INTERNATIONAL JOURNAL OF LEPROSY

VOL. 3 OCTOBER-DECEMBER, 1935 No. 4

ORIGINAL ARTICLES

REPORT OF THE PHILIPPINE LEPROSY COMMISSION

PRESENTED TO THE GOVERNOR-GENERAL SEPTEMBER, 1935

INTRODUCTION

Of late there has been increasing evidence of dissatisfaction on the part of certain elements of the people with the present manner of leprosy control, with special reference to the system of segregation and conditions of parole. This led recently to a movement on the part of the Philippine Legislature to modify the system, in consequence of which His Excellency, Governor-General Frank Murphy, on July 23, 1935, appointed a commission "to study and report upon the problem of leprosy control in the Philippines." The instructions to the Commission were as follows:

> The Commission will conduct its investigations in the light of the scientific knowledge regarding the control and treatment of leprosy acquired during recent years and make a thorough study of the scientific, public health, social and economic aspects of the problem. The Commission will include in its report recommendations with the purpose of improving the present methods of controlling leprosy in the Philippines.

The personnel of the Commission was selected to represent those concerned with the legislative, administrative and technical aspects of leprosy work in the Philippine Islands, and comprised a number of influential public-spirited members of the lay public. Including certain persons appointed at later dates, the Commission consisted of the following:

Dr. G. C. Dunham (Major, M.C., U.S.A.), Technical Adviser to the Governor-General on Public Health, *Chairman;*

Mrs. Margaret W. Bennett, Assistant Editor, International Journal of Leprosy;

Judge Manuel Camus, Boy Scout Commissioner for the Philippine Islands; President, National Committee, Y.M.C.A. of the Philippine Islands;

Dr. Sulpicio Chiyuto, Chief of Leprosy Control, Bureau of Health;

Representative Fernando B. Duran (M.D.), Chairman, Committee on Public Health, House of Representatives, Philippine Legislature;

Mr. Charles H. Forster, Manager, Philippine Chapter, American Red Cross;

Dr. Casimiro B. Lara, Chief Physician, Culion Leper Colony, Bureau of Health;

Dr. Cristobal Manalang, Chief Pathologist, Culion Leper Colony, Bureau of Health;

Senator Juan Nolasco (M.D.), Chairman, Committee on Public Health, Senate, Philippine Legislature;

Dr. José Rodriguez, General Supervisor, Regional Treatment Stations, Bureau of Health;

Dr. H. H. Steinmetz, President, Philippine Anti-Leprosy Society;

Mrs. Sofia de Veyra, President, Women's Club of Manila, and Vice-President, National Federation of Women's Clubs;

Dr. H. W. Wade, Medical Director, American Leprosy Foundation (Leonard Wood Memorial).[1]

The Commission held a number of meetings of the whole, and in the course of its work it visited the Culion Leper Colony, the Eversley Childs Treatment Station and the special skin clinic at Cebu, the Western Visayas Treatment Station at Iloilo, the Leper Department of the San Lazaro Hospital in Manila, and the Welfareville institution at Mandaluyong, near Manila, where the children born of lepers at Culion are cared for.

To facilitate its work a number of committees were appointed to study the various subjects taken up in the agenda. The nature of these questions is to be seen from the following list of committees:

Committee on agenda. Senator Nolasco, *chairman;* Drs. Rodriguez, Chiyuto, and Manalang and Mr. Forster, *members.*

Committee on transmission, susceptibility and treatment. Dr. Chiyuto, *chairman;* Drs. Manalang and Rodriguez and Mrs. Bennett, *members.*

Committee on negatives and parole. Dr. Steinmetz, *chairman;* Dr. Lara and Mrs. de Veyra, *members.*

Committee on the ability of lepers to engage in productive labor. Dr. Lara, *chairman;* Dr. Rodriguez, Mr. Forster and Representative Duran, *members.*

Committee on the establishment of regional leprosaria. Judge Camus, *chairman;* Mrs. Bennett, Senator Nolasco, Mr. Forster and Dr. Rodriguez, *members.*

Committee on the establishment of agricultural colonies. Dr. Dunham, *chairman;* Senator Nolasco, Judge Camus, Mr. Foster and Drs. Chiyuto and Wade, *members.*

[1] Appointed on September 18, after his return to the Philippines from abroad.

Committee on the humanitarian and social aspects of the leprosy problem. Mrs. de Veyra, *chairman;* Mr. Forster, Senator Nolasco and Drs. Lara and Steinmetz, *members.*

Committee on marriage among lepers. Dr. Wade, *chairman;* Drs. Dunham, Manalang, Mrs. Bennett and Judge Camus, *members.*

Committee on petitions received by the Commission. Judge Camus, *chairman;* Drs. Steinmetz and Lara, *members.*

Committee on statistics. Dr. Lara, *chairman;* Drs. Rodriguez, Wade and Chiyuto, members.

Editorial committee. Dr. Dunham, *chairman;* Drs. Wade, Lara and Rodriguez, and Mrs. Bennett, *members.*

The Commission, after serious consideration of the *treatment* of leprosy, arrived at the conclusion that the methods followed in the Philippines are in accord with the latest developments in that field and are the most efficacious known at the present time. Hence, having no definite suggestions to offer on that subject, the Commission devoted itself mainly to the problems of *control.*

The main report of the Commission, based on the findings and recommendations of the separate committees and on decisions arrived at in general discussions, was adopted on September 18 and submitted to the Governor-General, who released it a few days later with the following endorsement:

The attached report meets with my hearty approval. On July 23, 1935, I vetoed Senate Bill No. 101 which provided for radical changes in controlling leprosy in the Philippine Islands. At that time I appointed a Leprosy Commission to make a full and complete study of the leprosy control methods in the Philippine Islands. The Commission has made a thorough study of the entire leprosy situation and has submitted a sound and progressive report. If the recommendations made by the Commission are carried out there will be a vast improvement in the methods of controlling leprosy in the Philippine Islands.

Because it had been necessary to prepare this report in a very short time, an editorial committee was appointed to revise it for publication, and to deal similarly with the individual committee reports. The main report, as revised, is presented here in full, together with those of the committees. Among these are one or two that were completed after the former was submitted, but were adopted by the Commission. Certain of these committee reports, being more of local than general interest, have been more or less condensed. However, their substance is indicated, both for local record and to illustrate questions that arise in the administration of the leprosy control system in this country. It is to be noted that in some instances different committees

recorded divergent views. Furthermore, not all of the recommendations of the committees were accepted by the Commission in preparing its report.

GENERAL

Leprosy an infectious disease.—The control of leprosy in the Philippine Islands must be based on the accepted facts that the disease is infectious and that it is transmitted by contact.

The spread of any infectious disease can be controlled only by certain general procedures. These are: first, control of the source of infection; second, prevention of the transmission of the infection from the source to a susceptible person; and, third, rendering the susceptible person immune to the infection. One, two, or all three of these procedures may be employed, depending upon the nature of the disease to be controlled.

The only practicable method of controlling the spread of leprosy is by the control of the source of the infection, which is the person who has it. There is no procedure by which a susceptible person can be immunized against the infection. As in the control of other diseases that are transmitted by contact, there is no way of preventing the transmission of the causative agent from person to person except by separating susceptible persons and those having the disease in an infectious form.

Transmission of leprosy.—For practical control purposes, the leper who is found by standard methods of examination to be bacteriologically positive must be looked upon as the source of the infection. On the other hand those found negative should be regarded, until conclusively proved otherwise, as being incapable of infecting others. The length of the contact period necessary to cause infection has not been definitely determined. Formerly it was believed that it was long, as measured possibly in months, but evidence is accumulating which indicates that the infection may be transmitted by relatively brief contact. Consequently, for the purposes of control, it is to be considered that any appreciable amount of direct contact between an infectious case and a susceptible person may cause infection.

Susceptibility to leprosy.—It is accepted as a fundamental principle that children as a group are especially susceptible, and that the disease is ordinarily contracted during childhood. On the other hand,

adults are comparatively immune, for while they may acquire the disease the occurrence of such cases is relatively infrequent.

Curability of leprosy.—Treatment of leprosy by modern methods serves to delay its progress, and in many cases results in clinical improvement to a degree so marked that it permits the leper to return to normal life. However, there is as yet no conclusive proof that treatment will absolutely cure the disease in the sense of complete elimination of the germ from the body. It shortens the duration of the bacteriologically positive stage, and prolongs the duration of the negative stage, which may become permanent. Clinical cases which have never been positive may be prevented from becoming so by proper treatment. Likewise, treatment may prevent relapse in patients who previously have been positive but have become negative.

CONTROL OF LEPROSY

General.—The fundamental epidemiological characteristics of leprosy may restated as follows: first, the bacteriologically positive leper is the source of infection; second, the infection is transmitted by contact of the infectious cases with susceptible persons; and third, there is no known means by which susceptible individuals can be rendered immune to infection.

Since the infection is transmitted by contact, the avenue of transmission cannot be controlled by such means as are used, for example, to prevent the spread of malaria (elimination of mosquitoes), or to control the spread of cholera (purification of the drinking water). Consequently, the prevention of the spread of leprosy can be accomplished only by isolating in some effective manner the positive leper from contact with susceptible persons. Because the disease is essentially chronic, the period of isolation must extend over months and years, in marked contrast with other infectious diseases spread by contact transmission such as, for example, epidemic meningitis.

Treatment is an important feature of leprosy control. Its beneficial effects, shortening the bacteriologically positive stage and prolonging the duration of the negative stage, lead to an increase of public cooperation and thus aid in the discovery of early cases.

In view of these factors all measures to control the spread of leprosy in the Philippine Islands must be based on isolation (i.e., segregation), of the positive leper, and on the treatment of both the positive and negative cases—the latter as outpatients.

Segregation.—By segregation is meant the separation of lepers from the general public under conditions which will prevent contact. The primary purpose of segregation is to protect the public health, and in order to make it effective certain individual liberties and rights must be sacrificed for the public good.

From the administrative viewpoint segregation may be compulsory, partially compulsory (the "modified compulsory" system), or voluntary. (a) Under the full compulsory system all clinical lepers are segregated, whether bacteriologically positive or negative. (b) The compulsory system may be modified in various ways. In the Philippine Islands such a system has been employed for many years; only those who are bacteriologically positive are segregated and these are released on parole after they have become negative. (c) The voluntary method provides for the isolation of only those requesting it.

Many of the countries in which there are any considerable numbers of lepers employ either a compulsory or a modified compulsory system.[2] Voluntary segregation is used only where for administrative reasons it has been found impossible to employ any other system and is not considered an active control measure. Long experience has shown that in the Philippine Islands it would be entirely ineffective.

Modified compulsory segregation.—This can be accomplished by either "home" or "group" segregation.

(a) Home segregation, by which is meant isolation of the positive leper in his own home, has the advantage that the patient is not taken away from his family. Also, he is in a position to a certain extent to exercise personal supervision over his affairs.

Unfortunately, home segregation has many serious disadvantages. If the infection of others is to be avoided and the public afforded even a minimum degree of protection, the patient must be actually and continuously confined in his house or at best to the immediate surroundings of his home. In many instances it would be necessary to confine him to a single room. All danger of contact with children, his own or others, would have to be obviated. He would therefore be denied all companionship, except for a few adult members of his family, and even that would not be without risk under practical

[2] A compilation of twenty-four quotations from the recent literature, prepared by M. W. Bennett, supported modified compulsory segregation.

conditions. He could not take part in the affairs of his community and he would, except to a very limited extent, be unable to engage in any work or recreational activities. The prevailing public attitude toward leprosy would, in the great majority of instances, result in his family or others associated with him being ostracized by the people of the community.

The conditions under which home segregation must necessarily be carried out could not help but have an adverse effect on the physical and mental health of the individual so segregated. Lack of exercise in the form of work or recreation, lack of normal companionship, the psychological effect of being shunned by or denied association with those near to him, especially his children, all extending over a period of years, would make his life intolerable. The end result would be that the restrictions necessary to prevent the infection of others would be ignored, to the detriment of the public.

In the matter of treatment the environment of the patient is an important factor. Home segregation would produce an environment which would tend to accelerate the progress of the disease and thus to nullify the benefits of such treatment as the patient might receive. Under home segregation it would be impossible to provide the individual patients with the specialized medical treatment which it is practicable to give them when segregated in groups.

(b) Group segregation is isolation of large or small groups of patients in colonies, treatment stations or hospitals. This is the method applied to positive cases in the Philippine Islands. The colony type of leprosarium is represented by the Culion Leper Colony, the treatment station by the Eversley Childs Treatment Station at Cebu and the Western Visayas Treatment Station at Iloilo, and the hospital by the leper department of the San Lazaro Hospital in Manila.

Group segregation has the disadvantage that it separates the individual from his home community and his relatives for a long period of time—in many instances for the rest of his life. Segregation in the Culion colony serves practically to deny to many of the inmates any opportunity for their relatives to visit them during the entire period of isolation, because Culion is far removed from the principal islands of the archipelago. This condition does not obtain to nearly so great an extent in the treatment stations and hospitals, because the location of these is such as to permit visits by relatives; this was

one of the principal reasons for the establishment of the treatment stations within the past few years.

On the other hand group segregation, as compared with home segregation, has many advantages which far outweigh its disadvantages. The removal of the positive leper protects his family (especially the children) and the community in general to a degree which it would be quite impossible to attain otherwise. Group segregation permits the patient to live under circumstances which are far more favorable for treatment of the disease. He has the companionship of others, he has opportunities for recreation and for productive work, and to a very considerable extent he can order the details of his own life. Within the limits of the group he has associates, and is not ostracized as he is where the others are not lepers. Consequently he can live in a manner approaching a normal community existence, in contrast with the highly abnormal environment and conditions produced by home segregation when actually enforced.

Effects of segregation in the Philippines.—The purposes of any method of leprosy control are two-fold. The first objective is to prevent infection of susceptible persons, and the second is to insure the treatment of the individual patient. As it is now practiced in the Philippines group segregation does accomplish the first objective insofar as it is carried out, and it facilitates the treatment of the positive lepers.

Because of the clinical characteristics of the disease it is essential for the success of any control measure that the lepers be induced to report for treatment and not endeavor to avoid detection. This is particularly true of the early cases, which tend to escape the notice of the health authorities. If the patient is bacteriologically positive, his presentation for treatment is tantamount to reporting for segregation. If the conditions of segregation are too drastic the leper is loath to present himself, and he remains a source of infection in his community until he is found by the authorities.

This was the case in the past, the isolation and inaccessibility of Culion engendering a fear of segregation on the part of the public. It is an important fact that the methods of operating treatment stations now in force in the Philippines have resulted in so marked a change of attitude on the part of the public concerned that, whereas a few years ago the voluntary presentation of lepers was unheard of, a large majority of those isolated in recent years have presented

themselves. These stations afford treatment for early cases without segregation of those that are bacteriologically negative, and provide for the segregation of those who are positive in a place where they can be visited by their relatives and friends. The work of these institutions has also served to educate the public regarding the desirability of treatment and the effectiveness of segregation as a protective measure.

It cannot be shown statistically whether or not the prevalence of leprosy in the Philippines has been reduced in the twenty-nine years during which segregation has been practiced, because its incidence in the general population during past years is not known. Nevertheless, epidemiological studies indicate that its prevalence is probably decreasing. Furthermore, the great majority of cases now reporting or found at large are in the early stages, whereas formerly many of those discovered were advanced. The number of cases segregated each year has not increased proportionately to the increased activity of the health authorities and the better understanding on the part of the public regarding the need for the control of leprosy. This number has remained fairly constant at about 1,000 per annum during the past five years. That the total actually in segregation has increased in recent years is to be explained in part by the decrease in the death rate because of the medical care given.

Desirable modifications of the system.—Group segregation should, so far as practicable, be carried out in such a way that the environment will approximate that of normal life. It should be by districts or regions in order that those segregated may be visited by relatives.

At the present time the patients are isolated without classification. That is, early and advanced cases, adults and children, are all segregated together. Further, those physically fit to engage in productive work are not separated from the physically unfit. There should be some degree of classification.

In order to so modify the present methods of segregation as to accomplish the desired ends, it would be necessary to increase the number of regional treatment stations, and provide regional colonies and special institutions for the care of advanced cases and children.

The Culion Leper Colony.—The Culion colony now has a leper population of nearly 7,000. This has been increasing at the average

rate of 250 patients per year during the last five years. Positive cases are sent to Culion from treatment stations when these become overcrowded, so the colony to some extent serves as a place to accommodate the overflow. Cases are also sent there from places not tributary to a treatment station.

In its organization the colony has the advantage of offering an environment which differs but little from that of the ordinary barrio, or village. The inmate can have his own home and pursue his own life, subject only to such restrictions as are necessary to maintain order, prevent absconding, and insure proper treatment. There is much less regimentation than is necessary in the treatment stations or at the San Lazaro Hospital. The adverse factors of home segregation are entirely avoided.

However, the colony has become too large for efficient administration. Though ample space is available the soil is not fertile, and the water supply is too limited for the requirements of a larger town or for extensive agricultural development. At present there are about 900 inmates engaged in growing farm products and 700 others in fishing and other work. It would be impracticable to extend materially these activities. Consequently, the population should not be allowed to exceed the number now there, and as rapidly as practicable it should be materially reduced.

Culion-born children.—A particular problem connected with this colony is the considerable number of children born there. This number has increased with the increase in the population, until now it is well over one hundred a year. These children need not become lepers, for experience in other countries indicates that congenital infection is so rare as to be negligible. The present policy of the Bureau of Health is to separate these children from their parents at the age of six months, or earlier when practicable, but it has not been possible to enforce this policy.

In 1915 a nursery was built in the nonleper area and an attempt was made to remove the children from the mothers at birth, to obviate the possibility of postnatal infection. Unfortunately, there was a very high mortality among these children because of enteritis and other infantile diseases so that serious administrative difficulties arose

and the effort had to be given up. For some years children stayed in the colony until they were at least two years old, and many had to be left there much longer because there was no place to send them. Under these conditions the death rate was low, but because of the susceptibility of young children the situation was very unsatisfactory as regards infection.

Consequently, ten years or so ago the present policy was adopted as a compromise, after another attempt to care for infants in the nursery had failed. Because only a small proportion of these children could be placed with relatives, a special department for them was established in the Welfareville institution near Manila. It was the intention to transfer them regularly from the Culion nursery at the age of two, but limitation of space at Welfareville has prevented this and as a result there has been an unavoidable accumulation at Culion, both at the nursery and in the colony itself.

Very recently the Welfareville department has been enlarged sufficiently for the immediate needs. This will permit, for the time being, extension of the recent efforts of the Culion authorities to improve conditions in the nursery sufficiently to make practicable the removal of the infants before six months. This policy should be carried forward until all children are removed from their parents to the uninfected nursery immediately after birth. Whenever possible they should then be placed with nonleper relatives (an effort that could be carried on by the social workers recommended in a later section of this report), but failing that they should be transferred as early as practicable to the Welfare orphanage, which should be enlarged sufficiently to provide for these children.

Regional treatment stations.—Regional treatment stations now in operation are the Eversley Childs Treatment Station at Cebu, Cebu (built for the government by the Leonard Wood Memorial); the Western Visayas Treatment Station at Iloilo, Iloilo (built in considerable part with funds donated locally); the Bicol Treatment Station at Legaspi, Albay; and the San Lazaro Hospital in Manila. In addition, there are smaller local leprosaria at Zamboanga, Zamboanga; Jolo, Sulu; and Dansalan, Lanao, which serve in some respects as treatment stations.

These leprosaria had the following numbers of patients at the time this study was made:

Eversley Childs Treatment Station, Cebu	589
Western Visayas Treatment Station, Iloilo	216
Bicol Treatment Station, Legaspi	131
San Lazaro Hospital, Manila	545
Zamboanga, Zamboanga	24
Jolo, Sulu	28
Dansalan, Lanao	59
Total	1,592[1]

The purpose of a treatment station is not only to afford facilities for the segregation of positive lepers, but also to provide means of detecting cases of leprosy, and to encourage early and undiagnosed cases to report for treatment. The establishment of these stations was begun in 1928, and they have met with marked success. Each of them has a dermatological clinic where all kinds of skin diseases are treated free of charge by government physicians. Early and undiagnosed cases of leprosy are found among the patients coming to these clinics. If the cases so found are bacteriologically positive they are segregated, but if they are negative they are given treatment as outpatients. There are about 1,100 such outpatient cases registered at the present time.

These regional treatment stations should be continued and increased in number. Each station should, however, have enough suitable land to permit the physically fit inmates to engage in agricultural activities. The Western Visayas Treatment Station at Iloilo approaches most closely to the ideal; sufficient land has been obtained to provide facilities not only for vegetable gardens and poultry raising, but also for the cultivation of rice. At treatment stations such as that at Cebu, where the ground available for agriculture is insufficient, land for this purpose should be obtained elsewhere in the neighborhood.

The San Lazaro Hospital.—The leprosy department of the San Lazaro Hospital had 545 patients on August 31, 1935. This department serves as the treatment station for Manila and central and

[1] With approximately 7,000 cases at Culion, the nearly 1,600 in the other leprosaria makes a total of well over 8,500 lepers in isolation in the Philippines at the present time. The 1,100 bacteriologically negative cases registered in the skin clinics are additional, as are, of course, the large numbers of paroled cases.

northern Luzon. However, it does not in any way meet modern requirements for the segregation of lepers. There are no facilities for productive labor and very few for recreation. Though from time to time patients in excess of the number that can be housed there are transferred to Culion, the department is always crowded, accentuating the undesirable conditions.

This department should be discontinued, and thus release much-needed beds for general hospital purposes. The funds thus saved from the construction of general hospital buildings could then be utilized for a leprosy treatment station. This station, including an agricultural colony, should be located near Manila, and should have sufficient capacity to care for all the positive cases from Luzon north of the Bicol provinces.

Regional agricultural colonies.—There are at present no special agricultural colonies for lepers in the Philippines. The inmates of Culion and the treatment stations are engaged to a more or less limited extent in agricultural and related activities. Data which have been obtained indicate that at least 50 per cent of the patients are physically fit to engage profitably in such activities.

Further inquiries which are being made with regard to the feasibility of the establishment of agricultural colonies, with special reference to a system by which the inmates might become self-supporting, will be discussed in a supplementary report of the Leprosy Commission.[4]

Care of leprous children.—At present (July, 1935) there are 508 children with leprosy under the age of 16 years in the various institutions. Nearly all of them are of school age. Better facilities should be provided for their care and training, in order that they may become self-supporting in segregation if they remain positive, or take their places in normal community life if they become negative.

Subsistence of segregated lepers.—Funds for the subsistence of segregated lepers come from the general appropriation for sundry expenses of the Bureau of Health. This appropriation is a fixed amount, which must be utilized in part for other purposes; consequently there is always a tendency to reduce to a minimum the funds allotted for subsistence of lepers. This situation has created difficulties in the administration of the treatment stations and the Culion

[4] See report of committee on the establishment of agricultural colonies.

colony, and consequent dissatisfaction among the patients. In some instances it actually has led to failure to supply a sufficient amount of proper food. Of the total allotment made for this purpose, amounts are set aside for the individual treatment stations, and this serves to fix their capacity. Any number of patients in excess of capacity so fixed must necessarily be transferred to Culion, and as a result many patients have been so transferred who otherwise would have been kept in the stations.

The subsistence of the segregated lepers is a responsibility of the Bureau of Health, and the Bureau cannot decrease their number to meet any decrease in the funds appropriated. Nor can the Bureau refuse to accept any positive cases, even though funds for their subsistence may be insufficient. The total appropriation should be on the basis of a fixed sum per capita per day for all of the lepers in segregation, regardless of their location, and this should be allotted to the various leprosaria in such a manner as to take care of the natural increase of their populations up to capacity. The amount to be appropriated should be determined each year by proper authority, but it is suggested that for the ensuing year it should be at the rate of 20 centavos per capita per day.

FOLLOW-UP OF "NEGATIVE" LEPERS

In the past few years there has been a large number of cases that, once bacteriologically positive, have become "apparently cured" (i.e., clinically inactive and bacteriologically negative) and have been released from segregation on parole. The number so paroled from Culion and the treatment stations has totalled approximately 3,500. The return of these patients to their homes has been very largely instrumental in inducing other persons with leprosy to present themselves for treatment, and the degree to which they now do this is an important and most favorable factor in the present situation.

At the same time this development has been responsible for an unprecedented factor of the situation, one that had not been anticipated and provided for. Until recent years the number of cases that were paroled was too small to demand special consideration. With the marked and rapid increase in their numbers they have come to present a serious problem from the social, administrative and medical viewpoints.

The social aspect of the problem arises from the popular prejudice toward the person who has or has had leprosy. This condition in

many instances has led to serious difficulties for the paroled negative seeking rehabilitation, even though he has been released as no longer capable of transmitting the disease. Many cases of real hardship have been reported, by no means always due to fault of the negatives themselves, though it is to be recognized that a person who for years has been supported in an institution is apt to be handicapped by the moral attitude so engendered when it comes to standing alone on his own feet. While the government cannot subscribe to the viewpoint often encountered that it should be responsible for the support of the negatives after their release, it has been found necessary to allow a considerable number of them to return to Culion where they can find support under conditions to which they have become accustomed. However, a recent survey which has been made among paroled patients and their families in Cebu reveals that a considerable degree of confidence has developed in the results of treatment and that in consequence this prejudice has decreased considerably. As a general rule the negatives are now well received by their families and communities.

The more serious administrative and medical problems are intimately related. The former has to do with the detection of cases that have relapsed and thus have again become a menace to the public. The latter has to do with the after-care of the paroled patients, particularly the continuation of antileprosy treatment, with a view to overcoming completely (or at least preventing the reactivation of) the residual foci of infection that are recognized to exist in most if not all of the patients in whom the disease has retrogressed to the point that they have become eligible for parole. For both reasons—observation and after-treatment—it is necessary that the paroled patients be followed up.

This follow-up is actually called for by existing regulations. Unfortunately, it has been impossible to do it adequately, because no special provision of funds or personnel has been made for the purpose. The few men who are qualified for this work have been utilized for it as circumstances have permitted, but ordinarily they are fully occupied with other and equally important phases of the leprosy work. Consequently, it has been possible to do only partial follow-up work, covering each year an area representing approximately one-half of the Philippines.

The result is that proper after-treatment of paroled cases has been very generally lacking. The great majority have received very little or none at all, and most of those who have had any treatment have had it very irregularly. This failure has been due to the fact that for the most part the responsibility for reporting is left entirely to the patients. Lacking the supervision which would induce them to report, or any financial aid to meet the expense of transportation that prevents many from doing so, especially during the earlier stages of readjustment, most of them ignore the obligation to report that they assume when they are paroled.

This condition, quite aside from the other adverse circumstances to which these people are often subjected, has without doubt made the number of cases that have relapsed greater than it need have been. The fact is that an unfortunately large proportion of cases has relapsed; judging from the results of isolated surveys this is nearly 50 per cent. Only a relatively small proportion (about 20 per cent) have been resegregated on this account, while a still smaller proposition have probably died. It is an anomaly, in view of the pains and expense to which the government goes to treat the segregated patient until he can be returned to his community, that it does not take reasonable measures to prevent his relapse. Relapsed cases when discovered entail further expense for re-isolation, not to dwell on the human factors involved. Frequently they are not discovered until they can no longer respond readily to treatment, thus increasing the period of re-isolation with its attendant adverse physical and moral effects on the patient and increased cost to the government.

A more serious consequence of the situation concerns the administrative or public health side of the problem. Frequently, if not usually, relapsed cases remain undetected until they have long been a menace to the health of the community. Though it cannot be expected that the entire population of the country can be watched closely for *new* cases—new sources of infection of others—nevertheless it would be reasonable to expect that *old* cases that have been paroled and are known to be liable to relapse would be kept under fairly close observation.

Required parole period.—In former years, before the development of the present treatment methods, the required period of observation and continued treatment prior to parole (during which the

patient had to be continuously negative clinically and bacteriologically on repeated examination), was two years. In 1922, shortly after the treatment work was intensified with new materials, this period was reduced to six months.

This change was found to be premature under the existing conditions. Experience with several thousands of cases at the two largest leprosaria has shown that by far the largest number of "relapses" occur within the first year of the negative period.[5] The fact that most of these relapses fall within the first six months would seem to support the change made. However, there was an essential factor in that the patients who remained in the leprosaria during the second six months continued under the same treatment and the same environmental conditions as when they were becoming negative. Those who were paroled commonly went to less favorable environments and discontinued treatment, which undoubtedly increased greatly the liability to actual relapse of the disease.

Consideration of these facts led the authorities subsequently to extend the negative period of twelve months, and this is required under the present regulations. In actual practice, however, there is frequently a lag of six months or more after the expiration of that time before the patient can be paroled. This lag has been due to administrative difficulties consisting largely of inability to make frequent examinations. This has been onerous to the patients and complaints, in large measure justified, have been made and are likely to continue. Because of the dissatisfaction engendered there is danger that the public confidence and cooperation that has been gained may be withdrawn. Efforts have been made to relieve the situation by allowing the negatives reasonable leaves of absence

[5] In this discussion of relapses no distinction is made between true relapse and what is termed "*interruption*" of the negative period. In an actual relapse there is some definite evidence, usually clinical, that there has been an unfavorable development, a definite set-back, in the patient's condition. On the other hand, in many cases the official negative period has been interrupted one or more times by the more or less accidental finding of bacilli in foci from which bacteriological smears had not been taken in the previous examinations that had given negative results. This is to be expected in view of the nature and slow changes in this disease. To consider these interruptions as of the same category as real relapses gives an erroneous impression from the *clinical* viewpoint, though from the *administrative* viewpoint both occurrences are similar in that they necessitate prolongation of the period of segregation.

during the preparole period, but this innovation has not sufficed. Further remedial measures are called for.

Proposed remedial measures.—Recognizing that the patients themselves cannot be expected to realize the necessity of continued observation and treatment after they have been declared "negative" (they are prone to assume that this means "cured"), it is also to be recognized that their viewpoint cannot be ignored. The negative period should be reduced as much as is consistent with reasonable safety to the patient and the public.

In view of the data on relapses in the treatment centers, it seems feasible to reduce the negative period to six months, *provided* an adequate follow-up system is first established. It must be insisted that, without this provision, the shortening of the period would increase the risk of subsequent relapse. This, however, could be minimized by requiring that during the negative period the local committees at the places of segregation should examine the patients more frequently than at present (not less frequently than once a month), and that the special "disposal committee" which officially determines their status should examine them once every three months.

More important than this, however, is the matter of adequate supervision of the patients after parole, so that they will be given regular treatment and examinations. For this, one essential requirement is an adequate staff of specially trained leprologists and bacteriologists to make the examinations, give advice to the medical officers who actually do the treatment work, and carry on the necessary studies. Adequate clerical assistance is also required to permit keeping accurate, complete records and preparing the necessary reports. To do this without crippling the work of observing and caring for the patients actually in segregation, additional personnel and funds must be provided. Another requirement is a staff of social workers to search for and contact all cases and get them to cooperate in this work, and to aid them in their efforts to rehabilitate themselves. Financial provision should be made for the transportation and subsistence of staff and of patients coming to the treatment centers.

Experience that would be gained from this work should show within a few years whether the proposed shortening of the negative period under the conditions stated would afford the necessary protection for the public health and be to the best interests of the patients concerned.

SUMMARY AND CONCLUSIONS

The present method of controlling leprosy by segregation of the bacteriologically positive leper is the one best adapted to the conditions prevailing in the Philippine Islands. The basic principle of segregation is that the positive leper is isolated for the public good and not as a matter of charity for the individuals concerned. This measure unavoidably involves the sacrifice of certain personal rights. In view of this, the restrictions upon the individuals affected should be made as lenient as is consistent with the purpose of control. The government should use all reasonable means to insure that the rights of segregated lepers are properly safeguarded. The methods of segregation employed should be such as to allow them to live in as nearly normal an environment as possible. The government should appropriate sufficient funds to provide segregated lepers with the ordinary necessities of life or the means for obtaining a livelihood.

The foregoing discussion has brought out the following points:

(a) Leprosy is an infectious disease which is transmitted through more or less intimate contact.

(b) The source of the infection is the bacteriologically positive leper.

(c) Children are especially susceptible to infection. For practical purposes in control work adults may be regarded as immune, although cases in which adults have acquired the disease have been reported.

(d) Under conditions as they exist in the Philippine Islands the segregation of bacteriologically positive lepers is and must continue to be the basic measure for the control of leprosy. The form of segregation employed should be that which will afford the necessary protection for the public and interfere as little as possible with the rights of the leper.

(e) The segregation of the individual leper in his own home is impracticable as a control measure in the Philippines. Home segregation, theoretically, would permit the individual to remain with the adult members of his family, but this single advantage would be far outweighed and nullified by the many disadvantages. In practice it would not protect the family, especially the children, or the community. The environment created by home segregation would not be for the best interests of the individual segregated, and it

would tend to have an adverse effect on the progress of the disease under treatment.

(f) Group segregation is the method of choice for the control of leprosy in the Philippine Islands. When properly carried out it affords the best environment for the segregated persons. It facilitates treatment, which usually delays the progress of the disease in the individual cases and in many instances permits the patients to return to their homes. It protects the general public from exposure to leprosy infection to a degree which could never be attained by home segregation.

(g) Group segregation should be accomplished by means of regional colonies, regional treatment stations, and hospitals for advanced cases.

(h) Regional agricultural colonies should be provided for those patients who are capable of engaging in agricultural work, and so far as possible these colonies should be made self-supporting.

(i) The population of the Culion Leper Colony has grown too large to permit of efficient administration. Culion is so far removed from the centers of population that the great majority of the inmates there cannot be visited by their relatives. The island is not well suited for extensive agricultural development and the water supply is not sufficient for a large population. The inmate population of the colony should not be allowed to exceed the present number, about 7,000, and eventually it should be reduced.

(j) The number of regional treatment stations should be increased with a view to facilitating the early detection and treatment of leprosy cases. So far as possible all treatment stations should include, or be connected with, regional agricultural colonies.

(k) The leper department of the San Lazaro Hospital in Manila should be discontinued, and a treatment station and regional agricultural colony for the care of all cases from northern and central Luzon should be developed in one of the provinces adjacent to Manila.

(l) Funds for the subsistence of lepers in segregation should be provided on a per capita per day basis. At the present time the amount appropriated should be twenty centavos per capita per day.

(m) The present method of following up paroled patients is entirely inadequate. These patients should be kept under reasonably close observation in order to insure that they receive proper treatment, with a view to prolonging and making permanent the bacteriologically negative stage, and to facilitating the prompt detection of relapsed cases in order better to permit giving them adequate treatment and to afford to the public protection from exposure to infection.

(n) The basic preparole observation period for patients who become bacteriologically negative in segregation should be six months, instead of twelve as at present, provided that adequate arrangements are made for their observation and treatment after parole.

(o) The present policy of the Bureau of Health is to remove children born of leper parents in the leprosaria from the infected surroundings at the age of six months or less, though circumstances have not permitted doing this regularly. These births occur chiefly at Culion, where there is a nursery in the nonleper area. Since few of these children can be placed with nonleper relatives, the majority are transferred in the course of time to the orphanage established for them in the Welfareville institution near Manila. Provisions should be made to permit removal of all such children to the nursery at birth; as many as possible should then be placed with nonleper relatives, and special efforts to do this should be made; all those not so placed should be transferred as soon as practicable to the Welfareville orphanage, where adequate space and facilities should be provided for this purpose.

RECOMMENDATIONS

It is recommended:

1. That group segregation be continued as a basis of leprosy control in the Philippine Islands;

2. That the number of regional treatment stations in the Philippine Islands be increased;

3. That regional agricultural colonies be established for the segregation of positive lepers who are physically fit to engage in agricultural work, and that one such regional agricultural colony be established in one of the provinces adjacent to Manila;

4. That facilities be provided for the adequate observation of negatives prior to parole and follow-up of paroled lepers, and that the bill submitted for that purpose be enacted into law;

5. That funds for the subsistence of segregated lepers be appropriated on a per capita per day basis, and that this sum be fixed at twenty (20) centavos per day per capita for 1936; and

6. That the children of lepers be separated from their parents at birth, and that the necessary additional facilities for the care of such children be provided at Welfareville.

(*Signed by the Commission.*)

Manila, Philippine Islands
September 18, 1935.

APPENDIX

REPORTS OF COMMITTEES

COMMITTEE ON TRANSMISSION, SUSCEPTIBILITY AND TREATMENT

DR. SULPICIO CHIYUTO, *Chairman;*

DRS. CRISTOBAL MANALANG AND JOSÉ RODRIGUEZ, AND MRS. MARGARET W. BENNETT, *Members.*

A. TRANSMISSION AND SUSCEPTIBILITY

Theories of the nature of leprosy.—Up to the middle of the seventeenth century leprosy was universally considered to be contagious, as indicated by the stringent taboos and restrictions placed on the leper everywhere. Thereafter, as the disease was disappearing in the most advanced of the European countries, the hereditary theory gradually superseded the old one, until by the middle of the nineteenth century it was generally accepted in Europe. In the light of our present knowledge this belief was based on inconclusive evidence.

A voluminous literature has accumulated since the middle of the last century regarding the contagious nature of leprosy. We may refer to the work of MacNamara, Drognant-Landré, Munro, Hillis, Leon, and Besnier, the reports of the Bureau of Health of Hawaii, and particularly the results of epidemiological investigations such as that of Talwik in Oesel Island, those of Blaschko and Kirchner on

the Memel epidemic in East Prussia, and those of Fletcher on the Cape Breton outbreak, of White on that in Louisiana, and of the French colonial medical office on the introduction and spread of leprosy in the Loyalty and New Caledonia Islands. The recent Nauru epidemic affords further evidence of the contagiousness of the disease. Beginning with the first International Leprosy Conference, held in Berlin in 1897, it has been emphatically affirmed by such conferences, including the Leonard Wood Memorial Conference held at Manila in January, 1931, that leprosy is contagious and is not transmitted by heredity.

The features which have thrown doubt on its contagious nature are: (a) the variable incubation period and the prolonged period of latency in most cases; (b) the slow development of the disease; (c) failure to grow an authentic culture of the causal organism; and (d) failure to produce the disease in laboratory animals or in adult men under experimental conditions.

Present views.—In general, the following views are generally accepted at the present time:

1. Leprosy is transmitted only by contagion, and not by heredity.
2. The causal organism is the *Mycobacterium leprae.*
3. Infection usually follows prolonged and intimate contact, although instances of infection following a single brief contact have been recorded.

The conditions under which leprosy is most frequently contracted have been studied by Rogers, who analyzed 700 cases gathered from the literature on this subject. His findings are summarized in the following tabulation:

Mode of Infection	*Number*	*Percentage*
Conjugal and cohabitation	128	18.3
House, room and bed	279	39.8
Attending on lepers	139	19.9
Other close association	136	19.4
Miscellaneous	18	2.6

4. There is evidence of special susceptibility of children to leprosy, although no age is exempt.

Among the first authorities to present data bearing on this point were Lie, Ehlers and Verdier, and Dohi. Reports of frequency of leprosy in children were published by Thezé (French Guiana), Kermorgant (Tahiti), Veendam (British Guiana), Dalziel (Sokoto), Mouritz (Hawaii), and Denny (P. I.)

5. The cutaneous type is much more infective than the neural (anesthetic) type.

Rogers gives the following figures: Of 113 cases in which the type of the infecting case was recorded, this was nodular in 107, or 94.7 per cent and neural in only 5.3 per cent.

6. The incubation period is usually longer than in most diseases.

In the Culion children who had become leprous the incubation period was estimated by Rogers to average about 3.5 years. (See also Rodriguez.) Hopkins gives an incubation period of 6 to 8 years; Besnier 4 years; Keravel 3 to 4 years; Impey, for nodular cases, 2 years. Cases of prolonged incubation periods had been reported by Radcliff-Crocker, Bracken, Hansen, Cochrane and many others. It is generally agreed, however, that what is prolonged is not so much the incubation period as the period of latency.

New orientations.—Certain local workers (Manalang, Chiyuto) have arrived at new orientations, based on the following studies:

1. Continuous clinical and bacterio-pathological observations on isolated children of lepers (supposedly untainted) who have remained with their parents for six months or more.

2. Clinical and bacterio-pathological studies (using serial skin sections) of bacteriologically negative and positive lesions of different stages of the disease in different ages; repeated biopsies (skin sections) from the same lesion at long intervals, and sections from bacteriologically positive and negative lesions before treatment, during treatment, after apparent cure, and on relapse.

3. Clinical and bacterio-pathological study of the frequency of leprosy among parents and children.

4. Bacterio-pathological study of postmortem materials from San Lazaro Hospital and Culion.

5. Resistance study (leprolin test) on bacteriologically positive and negative (neural) lepers, children of lepers (2 to 24 years old), children of non-lepers (5 days to 14 years old), and healthy employees with or without direct contact with lepers.

These studies led to the following conclusions:

1. Nature of leprosy: infectious.

2. Etiological agent: a microscopically invisible (virus) stage in the life cycle of *Myco. leprae.* The bacillus is a late manifestation of the disease.

Basis.—Identified leprotic lesions, clinically and pathologically identical or similar to bacteriologically positive leprotic lesions in frank lepers, very frequently do not contain *Myco. leprae.* On the other hand clinically and histologically normal skins of lepers often contain numerous bacilli, contrary to the fundamental law of cause and effect.

3. Transmission: not hereditary; infection post-natal. Disease acquired by the susceptible through frequent and prolonged skin-to-skin contact. Therefore, primary lesions are multiple, not single.

Basis.—Distribution of early lesions on the body of lepers on those regions (site of predilection) that have had frequent and prolonged skin-to-skin contact. (See also Susceptibility to Infection.)

4. Sources of infection: both bacteriologically positive and negative lepers (open and closed cases, respectively), and also the cured or paroled cases, are capable of transmitting the disease to the susceptible.

Basis.—Since leprosy lesions are due to the microscopically invisible virus stage in the life cycle of *Myco. leprae* (see Etiology), therefore, the negative lepers, including paroled cases whose skin pathology is similar or identical to the skin pathology of the children of lepers, should be capable of transmitting the disease to the susceptible. This is confirmed by a study of frequency of leprosy among parents and their children, in which of 56 children examined from 23 bacteriologically negative leper parents, 48 per cent are already clinical lepers (bacteriologically negative) and 14 per cent are already bacteriologically positive lepers.

5. Susceptibility to infection: adults are immune; infection is acquired only in infancy or early childhood before reaching the age of three years; both sexes are equally susceptible.

Basis.—Failure to transmit or reproduce leprosy in 145 recorded human inoculations is due to the adult age of the subjects. Arning's famous experimental transmission of leprosy is not valid because the subject had a leper son and nephew. Nurse P. of the Eversley Childs Treatment Station, Cebu, supposedly contracted the disease in the leprosarium after a finger prick, but he had areas of anesthesia before he studied nursing and has many relatives at Culion. Healthy laborers and workers among lepers in Culion for the past thirty years have failed to acquire the disease, except one laborer whose brother was a leper inmate, and recently an employee whose first cousin is also an inmate. Extreme rarity of leprosy among husbands and wives. In the well known cases of Father Damien and others no scientific proof is available that they did not have early unrecognized leprosy lesions before they worked among the lepers from whom they were supposed to have contracted the disease. High incidence of early leprosy among children of lepers, 100 per cent according to clinico-pathological study. Distribution and sites of predilection of leprosy lesions in adult lepers are the same as for the early lesions in children of lepers, showing that the lesions in the adult lepers were produced since childhood (though imperceptible to the untrained). Confirmed by the experience in Japan of high frequency of leprosy of the hairy scalp, the result of a religious practice of shaving the hair of the infant on reaching the age of 100 days, thus exposing the bare head to frequent and prolonged skin-to-skin contact (see Transmission);

while scalp leprosy is rare in countries, including the Philippines, that do not indulge in this practice. Results of leprolin tests show that healthy children under 1 year are without reaction in 100 per cent; under 2 years no reaction in 66 per cent; under 3 years no reaction in 33 per cent; over 3 years positive reaction in all. Confirmed in both India and Argentina. All healthy employees, with or without contact with leprosy, react positively to leprolin. Reactions on children of lepers are aberrant, the same as the reactions of adult lepers. These observations support the theory of adult immunity and infantile susceptibility. Both sexes of children of lepers are equally affected.

6. Incubation period: relatively short; evolution long and very variable.

Basis.—Continuous clinico-pathological observations on children of lepers during the last four years show that the pathology of the evolution of leprosy is perivascular round cell infiltrations, tuberculoid lesions and lepromata.

7. Curability: not curable as far as known at present.

Basis.—Incidence of relapses in and around Manila 46 per cent, Cebu 39.1 per cent. Culion postmortems show *Myco. leprae* in nerves of almost all supposedly cured cases. Therefore, the drug acts best locally. Postmortems also show that clinically normal palms and soles of feet and other skin in areas of predilection usually contain many bacilli and leprotic lesions, but are not treated because of their normal appearance. Treatment of children of lepers does not prevent them from becoming bacteriologically positive lepers. The pathologic processes in the skin of children of lepers is similar or identical to those in the skin of the cured lepers and explains clearly and scientifically the stated incurability of the disease, because if the drug fails to prevent children of lepers from becoming positive lepers it is clear that the same drug cannot prevent a cured leper from relapsing, provided he lives long enough, even if the entire skin surface is treated, because there is no fundamental change in the histopathology.

These new orientations suggest a new alignment and certain revisions in our methods for the prophylaxis of the disease. Adult immunity, infant susceptibility, infectiousness of the negative and "cured" leper, and incurability of the disease are certainly fundamental in shaping control measures. However, there is as yet only a very small minority supporting the above revolutionary ideas, which are contrary to the rooted conceptions in leprosy.

Generally accepted view on adult susceptibility.—The literature that might be cited in connection with this question is too voluminous to be covered in this report; submitted with it (but not reproduced here) is a comprehensive review of the most recent literature on the subject.[1] However, the evidence upon which most leprologists base

[1] Is Leprosy Transmissible from a Leper to a Non-leprous Adult? Compiled by M. W. Bennett.

their opinion that, though children are especially susceptible to leprosy, the disease is also transmissible to adults is exemplified by the following:

Talwik [*Lepra* 6 (1905-6) 211], who surveyed the history of leprosy on the island of Oesel in Estonia during 1903-1904, found numerous cases of leprous maid-servants causing the infection of the housewife or the master of the household, or the opposite case of the servant becoming infected from a leprous individual in the household. He also records several instances in which marriage or a love affair between a leper and a healthy person ended in infection of the healthy partner. In a recent report from Estonia, Spindler [*Internat. Jour. Lep.* 3 (1935) 265] states that, contrary to the findings in other countries that the majority of infections occur before the twentieth year, the opposite is the case in his country; most of the infections there occur after the thirtieth year.

Blaschko [*Deutsche Med. Wchschr.* 35, 2276] and Kirschner [*Lepra* 10 (1909-10) 77] thoroughly studied the spread of the disease in the Memel outbreak, which occurred in East Prussia and which was traced to five Russian servant girls entering the province between 1848 and 1880. From their findings an especially interesting occurrence may be cited. A leprous servant girl infected the father of the family in which she was working, and also three of the children. From this family the infection next spread to another family, in which the mother, three children, a female servant, and the second husband of the infected mother were attacked.

Another experience which may be cited is the introduction of leprosy into the island of New Caledonia. Grall [*Lepra* 10 (1909-10) 104] recorded that it was brought by a Chinese who died about 1865 after sojourning for two years with a certain tribe. A woman of this tribe, an adult, was attacked one year after the death of the Chinese, or three years after the latter's arrival. From that time the spread was very rapid, and Ortholan [*Ann. Hyg. Med. Colon.* (1911) 229] reported that ten years later from one-fourth to one-half of the population in certain districts had become leprous. From New Caledonia the disease invaded the neighboring Loyalty group.

New Caledonia was later used as a penal colony for French criminals. Jeanselme [*Lepra* 10 (1909-10)] reported that, from 1888 to 1898, 132 cases had occurred among Europeans, chiefly among the prisoners and especially among those under parole who mixed freely with the natives.

If we were to believe that the French convicts who happened to have been sent to New Caledonia had all been infected during infancy in their native country, it would be necessary to assume that there must have existed much more leprosy in France at that time than was actually the case. Pertinent in this connection is the history of the cases of leprosy in England, where the disease is not endemic. These cases are in persons who as adults went abroad to leprous regions where they acquired the infection. Though upon returning to En-

gland they are not subjected to any restrictions whatever, this has not resulted in the establishment of the disease in that country. It is true that four cases of autochthonous leprosy have been reported from England, but these were all in young children who lived with lepers who were infected elsewhere, and the infection stopped with these children and was not acquired by any other person in contact with them.

On the other hand, a recent instance of the introduction of leprosy into a new territory occurred in the island of Nauru, in Oceania, as recorded by Bray [*Proc. Roy. Soc. Med.* 23 (1930) 1370]. It was apparently brought there by a Caroline Islander and a Gilbert Islander, about 1912. In June, 1920, 8 years after the arrival of these possible sources of infection, four autochthonous cases of leprosy were under observation. By 1926 there were 377. Of this number 50 per cent were over 20 years old, which indicates that at least one-half of the cases were probably over 14 years of age at the time they were infected, assuming that the first four autochthonous cases were the source of the subsequent rapid spread of the disease.

Other indications of the contagiousness of leprosy among adults are the recorded cases of infection due to conjugal relationship.

McCoy and Goodhue (United States Publ. Health Bull. No. 61, 1913, p. 7) reported that in Hawaii 5.1 per cent of healthy husbands and 4.8 per cent of healthy wives married to lepers developed the disease. Denny [*Jour. American Med. Ass.* 69 (1917) 2171] reported 1.8 per cent of conjugal infections among 2,220 cases admitted to the Culion Leper Colony. Rogers [*Ann. Trop. Med.* 18 (1924) 267], in his analysis of 700 cases from the literature in which the possible sources of infection were traced, found that 12.1 per cent were conjugal infections and that an additional 6.1 per cent were due to cohabiting with lepers, making a total of 18.2 per cent.

We also have data on the incidence of infection among adults who had been allowed to live with lepers in leprosaria. According to McCoy and Goodhue, no less than 16.4 per cent of the healthy persons living in the Molokai Leper Settlement of the Hawaiian Islands, chiefly in conjugal relationship with lepers, became infected. Previously Mauritz, in 1886, had reported that of 178 healthy Molokai attendants, most of whom were married to lepers, who were examined in February, 1885, and again in February, 1886, no less than 17 (9.5 per cent) had developed leprosy during the year. "But the conditions in the Settlement at that time were very bad, and subsequently, with improved care, such infections greatly decreased" [Rogers, L. and Muir, E. Leprosy. London, 1925].

There is still further evidence of the infectivity of leprosy among adults in the comparatively few cases of physicians and other adults who developed the disease following cuts, punctures, operations, etc., contaminated with presumably highly infectious leprous material. The most recent case of this sort, reported by Marchoux [*Internat.*

Jour. Lep. 2 (1934) 1], is that of a physician who, while assisting at an operation on a leper in 1922, was pricked with the suturing needle; in 1932 he was found to have developed a bacteriologically positive lesion at the site of the puncture.

Conditions in the Philippines being more or less similar to those found in some of the countries mentioned above at the time the observations were made, there is every reason to believe that infection of adults is also possible in this country. However, it is felt that, in view of the comparative rarity of conjugal infections according to Denny's figures (1.8 per cent), transmission of the disease to adults is probably not an important factor in its spread in the Philippines. Moreover, Velasco, of the San Lazaro Hospital, reports [*Rev. Col. Med. Farm. Filipinas* 25, 423] that in the thirteen specially studied families with prolonged contact between spouses lasting from 5 to over 20 years, there was no case of conjugal infection in spite of conditions favorable for the propagation of the disease.

In conclusion, although some of the members of this Committee question the scientific basis of many of the reports of adult infection, it is unanimously recommended that, in view of the lack as yet of confirmatory evidence supporting their contrary opinion, no changes in the present method of leprosy control should be considered which go against the general accepted views of leprologists that, while children are especially susceptible to leprosy, no age is exempt. It is also agreed that in countries where the disease is endemic most infections probably take place early in life, and that transmission to adults plays a minor role in the epidemiology of the disease. In view of the importance of the question it is recommended that intensive scientific studies along these lines be made in the Philippines.

B. TREATMENT

A review of the treatment of leprosy has recently been made by Muir [*Internat. Jour. Lep.* 1 (1933) 407]. The very multiplicity of drugs and treatments which have been tried indicates that there is no highly effective or specific treatment. The concensus of opinion is that the chaulmoogra and related oils and their derivatives are the most useful of those so far tried.

How this oil acts in leprosy is not known, but we do know that if skillfully applied in cases which are not too far advanced it causes the disappearance, at least temporarily, of infiltrations, nodules, and

other skin manifestations of the disease, together with the partial or total elimination of the germ from the skin and mucous membranes in a respectable percentage of cases. It also produces a feeling of well-being and promotes mental relief among patients under segregation. The drawbacks are the pain, the protracted period necessary to produce marked improvement (three to four years before the patient can be paroled in the average case), and the difficulty of determining the effectiveness and permanency of the cure or improvement.

There is hardly any experienced leprologist today who would claim that leprosy can be definitely cured with chaulmoogra oil. Although the bacilli can be made to disappear from the body surface, they persist in the nerves, lymph glands, and other internal organs.

Pineda [*Jour. Philippine Islands Med. Ass.* 1 (1927) 109] reported finding them in the deeper organs of 10 out of 11 cases that had come to autopsy at Culion after becoming "negative" under treatment. More recently Nolasco [*Trans. Ninth Congress, Far Eastern Ass. Trop. Med.* 1934, vol. 1, p. 705; reprinted in *Internat. Jour. Lep.* 3 (1935) 345] reported findings in 42 autopsies on "quiescent" and "arrested" cases. In only three did he find such minimal tissue reaction as to be considered as "instances in which the infection had probably been almost or quite overcome."

In view of such findings, and of the frequency of relapses in paroled cases, some leprosy workers are inclined to consider the effects of chaulmoogra oil merely "symptomatic," or ephemeral. Others believe that although this treatment per se perhaps cannot "cure" leprosy, the elimination of myriads of bacilli and the resolution of the lesions in which they lie immured against the bodily defences certainly place the body in a much improved position to overcome the infection, and they believe that the infection is thus overcome in some cases.

Whatever is the case, all are agreed that many lepers can be rendered "negative" by chaulmoogra treatments, that is, that the body surface can be rendered free from the leprosy germ, at least temporarily. Furthermore, some countries have adopted the policy of "paroling" such negatives in the belief that they rarely if ever transmit the disease, provided certain precautions are taken. It is apparent that such paroled negatives are potential sources of infection unless they are properly examined and controlled, both before and after parole. This Committee wishes to emphasize the importance of an adequate period of observation before parole, and of thorough and repeated examinations.

The question of the influence of balanced diet, proper hygiene, rest, freedom from worries, etc., in the treatment of leprosy is to be mentioned. These factors have been found to be very important in the treatment of the related disease, tuberculosis, and there is every reason to believe that they are as important in the treatment of leprosy.

For some years past efforts have been made in India, Korea, and some other countries, to treat bacteriologically positive lepers as outpatients in public dispensaries, but it is becoming more and more apparent that this method is bound to fail because the patients do not or cannot follow the necessary regimen in their homes. Also, because leprosy treatment is usually prolonged, most of the patients get discouraged after a while and stop going to the dispensary. It is now generally conceded that the best place to treat positive lepers is in properly managed institutions, where they can be placed under suitable dietary and health regimen in addition to the drug treatment.

COMMITTEE ON NEGATIVES AND PAROLE

DR. H. H. STEINMETZ, *Chairman;*

DR. CASIMIRO B. LARA AND MRS. SOFIA DE VEYRA, *Members.*

Topics Discussed.—A. Desirable length of the negative period prior to parole.

1. Relapse rate prior to parole.
2. Relapse rate after parole.

B. Follow-up methods for the treatment of paroled lepers.

C. Possible changes in the present procedures.

Desirable length of the negative period.—From the standpoint of public health the desirable length of the negative period prior to parole must largely be determined from the relapse rates (1) prior to and (2) after parole.

The relapse rate prior to parole varies considerably, depending upon the thoroughness and frequency of examinations.

Observations at Culion and Cebu are in close agreement. Thus in the Culion group of 2,800 cases there were 43 per cent relapses in the first six months, and

in the Cebu group of 574 cases there were 45 per cent relapses in the same period. In the first 12 months the total (cumulative) percentages were 50 and 49, respectively, and in the first 24 months 53 and 52. For the Culion group the cumulative rate increased from the first to the twelfth month, consecutively, as follows: 4.5, 17.9, 28.0, 33.5, 38.2, 43.4, 46.2, 47.5, 48.4, 49.2, 49.7, and 50.0 per cent.

The relapse rate after parole also varies, depending not only upon the thoroughness and frequency of examination both prior to and during parole, but also upon the duration of the preparole negative period and other conditions.

In the Philippines, Chiyuto and Velasco traced cases that had been paroled between 1922 and 1930 to the City of Manila and neighboring provinces, and found that 46 per cent of them had relapsed. Rodriguez, in Cebu, found 33 per cent relapses among 657 paroled cases. On the other hand Lara has found only 23 per cent relapses among 138 negatives re-admitted to Culion that have been regularly observed for from 3 to 13 years. Possibly the less arduous life and environment at Culion, and the advantage of having regular treatment for the leprosy and associated conditions, are responsible for this lower rate. Denny, in Carville, has observed that, with rigid parole requirements, the relapses over a ten-year period have been only 3 per cent. On the other hand Wayson, in Hawaii, where the parole requirements have presumably been less rigid, has found 51 per cent relapses within 3.5 to 5 years after parole.

From the above observations it would seem unwise under present conditions to grant parole within less than one year of continuous negative period. The relapse rate at Culion is highest during the second and third months, gradually failing in subsequent months.[1] From the end of the first year it remains practically uniform for the next 12 months; the absolute rate for the two years has been only about 3 per cent greater than that for the first year. It is to be emphasized that the group of cases on which these observations were made were continuously under observation and treatment in the environment in which they became negative. There is no assurance that the rates of relapse would have remained as low as those after the first few months had the patients been paroled to live under other conditions, with as little additional treatment as is received by the majority of those under parole.

Follow-up of paroled lepers.[2]—This subject is exhaustively covered by existing regulations of the Bureau of Health [Administrative

[1] See footnote on page 405 of the report of the Commission.

[2] In connection with this subject a memorandum entitled The Problem of the Follow-up of "Negative" Lepers was submitted to the Commission by Dr. C. B. Lara.

Order No. 72 (July 28, 1930), as amended by Order No. 88 (Nov. 23, 1932)]. However, it must be stated that the follow-up of paroled lepers has always been very difficult, and in ordinary practice it has been impossible to obtain satisfactory results.

With respect to the attitude of the paroled negative toward the present regulations, they may be grouped into three classes: (1) those who voluntarily submit to the requirements, (2) those that have to be sent for by the local health officers who are supposed to observe and treat them, and (3) those who do not appear even when called. In Rodriguez's experience a considerable proportion of those who appear voluntarily desire, for some reason or other, to be resegregated, especially if they should be found again positive. As for the other groups, the main difficulty seems to be inability to meet the expense of transportation to the nearest health center. Relatively few have absolutely refused to be re-examined through fear of being found positive and resegregated. An interesting observation was that the proportion of relapses among those that had to be searched out was not greater—in fact it was somewhat less—than that among those appearing voluntarily.

Possible changes in the present procedures.—In view of what has been brought out in the foregoing, a summary of recommendations would seem to be sufficient at this place.

1. The preparole negative period should be one year, since the greatest number of relapses may be expected to occur within that period. The examination of negatives prior to parole[3] should be once a month, at least. In order to avoid delay in effecting parole, the final examinations[4] should be made twice a year as heretofore. In view of the great number of negatives to be examined, both under segregation and paroled, a permanent bacteriologist should be assigned to the committee which makes these final examinations.

2. To overcome one of the chief obstacles to a satisfactory following-up of paroled patients, funds should be provided for their transportation to the place of examination.

3. Since many paroled patients live unsettled lives, parole officers should seek them out rather than depend upon their reporting themselves, and municipal authorities should be requested to report the presence of such patients living within their jurisdiction. (*Abstract.*)

[3] By the official "Local Committees" at the places of segregation.

[4] By the official "Disposal Committee," the findings of which are final.

4. Systematic records of all lepers should be kept by the Bureau of Health, setting forth all data of interest covering the periods before and during segregation, and after parole. (*Abstract.*)

COMMITTEE ON THE ABILITY OF LEPERS TO ENGAGE IN PRODUCTIVE LABOR

DR. CASIMIRO B. LARA, *Chairman;*
DR. JOSÉ RODRIGUEZ, MR. CHARLES H. FORSTER, AND REPRESENTATIVE FERNANDO B. DURAN, *Members.*

General statement.—For purposes of administration and control, and for epidemiologic investigation and other reasons, it is important to have data on the sex and age distribution of lepers, their expectancy of life, and the average period of practically normal enjoyment of life, with special reference to their physical, mental and reproductive powers and their interests in life both as individuals and as a group. The questions of treatment and curability of leprosy, which also have a bearing on the physical life and morale of the leper, are not dealt with in this report.

TABLE 1.—*Sex and age distribution.*

Age groups, years	Age distribution of the entire groups of males and females, in percentages		Proportions of males and females in each age group, in percentages and ratios	
	Males	Females	Males	Females
0-5	0.1	0.2	50.0 (1.0)	50.0 (1.0)
6-10	1.0	1.4	59.8 (1.5)	40.2 (1.0)
11-15	3.9	6.0	59.6 (1.5)	40.4 (1.0)
16-20	10.2	12.6	64.4 (1.8)	35.6 (1.0)
21-30	30.6	29.7	69.7 (2.3)	30.3 (1.0)
31-40	25.5	20.7	73.3 (2.7)	26.7 (1.0)
41-50	15.1	14.1	70.6 (2.4)	29.4 (1.0)
51-60	7.7	8.1	68.1 (2.1)	31.9 (1.0)
Over 60	5.9	7.2	64.4 (1.8)	35.6 (1.0)
Total	100.0	100.0	69.1 (2.2)	30.9 (1.0)

Sex and age distribution.—An analysis has been made of the 8,783 cases in segregation in July, 1935. Of this number 6,067 (69 per cent) were males, and 2,716 (31 per cent) were females, a proportion of 2.2 to 1. Each sex group was analyzed with regard to

the distribution by ages. Conversely, each age group was examined to determine the sex distribution. The results are shown in Table 1.

It is of interest that, while there were altogether more than twice as many males as females, up to the age of 15 years the numbers of each sex were approximately the same, apparently indicating that in many females who are infected the disease after puberty remains latent or follows a mild course which prevents it from being readily recognized. It is also to be noted that fully 80 per cent of the lepers actually in segregation are between 16 and 50 years of age, the period of greatest productivity.

Proportion of physically fit lepers.—No data bearing on this question are available from the treatment stations, but inasmuch as the general policy in these stations is to transfer to Culion the advanced and otherwise incapacitated cases, it may safely be assumed that a large majority of the cases segregated in them are able-bodied and fit for physical work.

In Culion, on the other hand, it has been estimated from the results of actual survey that at least 50 per cent of all the lepers are able to do moderate to hard manual work, and an additional 10 per cent can perform light work. These figures do not include able-bodied children under 16 years of age.

From these observations and general experience it can be said that, while at the commencement of the disease most persons with leprosy are practically as able-bodied as any comparable group of non-leprous persons, after the lapse of several years many of them become physically incapacitated as a result of progress of the disease and superimposition of other ailments. Further, with the present treatment and general conditions obtaining in a colony like Culion, at least 50 per cent of all cases may be expected to become permanently incapacitated for work within the normal period of expectancy of life. It should be stated, however, that of the cases in Culion that in the course of time have become unsuitable for further chaulmoogra treatment as a result of various conditions and have become incapacitated for work, at least 70 per cent were able to receive intensive antileprosy medication for at least five years. Lepers not suffering from complicating tuberculosis or other conditions that contra-indicate active treatment can usually keep physically fit for many years. Even when the disease progresses in spite of treatment, the changes are usually slow and most patients can adjust their activities to their gradually failing powers.

Reproductive powers of lepers.—The fertility of the female leper is scarcely if at all affected by the disease. On the other hand, males in the advanced stages—at least of the cutaneous type—are usually sterile because of severe involvement of the testes.

Average time loss to be expected.—This question has been studied among the group of 4,743 patients assigned to the treatment clinics at Culion. Of this group we have considered only the able-bodied patients who have been in Culion for at least one year, some 3,590 men and women. The average number of working days per year was determined by excluding all absences due to illness; Sundays and holidays were counted as ordinary working days. The figures arrived at were 346.8 days for the men and 341.3 days for the women. From this it may be said that the time loss, for patients of this class, is practically negligible.

Disability in family groups.—This matter has also been gone into among approximately 5,500 of the Culion patients. The findings are as follows:

Inmates who married at Culion		778
Male: Able-bodied	344, or 89.3 per cent	
Incapacitated	41, or 10.7 per cent	
Female: Able-bodied	368, or 93.6 per cent	
Incapacitated	25, or 6.4 per cent	
Inmates married before going to Culion		2,103
Male: Able-bodied	1,385, or 91.1 per cent	
Incapacitated	136, or 8.9 per cent	
Female: Able-bodied	508, or 87.3 per cent	
Incapacitated	74, or 12.7 per cent	

Character of work at Culion.—The mode of life of the patients at Culion, where they are kept for years and are allowed to live in much the same way as in their home communities, probably affords an adequate idea of what the leper can do and what his interests are. Data furnished by the chief of the Colony show that farming, fishing, the raising of livestock and poultry, and small retail businesses are the most important activities. In addition there is no lack of barbers, tailors, blacksmiths, bakers, embroiderers, shoemakers, watch repairers, photographers, carpenters and furniture makers, chauffeurs, etc. The professions are represented by a physician, a dentist, lawyers, teachers, accountants and clerks, a priest, protestant ministers, an engineer and nursing aids. There are also many young men and women who are not employed but who could do clerical work or engage in productive manual labor. It is thus obvious that there is hardly

any phase of normal social life in which a large group of lepers such as this cannot participate, and this fact should not be lost sight of in any plan designed for their care and control.

COMMITTEE ON THE ESTABLISHMENT OF REGIONAL LEPROSARIA

JUDGE MANUEL CAMUS, *Chairman;*
MRS. MARGARET W. BENNETT, SENATOR JUAN NOLASCO, MR. CHARLES H. FORSTER, AND DR. JOSÉ RODRIGUEZ, *Members.*

1. Additional treatment stations similar to those established at Cebu, Iloilo, and Legaspi, or the substations at Lanao, Zamboanga and Jolo, may be built under the provisions of the law under which these were established (Revised Administrative Code, Chapter 37, Section 1063). (*Abstract.*)

2. In view of the fact that the regional treatment stations can become a menace to the communities in which they are located if allowed to become too large, it is recommended that the capacity of such stations be limited. Culion should be reserved for advanced cases and such cases as cannot be handled in the regional treatment stations.

3. The establishment of regional agricultural colonies is recommended, the first two to be in Central Luzon and Mindanao. That in Central Luzon should also serve as the regional treatment station, and the leprosy department of the San Lazaro Hospital in Manila should be made into a skin clinic and receiving station. (*Abstract.*)

4. Certain questions are raised regarding the operation of these proposed colonies, such as whether or not the land should be given to the colonists as homesteads, and whether the nonleper spouse may be allowed to live with the leper in the colony. These are discussed in the report of the committee on the establishment of agricultural colonies. (*Abstract.*)

5. The selection of sites for such colonies should be made by a technical committee. (*Abstract.*)

COMMITTEE ON THE ESTABLISHMENT OF AGRICULTURAL COLONIES

4

DR. G. C. DUNHAM, *Chairman;*
SENATOR JUAN NOLASCO, JUDGE MANUEL CAMUS, MR. CHARLES H. FORSTER, AND DRS. SULPICIO CHIYUTO AND H. W. WADE, *Members.*

A. GENERAL CONSIDERATIONS

Purpose of agricultural colonies.—The primary purpose of establishing agricultural colonies for lepers under segregation would be to afford gainful occupation for the colonists by which they might become wholly or in large degree self-supporting, thus to reduce the financial burden of leprosy control work. Secondarily, agricultural colonies, as compared with leprosaria of the ordinary asylum types, would provide a much better environment for the patients, one which would permit them to live in a manner more nearly approaching that of the average family of the country.

In at least one region (the Sudan) an attempt has been made to deal systematically with the entire leper population on this basis, the expectation being that, once the settlements are established, the expense to the State would be limited chiefly to the cost of medical treatment. This activity was begun only a few years ago, and the outcome is not known to us, but at last report the progress was said to be satisfactory. In many other places isolated farm colonies are in successful operation, but it is to be said that these are in regions where the people are primitive and normally subsist entirely or chiefly by means of agriculture; furthermore, most or all of the lepers in these institutions have come to them voluntarily. It is known that in many places, where it is impossible for the State to maintain and subsist all of the lepers who should be isolated, and where consequently no systematic control is as yet attempted, the authorities are considering the feasibility of establishing institutions where the inmates can be made self-supporting.

A successfully operated agricultural colony would permit selected positive lepers not only to live under more or less normal conditions and become at least in part self-supporting, but also to develop homes and farms where they could live after they became negative so that they would not be required to develop homes or means of livelihood elsewhere. The positive lepers could be visited under proper conditions by their relatives and associates. The negative lepers would continue to receive the necessary treatment and to live in an environment which would tend to prolong or to make permanent the negative phase.

Handicaps to be met.—In any country where admission to such colonies is not primarily on a voluntary basis (which basis can only effect the isolation of a fraction of the leper population), and especially where the inclinations and normal experiences of the people are diverse, there are certain factors that handicap and limit the applicability of the agricultural colony system. These may be enumerated as follows:

1. There are certain classes that could not be expected to engage in gainful occupation in a farm colony, quite aside from the question of aptitude. (a) Females and young children are obviously in this class, except insofar as some of them would be provided for through family life. (b) Those who are physically incapacitated, whether by leprosy or other conditions, would have to be taken care of as at present. (c) In the operation of any considerable community, whether a normal town or a leper colony, there are functions to be served which are not directly productive. A few artisans of some kinds (as carpenters or tailors) might support themselves by work done for the farmers, and some merchants might also gain support through trade, but others (to cite only road-tenders as an example) could not be supported in such ways.

2. Some proportion of the lepers, varying in different countries and in different regions of a given country, are wholly unsuited by inclination or experience to engage with success in farming, and there are those who lack the aptitude or the physical endowment to become farmers even under expert supervision. This group is not confined exclusively to the "white-collar" class, but also comprises to some extent manual workers of various kinds.

3. Experience at Culion shows that many who could engage in farming with expectation of reasonable success do not choose to do so, for various reasons. (a) In the first place, there is no major compulsion in that it is not necessary to work for the bare necessities of life. The inmates are all given subsistence whether they work or not, and at Culion there are many other ways by which people can earn money for other things. Consequently, even of those who had been farmers before isolation, many prefer to live indolent lives or engage in other occupations in the colony town, without the toil and relative isolation of farm life. In contrast to them are those individuals, most numerous among those from certain particular regions of the Philippines, who actually prefer farm life. (b) Many who might be persuaded to take up farming if they expected to remain at Culion indefinitely are now disinclined to do so because of their expectation of speedy recovery and parole as a result of modern treatment.

4. Outstanding under the circumstances operative in the Philippines, should special agricultural colonies be established, would be the question of willingness on the part of those who might go to them, deliberately to choose to do so and to earn their own livelihood while others are supported in more or less complete idleness in other institutions.

Possibilities of overcoming handicaps.—Some of these handicaps could be met in one way or another, at least to some extent. Many

females would have to be supported by the State in another type of institution, or be given other means of gaining a livelihood, but some women would be taken care of in the farm colonies through marriage to farmers. (See report of the committee on marriage of lepers.) Most of the children isolated on account of leprosy would also have to be supported, but attention is called to the possibility of having some of them legally adopted or cared for as wards by couples who would thus benefit from completion of the family life. [See the experience of Wilson in Korea, *Internat. Jour. Lep.* 3 (1935) 201.]

Patients permanently incapacitated by leprosy or intercurrent disease will, of course, have to be taken care of as hospital or asylum cases, at least for the most part.

Most of those who by sheer incapacity could not support themselves by farming would have to be taken care of otherwise. In a system developed with a view of making as many as possible self-supporting, some other forms of productive occupation might be developed for this class. The scope of such activities would be limited by the practical impossibility of disposing of the products of lepers in the open market.

The disinclination to engage in the development of farms because of expectation of speedy parole would be difficult to overcome in many cases. However, it is assumed that generally the people who would be sent to (or, rather, encouraged to go to) the farm colonies would not be the early or slight cases; those most readily amenable to treatment would be retained in the treatment stations.

The necessary functionnaires who could not gain a livelihood from services rendered directly to the colonists for pay would presumably be supplied by the State. This would obviously be necessary unless the farm-colony community should attain such a state of prosperity and organization as to permit a system of internal taxation to provide for such functionnaires—a state of affairs which could hardly be counted on.

As this Committee sees it, the most serious handicap to the development of the farm colony would be the disinclination of many to support themselves by arduous labor, should others of similar classes and ability to work be supported in idleness. It seems to us that inducements must be offered in order to persuade any considerable number of lepers to undertake such work and pursue it seriously.

The inducement of family life.—One of the strongest motivating factors in human affairs being the normal desire for family life, this could be made the strongest appeal to those who should take up agricultural colony life.

First to be considered is marriage among the lepers themselves, which is one of the features of life at Culion and in many other leper colonies. It could be made to some extent an effective inducement if such marriages were prohibited unless the contracting parties should engage in productve occupation for their own support. This should not prevent marriage of couples both of whom are incapacitated by deformities or other similar conditions; such cases would be considered each on its own merits.

However, this would not provide for the majority, even were the divorce law liberalized in favor of lepers. Consequently, it is recommended that serious consideration be given to the practicability of permitting, on request, one nonleper adult relative, whether husband or wife, father or mother, brother or sister, son or daughter, to live with the leper who would take up life in a farm colony.

This brings up anew the question of danger of infection of the nonleper. It is to be understood that he or she would be adult, and in normal health; no nonleper children would be allowed in such a family, though that family could be permitted to take guardianship of a leper child. However, this sugestion does not affect the opinion of the Commission that persons with the infectious type of leprosy should not be allowed to live with nonlepers *outside of the farm colony.* In an outside community the leper would unavoidably contact more or less intimately many individuals, both adults and juvenile, and many such contacts would not be voluntary on the part of the nonlepers affected. In the colony such contacts would be strictly limited in number, and those concerned would be in the leprous environment by deliberate choice. In view of the data cited in one section of the report of the committee on transmission, susceptibility and treatment, it is the opinion of this Committee that the infections that might result from such association would be so few, and so unimportant as a part of the whole situation, that the advantages in the way of encouraging the development of the farm-colony system would greatly preponderate.

Property rights.—Leper colonists should be permitted to acquire an equity in the farms they develop. One way by which this

might be accomplished is to permit them to homestead the land, or to buy it at a low price, and thus acquire ownership. This system would have the advantage that if and when a farmer who was a positive leper became negative he could remain in possession of the land, though it has the disadvantage that difficulties would arise in time from the sale or renting of the land to others. Or, the land could be leased by the lepers, subject to the necessary restrictions; the lessee would thus acquire ownership of the improvements and could hold the land under lease indefinitely. In any event, the rights of both the positive and negative farmers in the land they develop should be protected as far as consistent with the operation of the colony for the public good.

Marketing.—For the time being, the products of a leper agricultural colony would have to be purchased at a fair price by the Government for consumption by the patients in the other leprosaria. Experience has demonstrated that the ordinary farm products grown by lepers cannot be sold to the general public because of fear of infection. It is quite possible that in the course of time an outside market could be found for certain products, such as copra, sugar, and abaca or other fibers.

Number and location of colonies.—While it seems probable that eventually a number of agricultural colonies might be utilized in the segregation of lepers in the Philippines, only one such colony should be established at the present time. This would permit a long-time study of administrative methods, particularly the lines along which a colony should be developed with respect to character of crops, marketing and the ownership of the land. Further, it is doubtful if the financial condition of the Government at the present time would permit the establishment of more than one colony.

The first agricultural colony should be located near the city of Manila, and should be operated in connection with a treatment station for the segregation of lepers who are not colonists. This combined colony and treatment station would provide for the segregation of all patients from northern and central Luzon. In addition to the one colony proposed, the agricultural activities of the various treatment stations should be expanded.

B. A COMBINED TREATMENT STATION AND AGRICULTURAL COLONY FOR LUZON

[This section of the report is essentially of strictly local interest. It is pointed out that the leper department of the San Lazaro Hospital is not well suited for its purpose and cannot be improved materially. The requirements for a new site are pointed out, an estimate of the numbers of patients that should be provided for is made, and suggestions are offered with regard to future expansion, the type of construction that should be used, and the lines along which the development of the agricultural section should be directed at the outset of what is pointed out to be an experimental project.]

COMMITTEE ON THE HUMANITARIAN AND SOCIAL ASPECTS OF THE LEPROSY PROBLEM

MRS. SOFIA DE VEYRA, *Chairman;*
MR. CHARLES H. FORSTER, SENATOR JUAN NOLASCO, AND DRS. CASIMIRO B. LARA AND H. H. STEINMETZ, *Members.*

1. *Conditions at Culion and in the treatment stations.*—[This section of the report of this Committee, prepared after consideration of the conditions observed during the visit to the institutions concerned, deals largely with purely local problems.]

(a) It is recommended that, hereafter, the Culion colony should be utilized for the isolation of advanced cases, and also for cases difficult to handle in the treatment stations and those who desire to settle in that colony. (*Abstract.*)

(b) Suggestions offered for the improvement of conditions at Culion include: that to relieve the overcrowding in the colony town, the present policy of the administration to encourage lepers to settle and build their homes in less crowded areas be more effectively enforced; that the distribution of clothing be based on actual needs; that the colony administration be given more autonomy in the matter of purchase of building and other materials. (*Abstract.*)

(c) The Committee records its approval of the system of regional treatment stations, and particularly endorses the type of that at Santa Barbara, Iloilo, which is economical and approximates more nearly than the others the normal living conditions of the people; and it recommends that the people of the regions in which these stations are constructed be requested to cooperate in their support and maintenance in every way possible, as is being done by the people of Iloilo. (*Abstract.*)

2. *Comparison of leprosy with other diseases.*—It is pointed out that for lack of statistics it is impossible to make a comparison of leprosy and diseases such as tuberculosis and syphilis. With regard

to mortality, lepers are not segregated because of a high mortality rate due to leprosy itself; most lepers die from tuberculosis, and at Culion only 3 per 1,000 from leprosy. No statistics on this point with respect to syphilis are available in the Philippine Islands, and those available for tuberculosis cannot be considered as accurate. (*Abstract.*)

3. *Rehabilitation of children of leper parents.*—Recognizing the difficulties at present encountered in rehabilitating into normal life the children of leper parents now confined in Welfareville, it is recommended that the cooperation of the Red Cross be requested in the study of the problem and in the rehabilitation of these children when they become of age.

4. *Effect of home segregation on the family.*—The Committee believes that home segregation of lepers would cause the families involved to suffer from social stigma, and therefore recommends group segregation as more favorable to both family and patient. The social stigma resulting from home segregation would handicap the family in engaging in pursuits which are their means of livelihood, and at the same time the patient kept in the home would become a burden. Recent findings[1] show that families have been definitely benefited economically by the removal of the leprous member.

5. *Effects on foreign trade of withdrawal of leprosy control.*—Although this Committee does not countenance certain organized propaganda in the United States against Philippine products, which has no basis in fact, it however recognizes the detrimental effects on the sale of certain Philippine products in the United States and abroad that might result from a radical change of method in controlling the leprosy situation in the Philippines.

6. *Propaganda to remove prejudice.*—The Committee recommends a system of organized propaganda regarding leprosy, its prevention, cure, etc., with a view to further decreasing the prejudice of the public against those suffering from this disease.

7. *Cooperation of social, religious and welfare organizations.*—In view of the great mental suffering caused by segregation to both the family and the patient, this Committee suggests that social, re-

[1] This refers to the results of an investigation made by the Philippine Chapter of the American Red Cross. A memorandum on the subject was submitted to the Commission by Mr. C. H. Forster.

ligious, and welfare organizations be requested to cooperate in explaining and interpreting to affected families the necessity for segregation, and that arrangements be made to circularize this suggestion.

COMMITTEE ON MARRIAGE AMONG LEPERS

DR. H. W. WADE, *Chairman;*
DRS. G. C. DUNHAM AND CRISTOBAL MANALANG, AND MRS. MARGARET W. BENNETT AND JUDGE MANUEL CAMUS, *Members.*

The problem.—One of the most difficult and delicate problems that arise in the administration of institutions for the segregation of lepers is that of sex relations among the inmates. It is one that interests the administrator, the treating physician, the religionist, the humanitarian, and the social worker—besides the leper and his or her family—and its practical importance is such that it merits careful and calm examination.

It is generally acknowledged, by the Leprosy Commission as by many others, that where segregation of infectious cases of leprosy is employed for the good of the public the conditions of segregation should be no more onerous than is absolutely necessary, and that the circumstances under which the patients live should approximate as closely as practicable those of normal life. If these conditions can be made such that the patients are reasonably contented, the resistance to the control work will be minimized and it will thus be made more effective. Furthermore, the medical work will be greatly facilitated, for the results of treatment depend greatly upon the cooperation and general morale of the patient.

It cannot be gainsaid that family life is one of the strongest influences for the good of mankind, and that the desire for such a life is one of man's deepest instincts. No wholesome-minded person will agree that the "biological urge" is the sole explanation of this desire. Animal instinct can find outlet without the responsibilities and travail that are entailed when two people take up life together and set up a home, and contribute their share to the making of a normal community. Affectionate companionship and mutual help are essential motivating factors. Nowhere can one find more impressive examples of this than in a leper colony where marriage is permitted, and where are to be seen living together couples so afflicted that sexuality can hardly be a major factor.

The conditions to be found in not a few leprosaria, where many of the people are normally active [1] and have normal desires and appetites, but where the sexes are rigorously separated, often afford a deplorable contrast. There the sexual element becomes unduly conspicuous, intensified by lack of normal associations, and it often leads to serious administrative, social and moral difficulties. Precise information on these abnormal conditions is extremely difficult to procure, but administrators of leprosaria in various lands acknowledge the existence of this problem. From more than one viewpoint, therefore, it is seen that the question of whether and under what conditions and circumstances marriage among segregated lepers should be permitted demands sympathetic consideration.

Type of leprosarium and marriage.—Two types of leprosaria are recognized by the Commission as desirable, namely: (1) the so-called "treatment station," and (2) the colony, whether this be a general colony like Culion or a strictly agricultural colony the establishment of which is advocated by the Commission. The conditions in these institutions are very dissimilar in important respects.

(1) The report of the Commission advocates the separation of patients by classes. It is not stated, but is nevertheless a fact, that one of the principal arguments for the establishment of the treatment stations in the Philippines was that they could and should be used primarily for the less advanced cases. The purpose was both to encourage early voluntary reporting by lepers at large (the earlier, more favorable cases having good chances of never being transferred to the Culion colony), but also to avoid subjecting such patients to the more depressing, discouraging influence of an institution where large numbers of inmates are hopeless of cure.

The more fully this policy is followed, the less need there is for entertaining the possibility of allowing marriage among the inmates, the less thought they will have of setting up permanent establishments of their own within these institutions. Since all of them, or at least most of them, are hopeful of more or less speedy return to their own homes, the conditions of dormitory life are relatively lacking in onus. Therefore, the basis on which these institutions have been developed—grouping in dormitories, with strict separation of the sexes—is satisfactory.

[1] See report of committee on the ability of lepers to engage in productive labor.

(2) Very different are the circumstances of a colony (in the real sense of that term, so often loosely used). In such an institution greater or lesser numbers of the people do not live regimented in dormitories, but in individual houses of their own.

The history of the Culion colony is illuminative. At the outset it was intended that the inmates there should be housed in dormitories, and the place divided into sections for men and women. However, that soon proved utterly impracticable, and the institution has developed as a real colony, largely in the manner of an ordinary town. Today less than one-half of the population (these including the many juvenile patients) live in dormitories. Statistics on the number of married couples are given in the report of the committee referred to above; over 10 per cent of the inmates have married at Culion. The conditions in any strictly agricultural colony established along lines recommended by the Commission will necessarily be more or less similar.

In a colony such as Culion there are at least four groups of people each of which constitutes a separate problem with respect to the complicated question of marriage. *First,* those who wish to marry other inmates of the colony, and who are under no legal impediment. *Second,* those married to nonleper mates but separated from them for many years or for life because of their malady, and who would like to marry in the colony but for moral reasons are forced to live celibate lives. *Third,* those under the handicap of the second group who, despite their legal status, take mates on a common-law basis, unable to marry them however earnest and sincere their desire to do so. *Fourth,* those who indulge in clandestine sex relationships with no idea of making them permanent—a problem found in all communities but partially explained in the colony by the difficulties thrown in the way of marriage.

Experience elsewhere.—It would be fruitless to go extensively into conditions existing in other countries, even if the necessary information were available, but a few available examples may be cited.

In India all but a few of the leper asylums were established and are maintained by missionary organizations (British), and in most of these institutions the sexes are separated. However, the organizers of one such institution recognized that this rule resulted in internal difficulties and in many patients declining to come to the asylums, and they long since concluded that it was on the whole preferable to permit marriage in spite of the consequent problem of the care of children that would be born there. In the principal leprosarium in Madagascar, administered for the government by French missionaries, the thousand or so inmates are not housed in dormitories but in villages, in order that their lives may be as nearly normal as possible. Marriage is permitted, the infants being separated from their parents as soon as possible. The same is true of the Sun-

gai Buloh settlement in Malaya, where about 10 per cent of the 1,500 inmates are married and live in separate quarters, usually one couple to a cottage.

In Japan it has long been the avowed official policy to permit marriage among the inmates, provided the male first submit to vasectomy. Less than three years ago one of the (American) missionary asylums in Korea adopted a similar policy with ten selected couples, the requirements including not only that the males submit to sterilization but that the couples agree to become largely self-supporting and to adopt each a child from among those in the institution. To quote from the report of this experiment [Wilson, R. M. *Internat. Jour. Lep.* 3 (1935) 201]:

> These marriages have had a good effect on the other inmates. In the first place, the couples themselves are exceedingly careful not to break rules or do anything that might lead to their dismissal from the institution, and the others are trying so to live that they themselves may be allowed to marry. As for the important consideration of expense, the produce of their farming has reduced the per capita cost of the maintenance of these couples to one-fourth of that of the average. One fails to see any good reason why this method of dealing with lepers in an institution such as ours should not be allowed.

Still more recently, in Yunnan, in southwestern China, another missionary institution has permitted couples to marry with the sole proviso that they support themselves. The following is quoted from the report of this experiment [Galt, C. M. and Yawt, N. *Internat. Jour. Lep.* 2 (1934) 315]:

> In conclusion we may say that two of our objectives have been well realized. First, we are holding a group of people that we were losing before. Second, they are more successful in becoming self-supporting than we thought they would. The fact that new people, having observed the experiences of the others, are continually applying for permission to marry shows that they are not afraid to try it too.

Viewpoints on the question.—The most important aspect of the question is that of the administration. The factors involved have been set forth sufficiently. Anyone seriously interested in the matter should read the articles referred to above.

Recent experience at Culion is decidedly to the point. In 1929 or 1930 a serious attempt was made there to discourage and by such discouragement actually to abolish marriage. Increasing dissatisfaction among a considerable group of the inmates (who argued among other things that there was no legal justification for such prohibition) led finally, early in 1932, to a rather serious disturbance which was given considerable newspaper notoriety. Since then marriage has again been allowed. In 1933 the chief of the colony presented before the Culion Medical Society an interesting statistical analysis of the rates and trends of misdemeanors among the inmates dealt with by his court. The increase of cases involving sex irregularities led him to conclude, not only that marriage should be permitted in the colony, but that it should be facilitated by liberalization of the laws relating to divorce.

From the viewpoint of the clinician concerned with the cure of the patients, unrestricted marriage is not without its drawbacks.

There have been numerous instances at Culion in which young people in whom the disease had been improving under treatment showed definite change for the worse after marriage, this being ascribed largely to youthful lack of restraint in sexual indulgence. It should be noted, however, that under a properly developed system many such cases, hopeful of recovery under treatment, would not be in the colony at all but in treatment stations where circumstances are such that marriage is impracticable. More frequent have been instances of definite harm to women from the physiological stress of pregnancy and childbirth, but there is, of course, an obvious solution to this difficulty. Except for this factor there is no objection from the medical viewpoint to marriage among a considerable proportion of the population of Culion.

The viewpoint of religious workers in leprosy institutions in general is rather difficult to discuss and need not be gone into at length. A considerable proportion of them are strongly opposed to marriage among lepers or consider it an unfortunate necessity. However, of late there has been in some quarters a decided trend in the opposite direction, as indicated by the cases cited in a preceding section.

This trend is based in part on humanitarian and social considerations, and in part on practical reasons. That lepers who are hopeless of cure, doomed to finish their days in segregation, should not have the privilege of the companionship of married life and the advantages of the homes that they might establish, however poor they may be, seems to many an unnecessary denial of elementary human rights, quite aside from its effects on the moral tone of the institutions. Practical considerations include not only the removal of part of the onus of segregation, but in some cases the lessening of the financial burden of supporting these people.

The problem of the child.—The objection to marriage among lepers most frequently heard relates to the births that often result therefrom. One will say: "We have so many lepers now, why breed more?" The reply that the children need not become leprous if properly cared for brings the further objection: "We have a sufficient burden in caring for the lepers themselves; why add their children to it?" Finally, and most pressing, is the tragic unfairness of bringing into the world children who are forever stigmatized and handicapped by their parentage. One answer to all this lies in the measures taken in the Japanese institutions, and in the one in Korea

referred to, namely, sterilization of the males by the simple operation of vasectomy.

There seems no reason to doubt that compulsory sterilization of all adult lepers outside of segregation institutions, and of all male lepers in such confinement, would be a very effective measure to control the disease in a country, since young children living with lepers constitute the main source of new cases. However, this Committee realizes that it would be utterly impracticable to attempt to introduce such a general measure. In fact, it would not be desirable if it were possible, for in many cases the disease can be overcome to an extent that will permit the patients to return to normal life, which includes the fundamental privilege of parenthood.

On the other hand, the situation is very different with those in whom the disease is incurable and who live in colonies. Though such people should have the privilege of married life if they so desire, they should not be permitted to procreate. It is true that this could be avoided by birth control if effectively practiced, but that measure is clearly impossible among the poor and ignorant people from which most of our leper population is derived. Sterilization of the males would be the only effective measure.

It is the opinion of this Committee that sterilization of the males under the conditions named might be seriously considered for adoption in our colonies, with the proviso that it should be strictly voluntary. It might be made a prerequisite to marriage, as in Japan and the asylum in Korea that has been mentioned. The introduction of this measure would then leave to the individual man free choice between on the one hand a celibate life in a dormitory or a house occupied only by men, and on the other home life—with if desired the privilege of adopting one or more children already afflicted with the disease, thus providing normal family life for three or more people. With added inducements such as a small farm or homestead, materials for a house and tools to work with, such couples might well become self-supporting, self-respecting normal citizens, neither a burden to the State themselves nor offering future burdens for the State to carry. This would at once provide a solution of the problem offered by the first of the four groups enumerated in a preceding paragraph.

Divorce for lepers.—The suggestion just made would not, alone, solve the problem of the other groups enumerated. This leads to another question that should be considered in this connection, namely,

that of the desirability of liberalizing the divorce laws with respect to lepers.

Workers in touch with the social aspects of the leprosy problem in the Philippines have seen many instances of most unhappy consequences of the separation of couples because one has been found to have leprosy. Husbands with young children to be cared for are left without helpmates, and wives are left with no one to support them and their children. Very frequently the vacant place is filled without benefit of clergy, an unwholesome situation for all concerned. As for those who are taken to the colony, the situation is often but little worse. Some who might happily form new attachments for their limited remaining years are deterred from doing so for moral reasons, (second group enumerated) while others are not deterred by those considerations from making illegal and unsanctified attachments (third group enumerated).

These facts, as stated, have led more than one of the chiefs of the Culion colony to advocate a special divorce law for lepers. This question is obviously a peculiarly delicate one in this country. However, it is recommended that consideration be given the possibility of adopting such a measure, with of course restrictions that would prevent its abuse.

Probably nothing but complete and rigid segregation of the sexes would solve the problem of sexual promiscuity, in any community, but in the colony this problem would be noticeably lessened if the barriers to marriage among lepers were removed.

Conclusion and recommendations.—1. This Committee strongly indorses the view that, for reasons which pertain to all aspects of the leprosy work, the conditions of life in the segregation institutions should be made as nearly normal as practicable.

2. Family life, which involves marriage among lepers, should be permitted and encourage among the classes of inmates for whom this is desirable in the institutions in which it is feasible—referring to the colonies and not the treatment stations.

3. The principal objection to marriage among lepers, namely, the resultant birth of children to leper parents, does not outweigh the advantages of family life. However, because these children create problems for the parents, the State, and the individuals so born, the prevention of childbirth by sterilization of the male partners is sug-

gested. This intervention should be strictly voluntary, and it might be made one of the conditions upon which permission to marry would depend.

4. Further requirements that should be considered as regards feasibility are: (a) that the partners should undertake to support themselves, wholly or in part, and (b) that they should adopt and support a leper child from among those in the institution, which would be advantageous to the families, the children, and the State.

5. In this connection consideration should be given the liberalization of the divorce laws in favor of lepers, in order to ameliorate the circumstances of both the segregated people and the families whom they leave behind.

COMMITTEE ON PETITIONS RECEIVED BY THE COMMISSION

JUDGE MANUEL CAMUS, *Chairman;*
DRS. H. H. STEINMETZ AND CASIMIRO B. LARA, *Members.*

[This report deals briefly with the details of petitions presented to the Commission by committees of inmates of the institutions visited by the Commission at Culion and Cebu. Consequently, it does not discuss any single problem. The proposals that were heard are indicated by the following summary.]

1. That the present system of segregation be liberalized and the Norwegian system of leprosy control be adopted. The Committee records its opinion that this is not practicable in the Philippines for the reason that the geographical conditions and the educational, social and economic status of the peoples in the two countries are not comparable.

2. That provincial leprosaria be established in the various individual provinces. This is considered not feasible at present, but an increase of *regional* leprosaria (each for a group of provinces) is recommended.

3. That the Culion colony be abolished. This matter has been discussed by other committees. Attention is called to a separate resolution on this question presented to the Commission by this Committee. The establishment of a homestead system at Culion has been suggested to the Commission.

4. That the observation (''negative'') period be shortened. This question has been dealt with by another committee.

5. That visiting by families of inmates be facilitated. Referred to the administrative authorities concerned.

6. That the families of lepers who are segregated be paid cash indemnity. Referred to committee on social problems, but with the remark that the officials of the Bureau of Health have always heretofore referred the needs of the families of lepers to charitable organizations such as the Philippine Islands Anti-Leprosy Society, the Red Cross, the Associated Charities, and public spirited individuals.

COMMITTEE ON STATISTICS

DR. CASIMIRO B. LARA, *Chairman;*
DRS. JOSÉ RODRIGUEZ, H. W. WADE AND SULPICIO CHIYUTO, *Members.*

[This committee has been instructed to make a thorough study of the statistical data pertaining to leprosy work in the Philippines, with a view to its publication as a supplementary report of the Commission. It is anticipated that it will take some time to complete this work.]