LEPROSY NOTES

No. 3. OCTOBER, 1928.

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The British Empire Leprosy Relief Association.

(EDITOR :—FRANK OLDRIEVE.)

The Association's Object :

TO RID THE EMPIRE OF LEPROSY.

PRINCIPAL CONTENTS.

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THE

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Editoral Jottings.

To Rid the Empire of Leprosy.

MAKING PROGRESS.

Three things are necessary if the object of the Association's work is to be achieved:—

(1) A treatment for the disease which is successful
(2) Right policies and methods, so as to secure the widest possible use of the treatment
(3) The right eople to do the actual work.

These three points are well illustrated in the articles which we publish in this number of " Leprosy Notes."

Dr. R. Cochrane, Sir Leonard Rogers and Dr. Isabel Kerr all deal with the subject of the treatment of the disease, and readers will be encouraged to note the hopefulness expressed in these and other articles.

The question of the olicy to be adopted in dealing with leprosy in each part of the Empire is receiving careful consideration in all our Colonies and Protectorates, etc., and Dr. Shircore's article will be read with interest. The Tanganyika Government is giving more and more attention to the question of enlarging existing Treatment Centres for lepers, and the Association is co-operating by providing funds for buildings at a number of centres where new work is being developed.

The work done at a W. African Treatment Centre is dealt with by Dr. A. B. Macdonald, who is doing splendid service in Southern Nigeria. We trust that when he returns he will be able to still further develop the work at Itu, although even now more lepers are being treated there than at any other centre in W. Africa.

Dr. Birkenstock has a really good Treatment Centre in S. Nyasaland, indeed it is the best in the Protectorate, and is at present not able to take in and treat all the lepers who seek admission. He writes enthusiastically of the prospects.

It is not always realised how much Nurses, under the supervision of a doctor, can do for lepers, and Nurse Oborn's article shows how much is possible.

That missionaries are doing and can do a great deal for lepers is well known to all who have any experience of this particular department of medical work, and the story of the Leper Hospital at Dichpali is well told by the Rev. George Kerr. This hospital is probably the best Leprosy Hospital in India.

In some parts of the Empire there are very real difficulties to be met in dealing with leprosy, and perhaps in no part are these greater than in South Africa. Under Dr. Mitchell's guidance, however, good progress is being made, but compulsory segregation has been in force in South Africa for many years, and creates many difficulties, particularly that of getting early cases to come for treatment. I visited six of the Institutions for lepers in the Union last year, and was much impressed by a great deal of what I saw. I consider that the Institution at Emjanyana is splendidly conducted by Mr. J. A. Macdonald, and we are fortunate in having a good account of this piece of work, written by Dr. Neil Macvicar.

The United States has always been well to the fore in dealing with the question of leprosy, and every reader knows of the wonderful work commenced by the U.S. Government in the Philippine Islands. Not so many, however, know about the National Leprosarium at Carville, and we are indebted to Dr. O. E. Denny for writing about this institution, of which he has charge.

It has been suggested that readers may wish to ask questions and seek advice on their problems, and we shall be glad to do what we can to secure the best answers to any questions submitted, and questions and answers, if of general interest, will be published in " Leprosy Notes."

F.O.

Founding a Leper Colony in Nigeria.

By A. B. Macdonald, M.B., Ch.B.

" Doctor, have you a cure for leprosy? The natives say that my Headman has leprosy, and they will not allow him to go to the spring, or the market, and they want me to send him away." This question was put to me about two years ago by a lady, whose servant was a leper. I told her to send the man to me, at the Hospital, so that I could examine him. A few days later he arrived, and I found that it was only too true. The native diagnosis is seldom wrong. I have been wrong, myself, but rarely have I found them making a mistake. This was the beginning of the leper work in Itu.

I had been reading of the progress, made in the treatment of leprosy, in India and elsewhere, and told this man that I had no medicine for him just now, but that if he would come back in a few months, I would obtain some that would help him. This man never appeared again, but in November of 1926, after having a supply of drugs unused for months, another leper appeared, whom I began to treat. He brought another, and at the end of the month I had a small out-patient clinic of six. The numbers grew by twenty to thirty every week, until in six months there were 400, and in about fifteen months over 1,000 had been treated.

They were at first out-patients, coming in many cases from towns several days' journey off, for weekly injection. I did not know where they were staying, until one day looking across the river, I saw an unusual number of shacks built on a sandbank. " Who are in these? " I asked. " Oh! these are your lepers," my dispenser replied. I paid a visit to the sandbank, and found it so hot that they could hardly stand on it with their bare feet. It made me realise how keen they were, when they endured it.

In April, 1927, at the beginning of the wet season, the water began to rise, and the sandbank was gradually decreasing in size. They asked me what they were going to do now, as the people in the neighbouring villages were not disposed to help them. I tried to get the chiefs to grant a piece of land, but this was at first refused, and only granted after strong Government pressure. This ground was found to be most suitable, situated conveniently a mile from the riverbank and from the General Hospital. Two good streams pass through it. Roads were made, and the dense undergrowth cleared, leaving the site beautifully shaded with the numerous palm-trees overhead.

Each patient erected his hut of mud and wattle, the stronger helping those who were unable to do much for themselves. A mud house was put up with a verandah in front for giving injections, one for the treatment of ulcers, and other minor troubles, and a building to serve as church and school.

We have lepers at all stages of life, from children 6 years old up to the middle-aged and the prematurely old. They include about 200 women and 50 children. About ten different languages are spoken. The patients are mostly ordinary natives of the bush, with no education at all, while a few have been in employment as cooks, teachers, carpenters, blacksmiths, etc. Many of them are friendless, and have been deserted, or driven out of their homes. Leprosy cancels the marriage contract. It is strongly suspected that in many places lepers are got rid of in mysterious ways, and are either poisoned or take their own lives. In going over their individual histories, it is astounding to find that nearly all the " contacts ' are dead. I have known lepers in the last stage asking their friends to bury them alive.

The Government of Nigeria has taken a great interest in the work, and made a substantial grant. This has enabled us this year to put up an iron building, lined with " eternite," accommodating ten of the patients, who need more attention, a shed for giving injections, and dispensary and laboratory, stores, etc.

A small grant was also given for food. I was able to feed only the very necessitous, women and children and men crippled and unable to work or walk any distance. About 60 altogether received such support, and the food cost about 2s. 6d. each per week. The lepers are dependent on their own efforts for food, or some have still friends who support them. I have been able to employ the able-bodied men in making roads, and in the building of the new Hospital, and houses for the doctor and the non-leper staff. These received a small payment in food. We do not want to make paupers, and we try to retain the interest of such friends as they have left, making them feel that they have a share in their treatment, by providing them with the necessities of life.

A man who had leprosy was considered just as good as dead. On one occasion an able-bodied leper applied for food. I told him that I had not money to feed any more, and that he would need to go to his own town, and get food from his friends. My Headman, who knew him, said, " Please, Sir, he may go home, but he will not get food." I asked why, and he replied, " Because when a man becomes a leper he is looked on as a dead body, and many people will not trouble to feed him.'

The food problem is an acute one, and the longer a man is in the Colony, the worse it becomes. For a native to continue in well-doing, and support a leper-brother for two years, who was considered just as a dead body, is something new. We do our best to encourage industries of all kinds, carpentry, basket-making, blacksmith work, fishing, etc., and a beginning has been made in farming the ample ground we have at our disposal.

Treatment was begun first of all with sodium morrhuate, injected intramuscularly in the usual graded doses. This was given twice a week, when we had it. At times, owing to the wholly unexpected numbers who came, we were short. We continued this for the first six months, and then changed to sodium hydnocarpate, while recently, following the recommendation of Dr. Mayer, potassium iodide has been used by my relief, Dr. Martin, and he reports striking results of its use in later cases.

Intestinal worms, dysentery, and syphilis had also to be treated, and neo-kharsivan was given as freely as resources allowed. Ulcers were dressed daily or thrice weekly, by a leper who was trained, and who proved himself most efficient.

We found that a small quantity of Ung. Hydrarg. Iod. Rub., diluted with white vaseline 1 in 1, applied to the leprous patches produced irritation and blistering. When healed up the skin was darker, and this proved to be a most popular line of treatment, as although there is no active disease left, and sensation is established, a scar is a great grief to the patient, enabling people to point a finger at him.

Writing at home on leave, I have not exact figures with me, but after 12 to 18 months about 30 were symptom-free, a number got tired or for various reasons went home, and did not return, a number of those in the advanced stages died, while the majority of the lepers showed great improvement. Even after a few days, the changes on the expression is most marked, the hope that has been awakened, and the bright and cheerful atmosphere of the place makes a wonderful difference. I was surprised at the reluctance of some to go home. While apparently well, and with no complaint, after it was suggested that they were, or would soon be, ready for discharge, pains developed in their feet or elsewhere, unheard of before! The interest taken in them, the liberty they enjoy, besides the religious atmosphere we endeavour to promote, make a great contrast to the life of ostracism, and hostility, to which so many of them are subject in their own homes.

The Treatment of Leprosy.

A REVIEW OF PRESENT-DAY METHODS.

By R. G. COCHRANE, M.D., M.R.C.P., D.T.M. & H.,
Medical Adviser, The Mission to Lepers.

The past two years have seen further advances in the treatment of leprosy. So much so, that those who have not the time to give to the special study of this disease wonder which is the best drug to use out of the many that are advocated. The object of this article is to review briefly some of the present-day methods and endeavour to guide those who are in difficulties as to which drug should be employed in treatment.

The ideal treatment for leprosy should satisfy the following points: (1) A drug which rapidly controls and eliminates the disease; (2) One which is cheap; and (3) One which is painless and easy to give. It can be said at the outset that no drug which is in use at present satisfies these criteria. Among the drugs which approach nearest to the ideal are the following:—

(1) Hydnocarpus oil and 4% Creosote.
(2) Alepol.
(3) Potassium Iodide.

Hydnocarpus Oil and Creosote.

This remedy gives the most uniformly good results of all the drugs used in leprosy treatment. In those countries where hydnocarpus oil is easily obtainable it is the drug which should be used as a routine. This remedy is easily administered by subcutaneous infiltration, or intramuscularly. It is also generally successful although the time taken to clear up an advance case will be considerable. At the outset of treatment it is unwise to make any statement as to how long it will take before a patient becomes symptom free. Few, if any, cases of leprosy clear up in three months, and many will take anything up to three years or more before it is safe for them to stop treatment. It is dangerous to make generalisations with regard to leprosy, but it can be said that provided care is given to the clearing up of predisposing diseases and all conditions which are likely to reduce the patient's resistance, *e.g.*, the lack of proper food and exercise, then hydnocarpus oil and creosote will be found to be eminently satisfactory in the majority of cases.

Alepol.

In countries where hydnocarpus oil cannot be obtained, the

new preparation called " Alepol " should be used. At present we are trying it in selected cases and finding it satisfactory. The chief drawback to this drug is that it appears to cause pain in higher dilutions than 2%, although other workers do not report this to be the case even in solutions as strong as 4%. So far, our conclusions are that this drug seems to have taken us a step nearer towards the endeavour to find the ideal remedy. There are two advantages that Alepol has over other drugs for leprosy. First, as it is made up in a powder form it is easily exported, and secondly the drug is extremely cheap. Cheapness is one of the chief concerns when large numbers of lepers are under treatment. Alepol should be dissolved in distilled water for preference and 0·5% carbolic acid should be added. Care should be used in adding the carbolic acid, and if pure carbolic acid is added in order to make 0·5% carbolic in Alepol, then the fatty acids are liable to be precipitated. The carbolic acid should be diluted first, then added. This solution can be given equally well intravenously.

The technique for intravenous medication should be that followed by the School of Tropical Medicine in Calcutta, that is, draw an equal quantity of blood into the syringe containing the Alepol solution and then inject the whole slowly. This method overcomes the tendency to blocking of the vein as a result of a thrombus set up because of the slightly irritant nature of the solution. The drawback to intravenous therapy in leprosy is that to ensure success trained assistants are necessary. In many cases leprosy treatment is carried out by lay missionaries, and therefore intravenous methods are not always possible. The two remedies described can be safely employed by the laymen.

Potassium Iodide.

Besides the remedies already briefly described there are one or two more potent remedies which are proving useful in the treatment of leprosy. Among these the most important is the administration of potassium iodide by the mouth, the use of which was described by Dr. Muir in the last number of " Leprosy Notes." In those cases which are in the early stages of the disease, and whose health and general condition are good, this remedy is effective, and sometimes rapid in its results. Great care should be taken, however, in selecting cases for potassium iodide therapy. Any case whose general health is lowered should only begin iodides cautiously, or not at all, for in such cases the breaking down of leper foci may cause a greater degree of dissemination of the disease, as the body has not acquired the resistance necessary to combat a sudden flooding of the system by myriads of bacilli. In early cases where the general health is good and the patient

can take plenty of exercise then iodides may produce a dramatic effect. In cases which already show signs of commencing resolution of lepromata either as the result of treatment, or due to the natural tendency of the body in the course of time to overcome the disease, then iodides will assist in the further breaking down and ultimate resolution of the disease. Those who have seen post mortem examinations in lepers, and have seen the myriads of million leper bacilli in the body, and realise how easily they multiply and disseminate, can easily understand that caution must be used in applying this most potent remedy.

Iodides are frequently recommended as aids to ascertaining whether a case has been cleared up or not. While it may be said that if a patient does not react to large doses of iodides he can be discharged more readily, yet it is suggested that our object, especially in nodular cases, should be to bring the patient as rapidly as possible to the stage when all active signs have disappeared. If a patient has been in this stage for from six months to a year then the general resistance of the body should be trusted to keep the disease in check.

In nodular, or skin cases which have become symptom free, no one claims that all the bacilli in the body have been destroyed. As in tuberculosis so in leprosy, the bacilli are encased in fibrous tissue in the lymph glands, etc., in the body. The question arises, is it wise to break down this protection which the body produces, and risk the flaring up of the disease as a result of the administration of potassium iodide? Such a method would not be considered in the sister disease tuberculosis, and, the writer holds, it should only be cautiously applied in leprosy. In India, where large numbers of the cases are found to be the highly resistant nerve cases, this method is more justified. In countries where the more serious nodular cases are in the majority, potassium iodide may continue to light up the disease constantly, and the patient never be discharged. However, if patients resist large does of potassium iodide, one can conclude with more confidence that they are symptom free.

With regard to diagnosis, it must not be concluded that if a patient does not react to large doses of iodides the case is not one of leprosy. The clinical tests still remain the most certain in the diagnosis of leprosy, for the writer has seen even skin cases resist 240 grs. of iodide twice a week for a month without a reaction. This method is of positive value in confirming a diagnosis if a reaction is produced. No laboratory or therapeutic test can displace the clinical diagnosis, for the disease can be certainly diagnosed in the very early stages. Where leprosy lies latent, as

for example in untainted children, the writer is doubtful whether we are justified in stirring the disease to activity by large doses of iodides, for, the great majority of such children do not develop the disease if separated from their parents. The chief drawback to the iodide therapy is the cost, for potassium iodide is an expensive medicine.

Any other method which produces reactions, such as the intravenous injection of typhoid bacilli, or some other method of protein shock, may prove of value. In other words, in the stage when the disease is beginning to subside any form of therapy which will produce a smart reaction will be found to be beneficial. A word of caution should be added to the effect that sometimes the most dramatic results are the least permanent. Under a protein shock reaction all nodules and other skin manifestations of the disease may disappear, only to reappear when conditions in the body are more favourable to the growth of the bacilli. No skin case should be discharged or paroled under six months to a year from the time all active signs have cleared up. If in doubt potassium iodide may be given, but it should be remembered that the natural resistance of the body should be relied on, rather than the artificial breaking down of leprotic foci which have been or are being enclosed in fibrous tissue capsules. Iodide or some other form of protein shock therapy is of great value, but those who undertake such treatment must be fully cognisant of the limitations of such methods. No case which has the slightest sign of tuberculosis should be given potassium iodide.

In the treatment of leprosy the chief factor is the building up of the resistance of the body, and any measures that do this are of great value. Every case must be taken on its merits and studied individually. The present-day treatment of leprosy is full of hope, and physicians have in their hands remedies which will cause the subsidence of the disease in the great majority of cases; therefore the hope of ridding the Empire of leprosy is a legitimate and practical one. Let everyone concerned in this fight put their full strength into it, and prepare for a long, arduous and relentless warfare, knowing that in the end, if we patiently and steadfastly pursue our goal, we, or those who follow us, will gain the victory over this dreaded enemy of mankind.

Good Progress of Modern Prophylaxis Against Leprosy.

By Sir L. Rogers, C.I.E., M.D., F.R.S.

The complete revolution in the whole outlook of leprosy prophylaxis, effected by the discovery and establishment of the efficiency of the modern treatment by injections of soluble derivatives of chaulmoogra and hydnocarpus oils in early cases of the disease, has necessarily taken time to be so widely recognised as to effect materially the now largely obsolete measures based on the compulsory segregation of advanced cases. Nevertheless, there is increasing evidence in various parts of the world that the age-old cruel lifelong imprisonment of lepers must soon give place to the voluntary attraction of the cases for treatment in the early curable stages of the disease, and this modern method is incompatible with rigid isolation laws. The League of Nations Health Committee have recently appointed a Leprosy Commission of experts, which includes Colonel J. O. Graham, C.M.G., I.M.S., a leading member of the Association's Indian Council, and we have been invited to co-operate with this Commission in their work of preparing a plan for the International investigation of leprosy, and are gladly complying with the request. In a report to the League by two prominent leprologists of the Dutch East Indies they have advised the plan long advocated by us, namely that all lepers be examined by a small board of medical experts, who are empowered to allow early uninfective cases to be treated at hospitals or at home without being isolated. Again, in the Philippines a number of centres are being opened for the treatment of lepers in the more amenable stages, instead of sending them to the Culion isolation colony.

In our tropical African possessions the policy of relying on the voluntary admission to treatment colonies is proving far more effective in attracting the lepers than former compulsory measures, Tanganyika Territory having made a good start in this direction in place of the compulsory isolation which has been in use more or less since the pre-war days of German administration. By the end of the present year we hope to have several thousand voluntary admissions to treatment centres in various British African possessions; we are now spending much of our funds on these centres to very great advantage.

Good reports continue to reach us from all parts of the Empire

on the use of sodium hydnocarpate in the form of Alepol, d also from Fiji, where Dr. Neff is using sodium gynocardate " C " (hydnocarpate) as manufactured by Messrs. Martindale and Co., and this preparation has been sent to several other reliable workers for further trial. The cheapness, simplicity of use, and comparatively painlessness of these remedies render them an important advance in therapeutics. The hopeful character of the reports from various centres published in this and other numbers of Leprosy Notes " make it unnecessary for me to write further on this subject, as they speak more eloquently of the extraordinary advance in one decade, from the hopeless outlook of the compulsory segregation methods then solely relied on, than anything that I can say.

Leprosy Work in Tanganyika.

GOVERNMENT POLICY.

By J. O. SHIRCORE, C.M.G., M.B., Ch.B.,

Director of Medical and Sanitary Services.

The number of Leper Camps in Tanganyika Territory is 42, and the Lepers segregated are approximately 3,299. The camps are situated in every province of the country, and in some instances, as in the Tukuyu district, the huts and cultivations cover an area of several square miles. Wherever it has been found that Medical Missions are near enough and willing to undertake the care of the Lepers, allocations have been made for the purpose out of the Leper Vote. An attempt has been made to obtain statistics of the total Leper population of the Territory, but the returns are valueless. The policy until the year 1926 was limited to as efficient non-compulsory segregation as possible, and the provision of food, clothing, agricultural implements, drugs and dressings.

In the meanwhile experimental effort relating to treatment with the latest specific remedies was undertaken at a few centres. There were certain important factors which determined the continued rigid adherence to this policy, *i.e.*, the necessarily prolonged nature of the specific treatment, the deterrent effect of repeated injections unless some immediate benefit were obvious

to the patient, and the risk of a reaction resulting in the breakdown of the existing segregation. It was felt that until our therapeutic armament was sufficiently advanced definitely to accomplish early subjective amelioration of the patients' condition, more harm than good would result, and thus militate against any future efforts at segregation and treatment.

Three important influences have, however altered this outlook recently:—

(1) The extensive campaign against Yaws and Syphilis with Bismuth Sodium Tartrate, which has resulted in over 350,000 cases of the former disease being treated since 1924, has modified profoundly the African mind towards European medicine and the use of the hypodermic needle, indeed the native now demands treatment by injection for almost every disease that he suffers from.

(2) That the outlook as regards the treatment of leprosy, especially of early cases, has improved.

(3) The facilities offered by "The British Empire Leprosy Relief Association" since the visit to Tanganyika of Mr. Frank Oldrieve, which has enabled certain of the Missionary bodies and the Government, through his kind offices, to establish treatment and investigation centres, described by Dr. Muir as P.-T.-S. centres, during the past several months.

There can be little doubt that in time these centres, which are already proving attractive, will provide valuable information of the numbers of Lepers, their distribution, and possibly other data which might throw further light on how best the situation may be further dealt with.

The present organisation is tentative and experimental, but, from reports and demands for help and extension received, it is hoped that, when the finances of the Government are better able to meet them, a wider and more active attack may be inaugurated in the near future.

A Central African Treatment Centre.

By C. F. Birkenstock, M.D.

Certainly the news of the possibility of a cure for leprosy has brought joy to innumerable hearts and homes in Central Africa. In Southern Nyasaland leprosy is viewed by the natives as a terrible scourge and a loathsome disease. Consequently sufferers from this disease are all the more anxious to receive treatment.

The work here at Malamulo, Cholo district, is quite recent, having been started but three years. At the beginning of this period it was with difficulty that we persuaded two lepers to come for treatment and to persist in it. However, before long others, having seen improvement in these two, requested treatment, until after a year we were treating thirty, but more than twice that number were waiting their turn for treatment when the Mission was able to provide for such.

At present we average ten applicants a week seeking admission to our leper colony. We are treating ninety now, eighty of whom are in-patients, and the others reside in the surrounding villages, and come in regularly for their injections. In all this time we have had four desertions, and they were all cases who were practically cured, as the last active lesions had disappeared months previously. There is no doubt that if facilities would permit we could have five hundred receiving treatment here within the next six months.

Until three months ago treatment consisted of subcutaneous injections of "Hydnocreol" in isolated doses of one c.c. each, numbering up to 10 c.c. When a patient showed reaction from these injections they were discontinued for a period until the reaction abated. In conjunction with this we also used potassium iodide in alternating periods of two weeks each. This was given up to ten grains per day for two weeks, and then, allowing two weeks rest, subsequently for two weeks again. This we found to be extremely efficacious and very important in the treatment. Locally, on all skin lesions we applied a thirty-three per cent. solution of Trichloracetic Acid. At the present time we are using Alepol in periods of six weeks' intravenous injections of a three per cent. solution, in doses of one c.c. to five c.c., alternating with a similar period of subcutaneous injections of Alepol similar to the use of Hydnocreol.

In addition are the factors of symptomatic treatment, especially of open ulcers, nerve trunk lesions, and also the surgical removal of nodules, and hypertrophied skin lesions.

In solving the question of housing, we have endeavoured to satisfy two primary essentials, efficiency and economy. The result has been the construction of a group of leper huts which are quite temporary in character, but still sufficiently durable to last one occupant throughout his period of treatment. Then, when the hut is vacated, it is burned down and a new one erected on the former site at the cost of only a few shillings. This subsequent building of huts is done either by the patient or his friends. The huts, like all thatched buildings, are supported by a wooden structure They have an inside floor space of seven feet by nine feet. This accommodates one patient. The floor is made of brick with a thin coat of cement, which will permit of thorough cleansing. Each patient supplies a grass mattress, three inches thick, and is given a sleeping mat and a blanket.

Another essential thing is to keep their minds occupied with other things while under treatment. With this end in view we request each patient to assist in the care of a common vegetable garden, for the benefit of the patients. We not only aim at raising the vegetables, but correct methods of agriculture are taught, and furthermore they are encouraged to add new vegetables and fruits to their dietary. Other lines of industry are also encouraged, among which are basketry and mat-making.

The in-patients are fed on an almost meat-free diet. This being a tropical country, we find that a low protein standard in the diet is best. Each patient receives a pound and a half of maize per day, one quarter pound of legumes, such as beans, peas or monkeynuts, a liberal supply of greens, and a pint of cow's milk. Meat is served two to four times per month.

As far as results are concerned, it is, of course, very difficult to say very much at the present time. There is no doubt that every patient receiving treatment is definitely benefited by it. Furthermore, the possibilities of a cure in recent cases are very great, and after a year's treatment would be very nearly a hundred per cent. Cases of long standing are naturally more difficult, and require more time. Up to the present time we have discharged 19 on parole, with instructions to return for subsequent examinations. These cases are cured as far as a bacteriological examination can determine. Only *time* will establish the certainty of the cure. Eight who have been discharged for a year or more have not shown any active new lesions.

On the whole, the results are very gratifying, and promise every likelihood of the permanent eradication of leprosy.

In the United States.

NATIONAL LEPROSARIUM AT CARVILLE, LOUISIANA.

By O. E. DENNY, M.D., D.T.M., Medical Officer in Charge.

In recent years, the lowering of the mortality among the hospitalised lepers, the decrease in suffering from acute and chronic manifestations of leprosy and the increasing number of patients paroled as no longer a menace to public health, have combined to improve the morale and to accentuate the optimism of the already remarkably contented group in this hospital.

In the last twelve months, 73 new patients were admitted; six were deported as not being legally entitled to hospitalisation; 19 died, with a resulting mortality of 68 per thousand. Since the hospital was organised in 1894, one or more lepers have been admitted from all States of the Union excepting eleven. At the close of the fiscal year, ending June 30th, 1928, the population of the hospital was 293. Approximately one-half of the lepers are foreign born. Most of the native born have come from the Gulf Coast States, Louisiana, Florida and Texas.

Eleven patients were paroled, the largest number discharged in any twelve months period, and representing 4% of the mean population of the hospital. Since the Federal Government assumed control of the Hospital in 1921, 29 patients have been paroled, and but one has returned for further treatment because of relapse.

The proximity of the Leprosarium to New Orleans has facilitated visits by physicians. Lectures and clinics have been continued as a part of anti-leprosy propaganda; 91 physicians, 90 dentists, 104 medical students, and 12 nurses visited the hospital during the year.

Chaulmoogra oil continues as the medicament of greatest promise, and the recent method* of administering the crude oil hypodermically, in a relatively painless manner, has increased in popularity with the patients. Nearly two-thirds of all the lepers are now receiving bi-weekly intramuscular injections of Benzocaine-Chaulmoogra. The crude oil combined with Benzocaine administered orally in capsules is well tolerated by the stomach, and most of the patients take relatively large doses with a minimum of discomfort.

* Public Health Reports, Vol. 42, No. 49. Dec. 9, 1927.

It is remarkable that in a group of nearly 300 lepers, no major surgery has been indicated in the last year, and only 118 minor operations were performed. This is partly due to the constant adequate medical and nursing surveillance.

The various methods of applying physio-therapy, particularly toward the correction or prevention of deformities of the anæsthetic type of leprosy have been continued with the enthusiastic co-operation of many patients. During the year 38,736 treatments were given by a physio-therapist and three leper aides.

Special study is being given in the ophthalmologic clinic to prophylaxis and treatment of leprous ophthalmia and various experiments are being performed with some degree of success in relief of the intense pain and photophobia so frequently associated with acute and chronic eye complications.

In the dental clinic, each newly admitted leper receives a routine examination and such treatment as may be indicated. Pyorrhœa alveolaris is common among newly admitted patients, and active corrective measures are promptly instituted.

Laboratory investigations during the year have been directed largely toward blood chemistry, and it is anticipated that the continued routine examinations of the blood of a large number of lepers over a long period of time will eventually bring to light some information on this relatively obscure subject.

With such a large group of lepers in relatively good health, the administratives of the Leprosarium are constantly at their wits end to provide adequate employment in order to prevent undue morbid introspection. An average of one-third of the leper population is continuously engaged in the performance of minor activities of the hospital; assisting the nurses in the care of the ill, blind and otherwise helpless patients; cleaning of wards and grounds; assisting in the laboratories, etc., and each leper so employed receives a monthly stipend for his work.

In so far as practicable, most non-technical work within the colony proper, excepting that in connection with the dietetic and laundry departments, has been performed by the lepers. The results in terms of work performed and the maintenance of proper morale have been satisfactory.

The proper employment of the time of the blind, mentally deficient or maimed leper gives greater concern, and a department of occupational therapy has been organised under a trained therapist to endeavour to employ the minds as well as the bodies of those especially stricken.

Work in the Gold Coast Colony.

By M. B. Duncan Dixey, M.B., Ch.B., D.T.M. & H.

There are at present in the Gold Coast three Leper Asylums.

At Accra, the capital, there is a small asylum on the sea shore. This asylum contains some 46 inmates, mostly in the later stages of the disease, undergoing treatment.

It is hoped shortly to start an out-patient Clinic for those cases in the early stages of the disease, in conjunction with the asylum, and thus to attract cases to come forward for treatment.

At Ho, in Togoland, 104 miles north-east of Accra, there is situated the largest asylum in the Colony, commenced by Dr. F. H. Cooke in September, 1926. This asylum has at present over 150 in-patients, and is surrounded by huts built by some 250 out-patients, who have been attracted by the success of the treatment, and the hope it holds out.

The Government have under construction a new and larger settlement, about a mile away, part of which is already occupied by cases transferred from the old settlement, while additional accommodation, together with hospital and administrative buildings, is in process of erection.

A survey carried out of villages within an area of 50 miles of the asylum, showed few lepers, the majority already being at Ho undergoing treatment, or awaiting admission, as soon as the new accommodation is available.

The area surveyed has a population of approximately 100,000, and from the number of lepers seen in the asylum, and during the course of the survey, the leprosy rate of this area would be about seven per mille.

Of the cases seen in the asylum, 80 per cent. were of the "anæsthetic type," and the greater number of these of the "early anæsthetic type," so the outlook for treatment in this area is hopeful.

At Yendi, situated 500 miles by road north of Accra, there is an asylum started by Dr. Helen Hendrie, with the help of the Government. There are about 60 lepers, and fresh cases are coming for treatment.

It is hoped to start out-patient clinics at all stations where there are medical officers resident. This should attract fresh cases to come forward for treatment, and also assist in the Leprosy Survey of the Colony, which is at present being carried out.

The survey will give some idea of the prevalence of leprosy, and also give some indication of the number of new settlements required, as an extension to the present accommodation, for those cases in the more infectious stages of the disease.

The out-patient clinic for early cases, and the settlement for those cases which are in the infectious stages of the disease will be the foundation of the scheme, patients being attracted in the first instance by the survey, and the out-patient clinics.

It is considered that compulsion in any shape or form will do more harm than good at this early stage, and would lead to the hiding of cases.

The Medical Officer carrying out the survey does a little general medical work first, in each area, to gain the confidence of the people in that area, otherwise suspicions may be aroused, in the more primitive areas, and lepers may hide themselves in the bush.

A travelling dispensary, a suggestion of the Director of Medical and Sanitary Services, has been found a most useful way of carrying out the survey work.

APPRECIATION OF ASSOCIATION'S HELP.

Dr. C. F. Birkenstock, of The Seventh Day Adventist Mission, writes:—

"We appreciate very much the substantial assistance The British Empire Leprosy Relief Association has given us, as it is through their help that we have been able to do a little for the many sufferers from leprosy in this part of Southern Nyasaland."

Up-to-date Leprosy Work in India.

I. THE DICHPALI LEPROSY HOSPITAL.

By The Rev. G. M. Kerr.

The only claim for notice this hospital has is that it is a hopeful attempt to deal, according to present-day methods, with the leprosy problem in the Nizam of Hyderbad's Dominions, the largest of the Native States of India. In this State, according to census returns, there are 4,214 lepers, but in our judgment this number should be multiplied by at least five, or possibly ten, to give anything approaching a true estimate of the incidence of the disease.

The Leper Home was started in 1916, when segregation was the only course open in leper work, and every leper applicant was admitted irrespective of the stage of the disease. Now, however, in the light of present possibilities, this policy is altered. We were in danger of being silted up with old and impossible cases. These we arranged for otherwise, and what was a home has now, without losing any home-like qualities, become a hospital with some 400 cases almost all suitable for treatment. This type only is admitted now.

The hospital is built on a healthy site of 200 acres. The main building is the treatment block, the chief feature of which is that the working rooms, *i.e.*, the treatment room, dispensary and laboratory, are large and airy, with plenty of verandah space, affording easy facility for group treatment according to sex and also stage of the disease. The residential wards are of simple construction. A small building of two rooms, each sufficiently large for three inmates, is, we find, the most satisfactory. Behind the ward is a small compound at the end of which is a separate cookhouse and open-air bathing enclosure for the inmates of each room. We attempt to grade the inmates in these wards according to the stage of the disease, but this is exceedingly difficult since caste and religious differences have to be respected.

The social economy of the Institution is likewise of the simplest nature. Well-nigh all the inmates of the general wards are dependent on us for maintenance, and the daily ration consists of one pound of rice and one anna for minor expenses. This money allowance is spent at the Institution shop, all patients being permitted to look after their own mess arrangements. For those who have regular manual labour or orderly work to do, extra rice and money allowance is made. With these arrangements our people are quite content and the total expense individually per

month for food, clothing and medicine has been eleven rupees halli sicca, *i.e.*, 13 shillings. Since the introduction of potassium iodide in the treatment, however, this has increased to 14s 6d. Much more, we believe, could be done in arranging a better and more suitable dietary for individual patients, but this involves such social complications and extra expense that, save in special cases, nothing has been attempted.

One feature of the Hospital has been very successful. At some distance from the general quarters, four special blocks of wards are reserved for private patients. These have separate comfortable living quarters for which they pay five rupees monthly, while they undertake their own maintenance. These special wards are invariably full, patients coming from all parts of India.

On the average there are 50 women inmates, but we find women lepers generally are too far advanced in the disease before they seek admission, and those who come are very largely from the lower strata of Indian life. We have never permitted any leprous husband and wife to live together in the Institution. Early cases among the girls and young women should be provided for, but with the usual type of adult women patient here all they seek, and very largely all they need, is a haven of shelter, not a hospital.

It is otherwise with our young people. Of these we have over 100, mostly lads under 20 years of age. Were all our inmates of this character the medical results would be striking indeed, as the great majority of them are uncomplicated cases, and, besides, have youth in their favour. They form one big, happy family with a fine communal spirit. Every hour of their day is absorbed. When not immediately under treatment they are busy in school, weaving-shed or garden, and in the evening their play-fields are a pleasant sight.

We can provide for 400 inmates only, and there may be 40,000 lepers in this State. As yet we have no propaganda among them. Should we do this, the present steady stream of applicants would speedily become a torrent. How then is the problem to be tackled? Certainly not by the indefinite enlargement of this Institution, or even by the duplication of it elsewhere in the State. The only hope is in making the treatment available everywhere. When, at every hospital and dispensary, leprous patients at a treatable stage of the disease can be adequately cared for as out-patients and instructed how to safeguard those with whom they come in contact, then only may we hope that the disease will be stamped out. With this in view we have established instruction courses

for Medical Officers. Dichpali is now recognised by the Indian Council of the British Empire Leprosy Relief Association as the teaching centre for Southern India. The standard and tests are the same as those of the School of Tropical Medicine, Calcutta. The courses extend for 12 days and adequate information and practical experience is given in the diagnosis and treatment of the disease. The Nizam's Government is sending its Medical Officers in rotation to these courses, and military, railway and missionary doctors also come. As a result, leprosy clinics will in time be established in town hospitals throughout the State. Two are already at work in Secunderabad. For several years now our medical staff have conducted a model out-patient dispensary in Hyderabad. But this is work which should be undertaken more widely by the Government Medical Officers. In the near future we hope to see many such centres not merely in the towns but in the districts. Only by such means can leprosy be brought under control and, in time, eliminated.

II. TREATMENT AT DICHPALI.

By Mrs. Isabel Kerr, M.B., Ch.B.

As the result of our seven years' experience of the treatment of leprosy, we are more and more convinced that our first duty is towards cases who will respond to our efforts within reasonable time. We must induce people who hide their disease to come for treatment, since so long as leprosy can be hidden it is generally at a stage when it can be remedied.

Our percentage of successes is in inverse ratio to the age of the patients. The youths in our leper lads' hostel make much more rapid progress than the men and women. After the age of 25 recovery is distinctly slower. We feel, therefore, that if energy and means are limited they should be spent on the younger generation in the hopes that the elder generation of lepers will die out and there will be none to take their place. We could wish, therefore, to see our hospital filled with those who will respond to our efforts in comparatively short time, while suitable provision should be made elsewhere for those who require longer time or who may not benefit by treatment. There is good hope that we may attain this desirable end. One week, recently, we had 37 applicants, and one day, still more recently, there were 12, and of these a good proportion were early cases. If efficient treatment is guaranteed this type of case will be encouraged to come.

Up to the beginning of the present year we used the hydnocarpus oil and esters along with such drugs as were required for complications. The most common of these are of specific origin, and patients with a positive Wassermann had courses of novarsenobenzol or sulfarsenol. This latter is still in use for some cases, but Avenyl (Hg33) is generally used now, as this is cheaper and allows of both syphilis and leprosy being treated intensively at the same time.

The statistical results of ester and oil treatment are as follow :—

Symptom-free	18 per cent.
Much improved	60 per cent.
Improved	20 per cent.
No improvement	2 per cent.

After treatment for 12 months or more, 63 per cent. of infective cases become negative to microscopic examination.

Last February we changed our treatment somewhat and we commenced giving sodium hydnocarpate, in place of the ester, with the addition of potassium iodide. We began with about 100 cases—the youths in the leper boys' hostel and 30 men who had been on ester treatment for a considerable time, some of whom we wished to discharge, but elected to give them a course of iodide before doing so. Sodium hydnocarpate and potassium iodide is now the recognised treatment here with well over 300 cases under it.

It is not possible in so short a time to give results, but what strikes one first is the ease with which one can induce reactions in the great majority of skin cases. It is exactly like giving a vaccine. With the sedimentation test as a guide the dosage can be determined and regulated. It may suit a very acute case to have potassium antimony tartrate rather than the iodide. In others the sodium hydnocarpate may do very well alone and the iodide given when a certain degree of immunity has been reached.

The point that we can illustrate best from the few months' experience is this: That potassium iodide reaches foci of the disease which have been untouched by any other form of treatment. Let me give a few cases.

No. 1.—R. Y., aged 25, with skin shewing very few bacilli, had improved so far that in January, 1928, the skin was negative and all erythema had entirely disappeared. There remained, however, anæsthesia of the ulnar areas of both arms and of the side of one ankle and foot. With potassium iodide (sodium hydnocarpate being given alternately), erythematous patches re-appeared and resistant and degenerative forms of mycobacteria were found

in the skin, while the patient was disturbed by an increase of anæsthesia on the ulner areas, with neuritis. All these aggravated symptoms were merely reactions, and when they died down the sensation had returned in both forearms, and the ankle had greatly improved, leaving anæsthesia in the initial lesion only.

No. 2.—M.B. was reported an A2 case, but with 50 grains of Iodide several positive areas appeared.

No. 3.—L.P., who was admitted in May, 1924, with very nodulated skin, improved so far that though his skin remained positive in places, nodules had disappeared, and no reactions were being induced by ester treatment. With 15 grains of potassium iodide crops of nodules reappeared. He is still reacting, and has only reached 60 grains.

No. 4.—D. had 200 grains for three weeks before he showed sign of reaction. Then rose-coloured nodules appeared on his eyelids and upper part of his face generally.

No. 5.—O. reacted with 200 grains. He had a very painful neuritis of an ulnar nerve, and continues to react with quite small doses.

No. 6.—A boy in the healthy school had been free from symptoms for four years, but with 200 grains of iodide an anhydrotic insensitive patch about the size of a rupee appeared on the right forearm. This cleared up within a few weeks.

No. 7.—A. was a suspect case aged 10, who had been under treatment for some months, reacted to 15 grains of iodide, showing two small positive areas over the abdomen. This cleared up within a few days.

Case No. 7 shows how useful potassium iodide is in the treatment of contacts, and Case No. 6 indicates the value of this drug as a test of cure.

A large proportion of our patients have eye-reactions. Where the face is infiltrated they are common. One case was interesting. He had had conjunctivitis, apparently leprodotic, in the right eye for some time, and we were chary of giving iodide. On risking small doses, given very carefully, the conjunctivitis cleared up and has not appeared again, despite the fact that the patient is taking 200 grains twice a week.

These few months' experience has convinced us that potassium iodide, carefully administered, is a valuable adjunct in treatment.

Leprosy Work in South Africa.

A VISIT TO EMJANYANA.

By Neil Macvicar, M.D., C.M., D.P.H.

Last December, thanks to an invitation kindly extended to me by the Secretary for Public Health, I had the opportunity of spending two most interesting days at the great Government Leper Institution, Emjanyana, Transkei, S. Africa. Mr. J. A. Macdonald, the Superintendent, besides himself shewing me the leading features of the work, gave me abundant opportunity of studying for myself how the Institution is conducted, and of learning from the patients what they thought of the conditions under which they are living.

The present system of management has been evolved within the last few years. Step by step, as opportunity offered and experience suggested, the old semi-prison system has been abandoned and a system of management established which approximates, as nearly as the circumstances allow, to the old Native system of village life. The patients select headmen from among themselves, and these administer the affairs of the community, trying cases in public in the old native way, being responsible for the equitable distribution of the rations, and seeing that the rules of the institution are obeyed. The patients have gardens to cultivate; they own property; they work for wages; they buy and sell; they remit money to their homes; they have Post Office Savings-bank accounts and may have quite a good amount to their credit when the day comes for them to be discharged cured. It is interesting to observe the variety of employments the patients follow. There are patient nurses in the wards for bed-ridden cases, assisting the professional European and native nurses, and their are patient police, assisting the regular guards. (The regular guards, I may remark in passing, are all natives. There are now no European guards.) Patients do all the making and mending and laundering of clothing, dividing up of rations and cleaning of premises. Those who are able to get their own food to cook and meal to bake their own bread. There are schools for the children, and Wesleyan and Anglican churches. I was surprised to learn that about half of the patients are Christian. On enquiring the reason for so large a proportion, I was told: " There are not so many when they arrive; they become Christian here."

Enquiring further into this, I learned that during the period spent at the Institution many of these new converts learned to read, and when they returned to their homes some became local preachers. It struck me as very remarkable that such an institution should in this way become a source of light and leading to the whole country from which the patients come. The Bantu Presbyterian Church is also planning to establish a church in the Institution. The Superintendent welcomes the co-operation of the church. The Christians, he says, are a source of strength to the community.

Heathen patients are permitted, if they choose to use part of their rations for the purpose, to make beer and entertain each other. As the quantity is necessarily limited and the time restricted to one afternoon a week, the effects are seldom harmful. It is a logical application of the principle that people who are, from no fault of their own, removed from their homes, should be restricted as little as possible in the enjoyment of the amenities of their home life.

A more difficult matter still is the wise regulation of the social intercourse which is permitted between the male and the female sections of the Institution. These are situated at the opposite end of the Institution, the village of staff houses, store, post office, etc., lying between them. Visiting is freely allowed, except for individuals who may have misconducted themselves and by sentence of the headman have been restricted to their own quarters.

There is an air of cheerfulness and contentment at Emjanyana that surprised me to witness. The helpless people are well cared for; those who have strength are busy at their various occupations; there are concerts and cinema shows. Best of all there is confident expectation that in time, some in three or four years, others in a longer time, their disease will be arrested or cured, and they will be sent home to their friends. The new medical treatment for the disease is willingly accepted by the patients, who believe in it strongly. In proof of this is the fact that the patients some little time ago, entirely on their own initiative, convened a general meeting and discussed what they could do to influence other sufferers from leprosy to come to the Institution. Certain proposals were agreed to and submitted to the Superintendent.

Each year a large number of patients are discharged with the disease cured or arrested. In 1927 there were 100. These persons are the best witnesses of the success of the treatment. To their persuasions is attributed the fact that people with leprosy are now beginning to come of their own accord to Emjanyana, asking to be admitted. I heard of one man who, fearing that he had leprosy, went to the Institution and after careful examination

by the doctor there was made happy by the assurance that the trouble he had was not leprosy, and that he could return home with an easy mind. I thought that man acted very sensibly in going where he could get the best opinion.

What a Nurse can do for Lepers.

By Nurse H. Oborn.

[The following article, written at the Editor's request, has been contributed by Nurse H. Oborn who recently returned from Nyasaland, British Central Africa, after serving for six years as a nurse under the Universities Mission to Central Africa.]

The leper camp I am going to describe is one of the smaller and newer of five camps managed by nurses, under the supervision of one Lady Doctor, whose district is over 400 miles in length. There were always a certain number of lepers among the African patients who attended the ordinary out-patient dispensary which was under the care of the writer. In 1922 the numbers were small, not more than five lepers, and attendance for treatment was often irregular, and in such circumstances I frequently visited the patient's home in the village and gave the treatment there. By such persistence African lepers have learned, and are being taught by the wonderful results of treatment, and improvement in their often pitiful condition, how much can be done for them. Hope, confidence, and patient perseverance are the results.

In August, 1925, a small special dispensary, and two ordinary native huts, one for women and one for men, were provided for the use and treatment of lepers at Malindi, which is situated at the south end of Lake Nyasa. The Doctor's plan was to begin a small camp for lepers which was to be managed as nearly as possible as a native village, and as such to be to some extent self-supporting. It is not easy to describe the patience and perseverance needed, especially at the beginning, to bring about this end, patients requiring constant encouragement and supervision. The camp was started in September, 1925, with two in-patients. Food and necessaries were at first provided; each patient, on admission, was given his or her own plot of land, and seed to plant at the proper season. As a result, maize, millet, beans and tomatoes were grown by the patients, and their number steadily increased.

The women prepared and cooked food for the camp, and made the pottery drinking vessels and cooking pots; they also provided firewood. The men collected dried palm leaves, and made sleeping mats and brushes for use at the camp. In addition, they fished, and watched the growing corn, protecting it from baboons, hippopotami, elephants, and other thieves of vegetables. A leper boy, able to read and write, was provided with a few books in his own language, and some broken slate and pencils, and he soon taught others to do the same.

Treatment was given three times weekly. Ol. Chaulmoogra, Ol. Hydnocarpi or Moogrol was used, and was given by intravenous or intramuscular injection. Prescriptions and the general scale of increasing dosage having been prepared by the Doctor, I dispensed the medicines and gave the injections, carefully watching the reaction in each individual patient, and suspending, reducing or repeating the treatment as the patient's condition suggested. The best results noticed were obtained by the intravenous injection, especially if Ol. Hydnocarpi and Ol. Chaulmoogra were alternately used, extensive ulcers healing in from two to four months with this treatment, leaving dried scars which gradually almost disappeared.

A boy of about 16, who had been hidden away for three years in his village, was suffering on admission from terrible ulcers, the left side of the face being completely hidden by green discharge. The left ear was also blocked with it; there was a large open ulcer above the left ankle, and both feet and hands were much swollen. Intravenous injections of Ol. Chaulmoogra were given three times weekly in gradually increasing doses, and in two months the ulcers were all nearly healed, when another appeared on the right elbow. Ol. Hydnocarpi was then used for the next two months, at the end of which time all ulcers were healed and did not again break down. Nodules and scars were present on the face, but covered by healthy-looking skin. In two other cases (both women) just as striking results were obtained. The one patient on admission had green scabs and green dried nodules all over her face, the hands and feet were much swollen and ulcerated. After six months' treatment nodules and scars had almost disappeared from the face, the skin looked healthy, the hands were almost normal, and the feet in much better condition.

In the second case the patient when admitted was suffering from ulcers of the right arm, extending from the shoulder to the wrist, and of the left leg, the ulcers extended from the knee to the ankle, both limbs having the appearanec of having been scraped; there was also ulceration of the feet and loss of the toes.

After three months of the above treatment healthy-looking skin had grown on both limbs, while slight ulceration at the knee and of the toes only remained. These were cases of nodular leprosy.

Intramuscular injections of Moogrol were also sometimes used successfully for patients whose veins were small, but the results were less striking in these cases. Treatment for ankylostomiasis was found to be necessary for most of the patients, and was accordingly given. The Doctor was able to visit the camp about every two months. Patients were admitted, or came as out-patients for treatment, voluntarily, there being no rules for segregation. By the end of July, 1927, thirty-six patients had received treatment at this small camp. There were at that time twenty-one in-patients and six out-patients receiving regular treatment, eleven of whom had been under treatment a year and a half; one patient had been transferred to another camp, and the remaining eight patients had returned to their homes after their ulcers had healed. It was encouraging to find that a number of early cases were seeking admission. The camp is still growing in numbers, and when the writer last heard there were thirty-seven in-patients. What an unforgettable little bit of work! The native African assistants (not themselves lepers), but without whose help the work could not have been done, must be remembered; they do much credit to both the Doctor and the nurses by whom they have been trained.

Lastly there are many small ways in which a nurse can give these patients pleasure. Gifts of fish-hooks, native tobacco, an old tennis ball, coloured handkerchiefs, a new piece of cotton cloth, all such small gifts are received with delight, and an hour of gramophone music would also give much pleasure. It is both a privilege and a joy to work for lepers, and to watch such a camp as I have described grow and flourish.

The Campaign in Bengal.

By E. Muir. M.D.

Bengal consists chiefly of the great fertile plains which have been laid down during thousands of years by the silt-laden waters of the Ganges. But it is bordered to the west, north and east by less fertile and less accessible hill tracts which are inhabited by semi-aboriginal tribes who were driven there in times past by conquering invaders, and are more ignorant and less advanced than the people of the plains. It is among these semi-aboriginals that leprosy is most prevalent. Formerly lack of communications kept them in their remote villages, but the recent improvement of communications, as well as their rapid increase in numbers due to the more settled conditions of the country, has led to their migrating to the plains in search of employment, and they carry with them leprosy and infect tne people of the plains among whom they go to live. This has been realised during the past two years by the Bengal Branch of The British Empire Leprosy Relief Association. We take special means to deal with leprosy in the districts where it is most rife, and at the same time to take means to prevent its spread to new areas.

The Association in Bengal was faced with the difficulty of dealing with a very serious problem, while it had an annual income of only some Rs.4,000. It was realised from the outset that this small sum if used for building or maintaining dispensaries, would not go very far. It was considered wiser to appoint a medical officer, who, after training, would visit the different district centres and give courses of lectures and practical demonstrations to groups of doctors gathered together by the district authorities, and, at the same time, make a rough survey of local conditions, initiate leprosy clinics and advise the district authorities as to the best methods of carrying on the campaign within their own districts.

A suitable doctor was found, and the success which followed his efforts was far greater than had been expected. Within the last six months of 1927 he visited the districts of Bankura, Nadia, Malda and Jalpaiguri, and gave courses of lectures and practical demonstrations to 200 doctors and initiated a large number of special clinics. One of the districts (Malda) appointed a special leprosy officer of its own, and sent him for special training, while other districts showed no less interest. During the first six months of this year five more districts have been visited with equally good results. The Chairman of the District Board in one instance wrote imploring that Dr. Ghosh (the propaganda officer) might be

allowed to continue in his district for at least two months longer, as the interest aroused among both doctors and patients was so great that they required a man of experience to organise the efforts which were to be made.

The Association felt that they had hit upon a wise plan in using their resources as they had done, but, seeing that such interest had been awakened, decided that it would be a mistake not to take some more wide-spread means of dealing with the problem. A scheme has therefore been placed before the Bengal Government for appointing five survey officers who should work for five years, spending about three months in each of the more endemic districts. It would not be possible for five men to make a complete leprosy survey within three months, but they might survey three thanas or units of police administration (there are approximately 20 thanas in a district), and at the same time initiate three clinics, one in each thana, which would act as models for the district. It is hoped that the existence of such clinics and the results obtained by treating patients will lead to other centres being started, and to medical practitioners in the neighbourhood attending the clinics and themselves beginning to treat patients. The Bengal Government has not yet been able to furnish the funds necessary (some Rs.60,000), but the scheme is so promising that it can scarcely be allowed to fail for want of money.

The methods described above for dealing with leprosy are particularly siutable for a country like India, where there is a dense population, a high endemicity of the disease, and a well-trained staff of doctors already distributed throughout the districts. In such circumstances it is obvious that the main obstacle to leprosy being treated is that the doctors have not been trained as students to diagnose and treat the disease. What is needed is that the local doctors should have it clearly demonstrated that leprosy is remediable, and that they should have an opportunity of learning how to diagnose and treat.

In the more sparsely populated mountain tracts of India, or in countries like Africa, where there is not a sufficient supply of trained doctors, it is obvious that the above methods would not be applicable. In such places it would be necessary to gather together the patients into treatment centres, where they could live for a time, and where they could cultivate the land or otherwise support themselves, special arrangements being made to feed those not able to work for their living, and where they would receive the latest treatments for the diseases from qualified medical men or women, or from nurses under medical supervision.

A King's Handshake.

The following is taken from a Canadian paper:—

"Fact and fancy have combined to make a pretty legend concerning Alfonso XIII, King of Spain.

It all happened some years ago. As Alfonso was moving through the streets of Madrid he espied a leper. The victim had been ailing long from the disease. He presented a foul appearance. Some say this man was virtually rotting away, and a great part of his body had already been sadly affected. The very sight of him was quite sufficient to turn the stomach of the ordinary man or woman.

But Alfonso is impulsive. Glancing at the man he felt a surge of sympathy sweep over him. Here was this leper sitting in the street so obviously trying to attract the regal attention. It was quite evident the diseased man thought that his king could help him. Doubtless he believed that a touch of the royal hand would be sufficient to cure him of his ills.

All this flashed through Alfonso's brain as he looked at the man. Spurred by impulse, the king went over and grasped the leper's hand and shook it heartily. The people were amazed at this display on the part of their monarch. They cheered him to the echo. The leper was proud. And the legend maintains that the sick one got better. The cure was attributed to nothing else but the kingly clasp of the hand.

The legend does not tell about the immediate reaction of the king. That is left for Her Royal Highness the Infanta Eulalia, aunt of Alfonso, to relate. She vouches for the authenticity of the handshake. She also is authority for the fact that the king came home and soaked his hand in a powerful disinfectant for days. And at every treatment with the disinfectant he pondered over the duties of royalty."

Leper Home Destroyed.

" The Japan Chronicle " publishes the following :—

" On the evening of the 31st of July the Hokubu Hoyoin, a leper home at Shinjomura, Aomori-ken, Japan, was totally destroyed by fire. The loss is said to amount to £20,000. Some of the 200 lepers housed there have wandered away. It is said that the fire was caused by a candle in the chapel."

We greatly regret to receive this news, and trust that provision will soon be made for these now homeless sufferers.

Literature.

" Leprosy: Summary of Recent Work," No. 14, reprinted from the " Tropical Diseases Bulletin," is now ready for distribution.

" Leprosy: Diagnosis, Treatment and Prevention," by Dr. E. Muir. This, the 4th (revised) Edition, is now available. It has been brought up to date and is a valuable pamphlet.

Various pamphlets, lists of which were given in Nos. 1 and 2 of " Leprosy Notes," have been issued by the Association, and others will be published as time passes. Anyone wishing to receive the literature sent out is requested to send his name and full postal address to The Secretary, The British Empire Leprosy Relief Association, 24, Cavendish Square, London, W.1.

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