses. It would be advantageous if the present status of nursing in India could be reviewed along the lines of the Inter-Departmental Committee on Nursing Services, Interim Report (1939—Great Britain), and more particularly the Memorandum of the College of Nursing submitted to the Inter-Departmental Committee on Nursing Services. One is certain that such a review would result in initiating steps which would go far to improve the present backwardness of nursing. In particular, steps should be taken to assure that the scope of training of health visitors is extended to give the same emphasis to school

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health and industrial health as is now being received by maternity and child welfare.

The problem of an adequate number of medical personnel must also be considered urgently in a planned manner. The example of less than 5,000 nurses for a population of 400 million precludes further comment. The solution of this problem cannot be found merely in terms of the scope of existing syllabi, but must take account of the international trends in the training of medical and auxiliary personnel. The solution will also involve much more training through the medium of Indian languages.

GOLD COAST.

The Gold Coast (Constitution) Order
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