would be very sorry to be without the stethoscope as it might be a very useful adjunct. There is no doubt that radiography is invaluable in three groups of cases : where there are no physical signs, where physical signs are present but their significance cannot be decided without radiology, and where diagnosis could be made with certainty on physical signs but the extent of the disease could be shown only by *x*-rays. In children physical signs of pulmonary disease are often indefinite, and radiology can give better information than the stethoscope. But *x*-rays have limitations too. Slight errors in technique may produce confusing results. A straight view sometimes fails to show cavitation of the lung, and radiologists are not always able to explain abnormal appearances. There are also some rare cases in which physical signs may reveal disease not apparent upon the skiagram even when it is examined by an expert. Probably more methodical use of lateral and oblique views and also of tomography would reveal many hidden lesions, though such a procedure would be very costly. It needs to be emphasized that *x*-ray film, to be of value, must be a good one, and to express an opinion on an indifferent film as a guide to diagnosis is worse than useless, and it must also be remembered that the value of the method depends ultimately on the knowledge and experience of the man who interprets the appearances.

Finally, we may point out that the value of physical examination must not be minimized, and *x*-rays should not replace it. The present order of examination—history, physical examination and radiology—should be retained, and the physical signs and *x*-ray appearances should be considered together and carefully correlated. It is worth emphasizing that suspicious symptoms always warrant an *x*-ray examination though there may be no suspicious signs, but often it is not done for a variety of reasons of which may be mentioned lack of facilities, poverty and fear in case something serious is discovered. Sometimes the attending physician himself fails to advise an *x*-ray examination in circumstances where these questions do not arise; this is a serious omission which exposes him to the charge of negligence.

R. N. C.

Special Article

SOME PROBLEMS OF MEDICAL AND GENERAL INTEREST*

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Tendency towards irrational therapy.—In the course of my Presidential address to the Medical and Veterinary Section of the Indian Science Congress in 1927, I remarked that the number of members of our profession in this country who made use of drugs in an irrational way was surprisingly large. In ancient times, therapy was empirical because the ætiology and pathology of disease were not thoroughly understood, and our diagnostic methods were limited. During the last thirty years remarkable advances had been made in these branches, and therapeutics has been emerging from empiricism, and is now based on clearer conceptions of ætiology, physiology and pathogenesis. Unfortunately, the non-critical and indiscriminate use of drugs is still prevalent in spite of this advance in our knowledge. One has only to look at most of the prescriptions written by practitioners in India to see the true state of affairs. There still persists great temptation to write 'shot-gun' prescriptions, as well as to advise the use of all kinds of novelties introduced from time to time and which survive only for a year or two in the drug market. Proprietary medicines, the composition of which was not known, are commonly prescribed, and different kinds of patent foods are advised, when simpler and very much less costly remedies of equal value are available. Many kinds of digestive ferments and glandular products are included in prescriptions though they are frequently inactive, especially in India where they are so readily liable to deterioration. Vaccines and sera are injected without due regard to their utility in the conditions under treatment. Amongst the lay public there is a craze for the administration of drugs by the intravenous or intramuscular routes, and the idea seems to have gained ground among medical men that drugs were only effective when given in this manner. Then again, any drug advertised in a medical journal is considered to be useful if backed by 'testimonials'. It does not appear to be realized that in addition to a large number of useful and potent drugs on the market there must have been a host of others of doubtful value.

Too much drugging.—These observations were made 18 years ago, and during the long years that have passed, one would have thought that this state of affairs would have improved. Unfortunately improvement, if any, has been very small. There is still a marked tendency on the part of the medical practitioners to overdose their patients with drugs, and thus an enormous amount of money is wasted on medicines of doubtful efficacy. Patients for whom

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no specific treatment is available are dosed with complicated mixtures of expensive medicines, when attention to diet and other forms of general treatment, such as proper nursing and care of the sick and convalescent, would do more good than all the medicaments known. The public in this country have a child-like faith in medicines to cure all their ills and medical practitioners are often too complacent to encourage this idea. This has considerably lowered the status of medical practice.

Medical education.—One important cause leading to lowering of the status of medicine in India is the defective system of education. It is a source of great satisfaction to most of us that the method of training two grades of medical practitioner is rapidly coming to an end. It is completely finished in this province, and I hope it will soon finish in others. Every effort should be made in this direction. Many of the medical teaching institutions, however, are still poorly equipped and inadequately staffed. The pernicious system of allowing the teaching staff to carry on private practice has led to abuse, the far-reaching effects of which are now being fully appreciated. It is impossible for the teachers to have large private practice and at the same time to perform their instructional duties in a satisfactory manner. In America and many of the European countries, the evils of this system were recognized long ago and whole-time teachers were employed. The advantage of this procedure is obvious ; the professors and teachers, being free from the anxieties of having to earn the whole or a part of their living by private practice, devote themselves entirely to their subjects, and come in closer instructional contact with their students. They also get time to devote themselves to scientific research in their subjects. One of the chief reasons why medical colleges in India have participated so little in the carrying out of medical research, especially on the clinical side, is the pernicious system above referred to and which unfortunately is still in general vogue. The Health Survey and Development Committee fully discussed this question, and it is hoped that in the future planning of medical education this evil will be eradicated.

The medical curriculum.—Then again, the medical curriculum in this country is still far from being satisfactory, though improvements have been made during recent years. The course is still overcrowded, and the student is burdened with too many subjects and too much detail which confuses his mind. There are far too many lectures giving information of the kind which a student can pick up in any textbook. The teachers have not the time to read up recent literature, and to present the great mass of theory and knowledge to the students in a carefully prepared, systematic and concise form, so as to enable them to grasp the essential facts and understand how to utilize the detail in actual practice. Practical instruction also needs considerable improvement. A lot of unimportant detail is taught which is of no use to the medical practitioner.

The teaching of pharmacology, the science of action drugs, which forms the basis for treatment of disease, needs considerable improvement. Though diagnosis is of prime importance, the patient is less interested in it than in the treatment of his disease. To state that the future of medicine lies in pharmacology may seem fanciful, but there seems to be little doubt that the progress of medicine to-day is to be found in the progress of the science of treatment.

Little or no research work is carried out in many of the teaching institutions in this country, and students do not get into the habit of thinking independently of the views expressed in their textbooks. This affects their future careers as medical practitioners in an unfavourable manner, as they are always likely to believe what they see in print. Every teaching institution worth the name should have a department of experimental medicine, with a clinical research unit, where students can see and feel research work carried out in different branches of medicine including experimental therapeutics.

Drug control legislation.—One of the serious handicaps from which the medical practitioner suffers in this country is lack of control in connection with the drugs in the market. Although the Drugs Act was passed in 1940, the machinery necessary to give effect to its provisions has not yet been implemented. The result is that even now there are no safeguards whatever against manufacturing, advertising and selling to the public, of therapeutic products of any kind, whether potent or inert, effective or ineffective. Many of the preparations, both proprietary and otherwise, which are presented for sale are not up to the standard. It is gratifying to note, however, that rules and regulations in connection with drug control have at last been approved by various provincial governments, and the machinery of control will soon be functioning. The present legislation, though far from being perfect, especially with respect to advertising, will have a very great effect towards stabilizing the quality of drugs on the market.

It will be remembered that an important recommendation of the Drugs Inquiry Committee (1930-31) was that the drug control legislation and legislation for the control of the profession of pharmacy should be enacted simultaneously. Although this was not done, the Government of India realize the importance of such a measure, and legislation to control the profession of pharmacy will be one of the first items to be put through the new Central Legislature.

Medical relief.—It is well known that the illnesses of less than 25 per cent of the population in this country are located by scientific

medical practitioners. One reason for this is that the dispensary facilities and hospital accommodation are entirely inadequate for the needs of the large masses of population. Dispensaries and hospitals are generally few and far between. Hospitalization is essential for the efficient treatment of many diseases, and in most of the countries in the West, provision of ample hospital accommodation exists and this is of immense help to medical practitioners. Such facilities are utterly lacking except perhaps in a few of the large towns.

It has been estimated that 4.5 beds are required per thousand of population for sick and chronic cases. In actual practice, in more advanced countries, the figure ranges from 1.5 in Japan and 5.3 in Great Britain to 5.8 in Sweden. In India the number of hospital beds of every description, including mental hospitals and leper asylums, available for the population in 1937 was 0.3 per thousand, and probably this figure is not much higher now. The number of medical men and nurses available is also very low. There is undoubtedly a pressing need for improvement in this unsatisfactory situation.

Incurables.—Something should be said here about the care of people suffering from chronic type of incurable diseases, who go on suffering and lingering for prolonged periods. A large group of such patients are permanently incapacitated from earning a livelihood, and need the active care of the community in general and medical profession in particular. In other countries, much has been done to decrease the number of incurables by the proper application of the discoveries of medical science and to make the life of those suffering from these affections less miserable and more contented. In this country no organized effort has been made so far.

The cost of drugs.—The cost of drugs is so high in relation to the low economic condition of the people that there are millions of people who cannot afford any kind of treatment, whether cheap or expensive, and have to consequently depend upon charitable relief institutions. The cost of drugs is so heavy that most of these institutions which have limited funds for drugs and which have to cater for a population ranging from 10,000 to 100,000 spread over many square miles, are not able to cope with the demand for even the most essential drugs, to say nothing of expensive medicines which are sometimes required.

Use of indigenous drugs.—The only way in which the drugs can be cheapened and brought within the means of the masses is to utilize the local resources and use indigenous products instead of expensive imported preparations. This can be done by encouraging the production, cultivation and manufacture of the local drugs in a systematic manner. By local production and the use in treatment of potent drugs of Indian origin, the cost of treatment of ordinary ailments which form the majority, can be considerably reduced.

The research in indigenous drugs which has been financed by generous grants from the Indian Research Fund Association, Council of Scientific and Industrial Research and Imperial Council of Agricultural Research has done much towards the development of the drug industry in India and towards encouraging the use of raw materials produced in the country for the preparation of galenical and other preparations. The objects of this industry should be twofold : (*i*) to make the country self-supporting so far as medicaments of every description are concerned; and (*ii*) to produce drugs economically so that they fall within the means of the people of India, whose economic condition is very low.

An Indian pharmacopœia.—Studies carried out on Indian indigenous drugs are gradually paving the way for the preparation of an Indian pharmacopœia. A national pharmacopœia is primarily meant to meet the claims and satisfy the needs of a particular group of medical men and patients at a particular time. The modern pharmacopœia is a book of standards and usage, rational usage and scientific usage. The time-honoured principles of the medical profession have been that there should be no secrets about drugs used in the treatment of disease.

The importance of the compilation of an Indian pharmacopœia cannot be overrated. Considerable work, however, must be done in working out our own standards, with due regard to climatic and other conditions, and the standardization of raw materials from which medicinal drugs are prepared, before this can be accomplished. It is very gratifying to note here that at last a beginning has been made and the Committee appointed by the Government of India has submitted a comprehensive report including a large number of indigenous products which will provide the first step towards the preparation of an Indian pharmacopœia.

The medical and public health services.—Before I stop I wish to say a few words about the organization of the medical and public health services in India. Under the conditions prevailing in this country, the State is essentially responsible for curative and preventive medicine. These two services are at present practically working in two watertight compartments. This is against the modern trend in advanced countries. Curative medicine forms an integral part of the public health services of a country, in as much as very often a sick man is the source of infection and no constructive medicine is possible unless the population is rendered free from disease by treating individuals. Again according to the newer conception of a State, it is necessary that disablement, whether temporary or permanent, should be cut down to a minimum through the intensive use of curative measures. Moreover, it is through curative medicine alone that it is possible to win the confidence of the public in a country like ours and bring home to

the people the advantages accruing both from preventive and constructive medicine.

Starting from the bottom, I consider that, to meet the requirements of public health in India, there should be a combined establishment which should form the basis of preventive, curative and constructive medicine in each village. This should be linked up with a more organized central agency, discharging these combined duties, catering for a convenient sized population, the bulk of which will depend on various factors such as communications, incidence of disease, etc. These primary centres would be linked up with district centres, with a more specialized staff, and these latter with the provincial organization with specialists in various branches of medical science. The head of this organization should be an experienced medical man with a thorough training in the methods of public health administration, community health organization, constructive medicine, etc., who will work under the Provincial Ministry of Public Health. The activities of provincial health organizations should be co-ordinated by an elaborate and efficient federal all-India organization under the Federal Ministry of Health. Curative and preventive medicine must work as a single whole. To let them work separately would only lead to confusion.

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[With nearly everything that Sir Ram Nath says we are in close agreement. The only real disagreement is on the question of indigenous drugs. Sir Ram Nath thinks that some indigenous drugs are effective and cheap, but they are not prepared scientifically and standardized. We believe that there is no Indian indigenous drug that cannot be replaced by a more effective modern drug, and that indigenous drugs are not highly effective by modern standards. Moreover, scientific preparation and standardization will increase the cost of these indigenous drugs so that even that small advantage will be much minimized if not lost.

Medicine is becoming an international science. In treatment chemotherapeutic agents and biological products, often synthetic, are sweeping the board. No country can ignore this fact and base its therapeutic on ancient vegetable remedies even if scientifically prepared and standardized. The people of India need the best drugs available and India should produce them herself. The solution of the problem of the cost of drugs in India lies with the chemical manufacturers and the administration. The price of many effective and modern drugs, whether produced in India or imported, bears little relation to the cost of production. If the chemical industry can produce effective drugs at a cheap price with only a reasonable margin of profit, many of the difficulties mentioned by Sir Ram Nath would disappear.—EDITOR, *I.M.G.*]

Medical News

REPORT OF THE HEALTH SURVEY AND DEVELOPMENT COMMITTEE

THIS Committee which was appointed in October 1943 under the chairmanship of Sir Joseph Bhore has just issued its report in four volumes : (*i*) A survey of the state of the public health and of the existing health organization. (*ii*) Recommendations. (*iii*) Appendices. (*iv*) Summary. It covers a very wide field ranging from medical aid and welfare work in the remote village to promotion of research work of the highest type. In drawing up the report the Committee had the benefit of the presence and advice of several experts from Britain, the U.S.A., Australia and U.S.S.R. The essence of the scheme is the district health organization, and the idea is to develop it from a modest beginning into one which will provide as complete a health service as possible. The plan has therefore been drawn up in two parts, one a comprehensive programme for the somewhat distant future and the other a short-term scheme covering a ten-year period.

Administration

On the administrative side the Committee proposes Ministries of Health at the Centre and in the provinces and health administration in local areas, with a Central Statutory Board of Health. The Centre, with its larger resources in money and technical personnel, should help the provinces with grants-in-aid for the development of the health programme and with such technical assistance as may be required.

Councils of experts

The Committee considers that the Ministries of Health, central and provincial, should have the advice and guidance of technical experts in the planning and maintenance of the health services and, therefore, recommends the creation of standing Councils of Experts at the three levels of central, provincial and local area administrations. These councils will consist of representatives of the medical, dental, nursing and other professions. It also recommends the establishment in the provinces of Provincial Health Boards and Health Councils with composition and functions similar to those of the Central Board and Central Council.

The Ministry of Health, central or provincial, will be the ultimate authority responsible for all health services operating within its jurisdiction and should have power to lay down and enforce minimum standards of health administration for those services which are within the immediate control of other departments. The Committee points out that the Central Government should be responsible for the enforcement of all measures necessary to prevent inter-provincial spread of infectious diseases. Enforcement of standards regarding food and drugs in the inter-provincial commerce should also be the function of the Central Government. In certain exceptional circumstances the Central Government should have power to direct action in a province in the interests of the country as a whole but normally action should be taken after consultation with the proposed Central Board of Health.

Recruitment of services

It is proposed that the principal technical adviser to the Ministry of Health should be the Director-General of Health Services at the Centre and the Director of Health Services in a province, who should function in each case as the single administrative officer for the curative and preventive department of health