

REPRINTED ARTICLES

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LEPROSY IN INDIA

THE PRESENT OUTLOOK

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There is at present much confusion and doubt among medical men and among the lay public regarding the present position of leprosy work, the results of treatment and methods of prevention. Very sweeping statements have been made particularly in the lay press regarding the wonderful results of treatment and the possibility of eradicating leprosy by the methods of treatment and prevention that are now being used. The press reports have been based on the statements and reports of some leprologists who are extremely optimistic regarding the possibility of solving the leprosy problem. Other writers on leprosy are just as extremely pessimistic. For example in *A Textbook of the Practice of Medicine* edited by Frederic Price (1930) there is the following statement. "As a rule the dictum 'Once a leper always a leper' holds good, the malady gradually going from bad to worse even in spite of treatment." The writer, G. Carmichael Low, then goes on to quote observations that the average duration of leprosy before death is from 6 to 10 years according to the form of the disease. An example of the optimism that prevails in other quarters is the following statement quoted from a recent account of some leprosy work in South India. 'Within a few years this dreadful disease may become a thing of the past'. It is only

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fair to say that the writer of this statement was not a medical man, but statements nearly as sweepingly optimistic have been made by medical men. After reading two such statements as these, the average doctor with no special knowledge of leprosy is bound to feel puzzled that leprosy workers cannot give clearer guidance.

The descriptions of leprosy written twenty or more years ago and still current in many textbooks of medicine were mostly based on observations of small numbers of advanced cases compulsorily isolated in institutions, while the early cases as we see them today in India leprosy treatment centres were practically unrecognized and unknown. These descriptions are often, therefore, very misleading when applied to leprosy as seen in villages and towns in such countries as India. Similar accounts, however, are still written, apparently by workers who have experience of advanced cases of leprosy only, or else of leprosy in communities highly susceptible to the disease. The article above is probably an example of this.

The writer of the present article is a leprosy worker who has had eight years' experience of leprosy work in India during which time he has seen and examined about 5,000 cases and treated for varying periods about 3,000 cases. During this time he has tried to keep an open unbiassed mind on the subject of leprosy treatment, and as the result of his experience he feels that both the statements quoted above are very misleading. He wishes, if he can, to give a fair statement regarding the present position.

The modern era of leprosy work started with the discovery of bacillus by Hansen in 1874. Since then many workers have studied the bacteriological, pathological, clinical and therapeutic aspects of leprosy and as the result of this work much knowledge has been gained but most of the problems of leprosy are still unsolved. For example two unsolved problems are the cultivation of the bacillus and the discovery of the exact mode of transmission.

During recent years the organization of leprosy work on the basis of treatment, often out-patient treatment, has brought under observation many cases of leprosy at a very early stage. A study of such cases has greatly increased our knowledge of the early signs and onset, and has modified our ideas on prognosis.

Some important facts concerning leprosy and its prognosis apart from treatment are here summarized.

(1) It is now generally agreed that the disease is acquired by contagion and is rarely if ever hereditary.

(2) The disease is not highly infectious, and many people exposed to the infection do not develop the disease. Instances are quite common of highly infective lepers living for many years in close contact with healthy people, the contacts remaining healthy. Infection of the contacts must have occurred but clinical leprosy did not develop.

(3) The disease shows a marked natural tendency towards healing and cases healed without treatment are now found to be quite common. The spontaneous healing may occur at any stage of the disease, especially in the early stage. We have seen dozens of cases with depigmented anaesthetic patches of very long standing with a history of no increase or decrease for ten or fifteen years and with no signs of active leprosy at the time of examination.

(4) Many cases of leprosy either show no lepra bacilli, on examination or else do not discharge any bacilli, so they are apparently non-infective.

(5) Leprosy is a disease of bad social and hygienic conditions.

(6) Strong healthy people living healthy lives, taking a good diet and living under good conditions rarely develop leprosy, and when they do they often get a mild form of it.

(7) Some cases of leprosy continue for many years with little evidence of increase or decrease and with little suffering.

(8) Most cases of active leprosy progress very slowly with little constitutional disturbance but with gradually increasing deformity and disability.

(9) Leprosy rarely causes death. Death if it occurs is practically always due to secondary infection or intercurrent disease.

These facts are now fairly clearly established in India. This picture of leprosy is a great contrast to the traditional one which showed leprosy as highly infectious, always progressive and causing death in every case in a few years. The reason for the difference is that the old picture was based on comparatively advanced cases seen in institutions. The new picture is based on leprosy as seen in villages and towns by people experienced in diagnosis of early cases and mild forms of the disease.

Thus the new knowledge has shown that in India at any rate leprosy is as a rule not nearly as infectious, virulent, intractable and dreadful a disease as it was thought to be. The first statement quoted above may be true in some countries, but it is certainly not true in India.

There is another fact which has been brought to light by this greater knowledge of leprosy in its earlier and slighter forms. Leprosy is found to be very much more prevalent than was ever imagined. In the old days only the advanced cases were diagnosed, but now slight early cases are also diagnosed in leprosy surveys so that the census returns of leprosy often need to be multiplied by ten to give a correct figure and the leprosy rate in some parts of India is often found to be 1 or 2 per cent or even up to 5 per cent of the population in small areas. The number of cases of leprosy in India is probably at least 1,000,000 instead of 102,000 as recorded in the 1921 census.

TREATMENT

Before going on to discuss treatment it is advisable to quote some facts and figures on which our opinions are based. The following is a statement based on our Annual Report for 1929 and now revised.

It is difficult to give statistical returns on an annual basis which reflect accurately the results of treatment. This is because the ordinary period of treatment necessary in the average case of leprosy is much more than one year. Only very early cases are likely to be arrested within one year and consequently the more severe cases appear in the annual returns year after year while the early cases only appear once. A leprosy hospital tends to get silted up with the very bad cases while the early cases leave comparatively quickly. The annual statistics suffer accordingly.

Statistical returns.—(All the figures quoted refer to in-patients.) The following is a statement of the condition of 464 patients who have been under treatment during the year 1929. Those patients admitted during the last six months of the year have been ignored, as they have not had sufficient treatment to justify any conclusions being drawn. The period of treatment of these 464 varies from six months to eight years, the average duration of treatment in these cases being 22 months.

Classification.—The cases are classified according to the system recommended by the Leonard Wood Memorial Conference. N-1, N-2, and N-3, neural leprosy, the figures indicating the extent of the neural involvement. C-1, C-2, and C-3, cutaneous leprosy, the figures indicate the extent of cutaneous involvement.

N-1	17 cases
N-2	27 "
N-3	27 "
C-1	70 "
C-2	123 "
C-3	200 "
Total	464 "

It will be seen that the greater number of these cases are cutaneous leprosy and most of these again are general cutaneous leprosy. The proportion of cases N-1 and C-1 is far higher among the young people of both sexes than it is among adults.

Bacteriological examination before and after treatment.—Bacteriological examination includes bacteriological examination of skin clips usually from the lobe of the ear, and bacteriological examination of the nasal mucous membrane. The latter is of little importance for diagnosis but is an index of the severity of the infection and of the infectivity of the patient.

Before treatment.—

Showing bacilli in nasal mucous membrane and skin.....	309
Showing bacilli in the skin only	84
Showing no bacilli	71

After treatment.—

Showing bacilli in nose and skin	88
Showing bacilli in skin only	240
Showing no bacilli	136

It will be seen that after treatment the nasal mucous membrane of most patients became negative, 221 out of 309. All these have not become negative during 1929. Some have become negative in previous years. The skin has become negative in a very much smaller number of cases, 65 out of 393, but all these 65 became negative during 1929. Most of these 65 have been slighter cases of skin leprosy (C-1 and C-2 stages). A few only in the C-3 stage have after prolonged treatment become bacteriologically negative. This has been our general experience for several years. It is extremely difficult to render a C-3 case bacteriologically negative. In many C-3 cases, however, the disease becomes inactive but some bacilli persist. We have in this institution patients who have been under treatment for six, seven and eight years in whom bacteriological examination still shows the lepra bacillus. In most of these cases the disease is practically, if not entirely, inactive and we think that these residual bacilli, if few, are not necessarily of much clinical importance. In about 100 of these cases still showing a few bacilli on examination, the disease appears to have been inactive for a year or more.

The results of treatment may be summarized as follows:—

- (1) In almost every case the disease ceases to progress.

(2) In some cases (mostly early) the disease is arrested and there remain no bacilli on examination and no signs of activity.

(3) In more advanced cases which form the bulk of our patients, the progress of the disease is arrested, the existing lesions become less, the nasal discharge can be rendered free from bacilli thus much diminishing the infectivity, and after prolonged treatment the disease apparently becomes inactive, although some acid-fast bacilli can be found in the skin.

Thus it appears that in early cases we can hope to render the disease inactive and possibly overcome the infection, but in most cases it is sounder medically to talk of 'controlling' the infection and arresting the disease rather than of eradicating it.

The following is a summary of what we believe to be the main facts concerning leprosy, prognosis and treatment based on such findings as the above.

(1) The dictum 'Once a leper always a leper' is certainly not true of all cases of leprosy.

(2) Some lepers show spontaneous arrest of the disease, as has been previously noted.

(3) Medical treatment in its widest sense can greatly aid this process of arrest.

(4) Medical treatment is of two kinds, general and special.

(5) General treatment of leprosy includes all those measures designed to promote the general, physical and mental well-being of the patient and to enable him to fight the disease. It includes treatment of intercurrent disease, regulation of diet and exercise, cleanliness, skin sanitation, etc.

(6) Special treatment of leprosy is the administration of medicaments and the use of physical agents which are believed to have special value in leprosy. None of these medicaments and agents are generally believed to have a 'specific' effect.

(7) The number of medicaments, etc., advocated and used in leprosy is great. This is clear indication that no one remedy is very markedly superior to any other. The dictum 'If there are many treatments for one disease, then not one of these treatments is completely satisfactory' is true in leprosy.

(8) The treatment that is most widely used and advocated is the administration of chaulmoogra group oils and their derivatives.

(9) The chaulmoogra group oils have been used in leprosy for many years and of their derivatives, ethyl esters have been used extensively for ten years in certain centres. In recent years improvements have been made in the methods of preparation and in the technique of administration.

(10) In our experience, under combined general and special treatment of leprosy properly carried out for a sufficient period, nearly all the cases cease to progress, most cases improve, many improve markedly, and some show apparent arrest of the disease.

(11) Even if the disease is not arrested, many cases cease to discharge bacilli and thus become much less dangerous to the community.

(12) Some leprosy workers attribute most of the improvement to general treatment and others attribute most of the improvement to special treatment.

(13) Our opinion is that special treatment is of very considerable value, but it is far from being completely satisfactory. It is painful, it needs to be given for a very long time, special training is necessary for those who are to administer it, and the results of treatment are so slow in showing themselves that many out-patients cease to attend for treatment.

Holding these opinions, we cannot but feel that the second statement quoted above is misleading and is calculated to do harm by raising false hopes among medical men and leper patients.

THE ORGANISATION OF LEPROSY WORK

In India with its million lepers or more the voluntary system is the only possible one. Finance, apart from any other consideration, will rule out any compulsory segregation system. Leprosy work is now being organized on the propaganda—treatment—survey system (commonly known as the P. T. S. system).

The propaganda element in this work is undoubtedly of great value. One of the great difficulties in leprosy work is the lack of any enlightened public opinion. Propaganda work helps in overcoming this difficulty and leprosy work is being much helped thereby.

The survey element of the work is also of great value. Much valuable information has been gained about the prevalence of leprosy and the common types of leprosy, and information gathered in survey work may be of great value in the organisation of preventive work. The Leonard Wood Memorial Conference on Leprosy emphas-

ized the need for epidemiological investigation, and this is best done in India by the P. T. S. method.

The treatment side of P. T. S. work is less satisfactory. The common experience is that, in the beginning, a large number of patients come for treatment, but when the survey is finished the number of patients tends to drop, many of the patients cease to attend altogether, and many patients attend so irregularly that efficient treatment is difficult or impossible. We recently collected some statistics regarding the attendance of out-patients at clinics in India. It was found that the number of patients attending more or less regularly for six months treatment varied between 20 per cent and 50 per cent of the total. On an average the figure was about 30 per cent. In cities where patients do not have to travel far, where there are transport facilities, and where there is a more enlightened public opinion, the figures tend to be higher. In backward rural areas they are lower. The percentage of patients attending for one year is usually considerably lower than 30 per cent.

Leprosy is a disease which needs prolonged treatment. In the earliest case at least one year's treatment is advisable and many cases need several years' treatment. The finding that on the average 70 per cent of cases cease attendance in the first six months and that a still larger number fail to attend for one year is a serious one. The figures for our own out-patients clinics are little better than these.

The reasons for this state of things are numerous, but one of the principal reasons is that, from the patient's point of view, our treatment is not good enough and does not give the results he hopes for. We should not shut our eyes to this fact.

Other difficulties connected with out-patient clinics are the following:—

(1) That small clinics scattered over a wide area are difficult to organize and to run efficiently, and a sufficient standard of work in diagnosis and treatment is difficult to maintain. Laboratory work is often entirely neglected and the work suffers in consequence.

(2) That for efficient work the efforts of the different clinics need to be co-ordinated. This is often difficult.

(3) The segregation of infective cases in their homes is very rarely carried out.

(4) That many patients at certain times need far more careful

treatment than can be given in an out-patient clinic, where the patients only attend once or twice a week.

In our opinion these difficulties will not be really overcome until we have a more efficient treatment. This can only come as the result of experimentation and research. In the meantime we must use such treatment as we have to the greatest advantage. Out-patients treatment must be the basis of the work, but we believe that it would gain greatly in efficiency if it were associated with in-patient work on a limited scale. In-patient leprosy work on a voluntary basis is carried on in various institutions in India and in such work the difficulties encountered in out-patient work are lessened. The patients are segregated and remain under treatment as a rule for a much longer period than do out-patients. Special treatment can be given and patients can be seen every day if necessary. All necessary laboratory examinations can be made, and the regime, diet, etc., of patients can be supervised.

The principal difficulty of in-patient work is finance, but another difficulty is that patients suffering from the milder forms of leprosy are often not willing to undergo voluntary segregation.

One thing that is sadly lacking in all our leprosy work in India is a system of following up discharged patients in order that by repeated examination we may make possible some judgment concerning the permanence of the results of treatment. In countries where discharged patients are re-examined, a considerable proportion have been found to have relapsed. Before we are able to form any sound conclusions regarding the efficacy of our leprosy work in India, we must investigate the matter of the permanence of results of treatment.

If our leprosy work in India is to be really effective it must be based on accurate knowledge obtained by really scientific observations made under good conditions in an area which is more or less typical of India as a whole. At present our knowledge is very incomplete and our attempts to deal with leprosy are based to some extent on pious hopes rather than on scientific facts. We know that we can benefit many patients by treatment. We hope, but we do not know, that in many cases the results of treatment are permanent. We hope, but we do not know, that treatment as given at present will in time reduce the incidence of leprosy. We know little about the epidemiology or the mode of transmission of leprosy.

We believe that for the future of leprosy work in India, it is most important that really intensive work in a limited area be undertaken and that for this purpose there be established at least one leprosy investigation centre in a suitable rural area. The main objects of such a centre would be investigation of the epidemiology of leprosy in the surrounding district, of the efficiency of various forms of treatment, of the permanence of results of treatment, of the

effect of treatment on the incidence of the disease, and of the efficacy of methods of prophylaxis. This would best be done by a combination of in-patient and out-patient work, propaganda and survey work, examination of contacts and re-examination of discharged patients, etc. Another important object would be the training of leprosy workers, especially in field work. At the end of one or two decades of such work efficiently carried out there should be available facts and statistics which should be of tremendous value in organizing leprosy work in India as a whole.

During recent years there has been a great growth in leprosy treatment work in India and other countries. Many leprosy institutions are treating lepers and not merely housing and feeding them. Many hospitals are treating lepers as out-patients and many special leprosy clinics have been established. In India the work of Muir, his colleagues and others has thrown much light on leprosy, and its prevalence, causation, diagnosis, treatment and prevention, with the result that the public is beginning to take an intelligent interest in leprosy. The whole outlook and atmosphere of leprosy work has changed.

All this work is of great value and should be continued and extended, but we should not imagine that by the present methods leprosy can be finally eradicated from such a country as India. With a thousand leprosy clinics scattered all over India we should only be touching the fringes of the problem.

Leprosy is one of the great problems of India intimately connected with most of India's other problems. It is a social and economic problem, not merely a medical one. The great predisposing causes of leprosy in India are poverty, ignorance, bad social and hygienic conditions, bad diet and debilitating disease. Leprosy will not finally disappear from India until these evils are mitigated, but it is greatly to be hoped that as the result of research work, methods of prevention and treatment will be discovered which will bring leprosy more easily under control. In the meantime, however, even with our present limited knowledge we can do much.

Avoiding unreasoned optimism and pessimism, let us critically and scientifically study the facts and, realizing the difficulties, do what we can to overcome them.