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ORGANIZATION OF THE ANTILEPROSY CAMPAIGN IN MADAGASCAR [1]

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INTRODUCTION

The fight against leprosy in Madagascar is not a new one. The Hova administration [2] was interested in it, and the care of helpless persons with leprosy was confined to the notables of the villages. In 1890 the London Missionary Society started a colony at Manankavaly, in the center of the High Plateau. In 1900 Galliéni partly codified the fight against leprosy and reorganized Manankavaly, and thereafter each of the missions made an effort to found a leprosarium.

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[1] This paper was presented, in English, at the South Africa conference in October 1948. The present version is supplemented by data of the existing leprosy institutions of various types and the numbers of cases involved, and is illustrated by a sketch map supplied by the author through the courteous intermediation of Mr. Robert F. Fernald, American Consul General at Tananarive. The map which appeared in an earlier report by Marcel Advier (THE JOURNAL 4 (1936, 337) is no longer valid with respect to provincial boundaries; there are now only five provinces, the boundaries of which are shown on the present map.—EDITOR.

[2] Hova: A member of the dominant native people of Madagascar, who generally are known as "Malagasy" ("Malgache" in French) and are Bantu and Malayan tribes in varying degrees of purity and admixture, with some infusion of Arab blood. The Hovas, of the central plateau, are of less mixed Malay blood than the other natives, and, previous to the conversion of the island into a colony of France, constituted the native nationality. A social rather than a tribal or national name, strictly speaking the Hovas were the middle classes, as opposed to the Adriana, "nobles," and the Andevo, "slaves." [From Webster's New International Dictionary.]

In 1932 there was created the Service de Prophylaxie de la Lèpre, which I have directed from the outset. The aim was to extend the antileprosy effort to the entire island in a systematic manner, so that it would no longer be merely an expression of charitable and localized enterprises but an organized effort throughout the Territory.

The first task was to codify the powers and duties of the new service, its organization, its technique for the detection (*depistage*) of cases, and the possibilities of hospitalization of cases. There resulted the decree of April 13, 1935, later modified in details, which is still the charter of the fight against leprosy. Unfortunately, the critical years which the Territory has gone through since that—and is still passing through—too frequently caused the administrative and even the medical authorities to ignore the requirements of that decree. However, they still remain in force and it requires only a push for the machine, which is at present working slowly, to regain its full speed.

The entire organization is based on three essential principles: (1) the detection of cases and the administrative consequences of that activity; (2) isolation, in one way or another; and (3) the social consequences which are the corollaries of detection and isolation.

DETECTION OF CASES

Based on an organization by provinces, the detection of cases may be by fixed or mobile units.

"Fixed detection" is done at all the consultations given by both European physicians and the native doctors at stations in the bush. Furthermore, all midwives and all nurses are required to report the disease if found in anyone. This fixed detection is completed by the action of the administrative authorities of the district, canton or *fokonolona* (native collectivity), who send infected persons known to them to the nearest medical posts. Unfortunately, this last method usually gives knowledge of cases only so very advanced that they are more fit for a hospice than a hospital.

"Mobile detection" is organized by means of mobile groups. These units, which by requirement are headed by European doctors, are sent especially to points in the bush where the population is scattered or where there are not sufficient medical posts. The role of these units is multiple; they do not specialize in looking for leprosy alone, but also give advice on hygiene, take

primary measures against malaria, and can equally detect or supervise persons with tuberculosis.[3]

This primary detection of cases is confirmed by the establishment of a record for each patient which, after going through the proper channels, arrives at the central registry at Tananarive. There the chief of the service decides the type of isolation to which the patient should be subjected. By this system he knows from day to day the status of the enumeration, the number of sufferers in the hospital establishments, and the morbidity rate in each province.

It was desired from the outset to know approximately the total number of cases in the island. To this end I myself explored four different cantons, systematically visiting the entire populations. Thanks to the kindness and efficiency of the administrators and European doctors, I was able to examine from 95 to 98 per cent of the inhabitants of each canton. The figures were all the same; and it may be said that the incidence of leprosy in Madagascar is 1 per cent, which for the whole island represents a total of about 40,000 cases since the population is about 4 millions.

The organization which was established functioned satisfactorily until 1939, and as will be seen in Table 1 no less than 5,636 cases were detected in the preceding three years (average 1,879 per year), of which some 59 per cent were reported by the fixed centers and 41 per cent by the mobile units. The unfortunate circumstances which then prevailed virtually paralyzed this effort, and during the next five years, 1939-1943, only 3,091 cases were recorded (average 618 per year), the distribution as to source much as before. It has been very difficult to get this work under way again, but in the last five years, 1944-1948, a total of 6,984 cases (average 1,397 per year) has been reported, 66.7 per cent by the fixed centers.

HOSPITALIZATION AND SEGREGATION

Every patient discovered and recorded by the Leprosy Prophylaxis Service is assigned, on the basis of his pathological condition, his place of origin, his social condition, and the available places in the hospital system, to one of three categories with

[3] Actually there are four methods of detection of cases, namely, at the fixed centers, by the mobile units, by ordinary doctors, midwives and others who are not leprosy specialists, and by voluntary presentation of patients themselves. The cases of the last two categories are included in the statistics of the first two.

respect to segregation: (1) for isolation in a hospital establishment or a segregation village; (2) for isolation at home; or (3) to remain free under sanitary surveyance.[4]

TABLE 1.—*Leprosy cases detected in Madagascar, 1936-1948.*

Year	At fixed centers	By mobile units	Total
1936	953	562	1,515
1937	1,598	589	2,187
1938	763	1,171	1,934
1939	369	309	678
1940	398	343	741
1941	475	269	744
1942	317	159	476
1943	366	86	452
1944	1,005	468	1,473
1945	917	495	1,412
1946	949	471	1,420
1947	931	475	1,406
1948	851	422	1,273
Totals	9,892	5,819	15,711

Leprosy hospitals.—These hospital institutions are distributed all over the island, most of them in areas where the population is most dense and, consequently, where the morbidity is highest. All of the old religious leprosaria (*léproseries confessionnelles*) which existed before the establishment of the regulations of 1935 have been integrated into the organization. Material financial aid is given them from the provincial budgets, and their superintendents are required to follow the directives laid down by the service. There are four such private leprosaria receiving government aid. Since 1935 several large colonies have been established by the administration in the provinces which previously had been without any; there are twelve such institutions, including three in the Comoro Islands to the northwest. With respect to one of them, the Hospital-Hospice of Manan-

[4] The various leprosaria and special segregation villages are listed in Table 2, and their locations are indicated in Text-fig. 1.

kavaly, which depends directly on the service, special efforts have been exerted to make it a center for study and research.

All of the hospital institutions, except that of the Catholic colony of Maràna, are managed according to the same plan. Close beside the administrative center and the houses of the European and Malagasy staff, and around the treatment building, are grouped the houses of the patients, often individual. These houses are built in the style of the country from which the patients come, so that they do not feel deported. In them they do their housekeeping and cook the food which is given them. They have, outside the village, their cows, poultry and pigs, and also ground where they can cultivate vegetables. There are no walls, no barriers, and also—though it may seem paradoxical—there is little or no absconding.

In sum, we have allowed the patient to be near the treatment center and have made an effort to feed and clothe him properly. This system, in our opinion, is far superior from a therapeutic point of view to the creation of hospitals in the rooms of which the patients are shut up, cannot live normal lives, are constantly under each others' observation, and tend to regard themselves as prisoners.

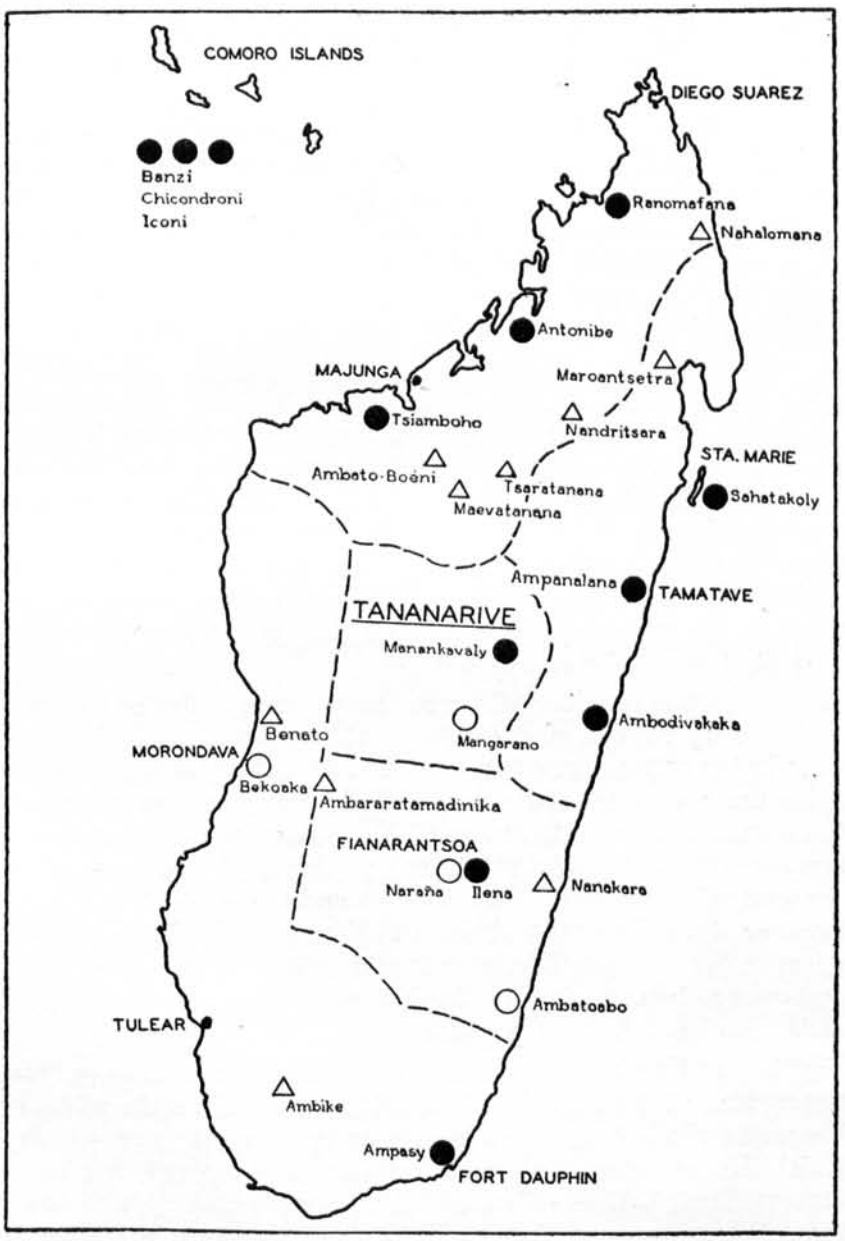
Furthermore, there is a considerable financial advantage. The administrative and technical staff is smaller than would be required otherwise, and the expenses of administration are lower; and, if they wish, there is the possibility of employing the patients in suitable work of general nature. The Malagasy "hospital-hospice" is an establishment where everyone works according to his capability. The state of morale is most favorable for the carrying on of the treatment and the results obtained.

Special villages.—Besides the completely organized institutions described, we have founded other segregation centers called "special villages," of which there are ten. The purpose is to avoid forcing the patient, in so large a territory, to go too far from his family and his property. Each of these villages has in attendance a specialized male nurse who is experienced in giving treatments. These villages are peculiar in that apart from the dwellings, which are built by the administration, all of the expense of maintenance of the patients is paid for by them, by their families, or their tribes. From this circumstance there results a marked economy, along with the resulting isolation and treatment.

Isolation at home.—Domiciliary isolation is reserved for non-

TABLE 2.—*Leprosy institutions and the distribution of leprosy patients in Madagascar.*

Name and location	Type of hospital (or village)	No. of patients
Tananarive Province		
1. Manankavaly, Tananarive	Official; personnel of the French Protestant Mission	918
2. Mangarano, Antsirabe	Private; Norwegian Mission	664
Tamatave Province		
3. Ampanalana, Tamatave	Official leprosarium	95
4. Ambodivakaka, Vatomandry	Official leprosarium	86
5. Sahatakoly, Sainte-Marie	Official leprosarium	35
6. Maroantsetra	Village	38
Majunga Province		
7. Tsiamboho, Mitsinjo	Official leprosarium	178
8. Antonibe, Analalava	Official leprosarium	115
9. Ranomafana, Ambilobe	Official leprosarium	108
10. Ambato-Boéno, Maevatanana	Village	61
11. Maevatanana	Village	81
12. Tsaratanana	Village	35
13. Mandritsara, Analalava	Village	84
14. Mahalomana, Vohémar	Village	128
Fianarantsoa Province		
15. Ilena, Fianarantsoa	Official leprosarium	250
16. Marana, Fianarantsoa	Private; Catholic Mission	198
17. Manakara	Village	72
Tuléar Province		
18. Ampasy, Fort Dauphin	Official; personnel of the Catholic Mission	114
19. Ambatoabo, Farafangana	Private; Catholic Mission	288
20. Bekoaka, Morondava	Private; Norwegian Mission	132
21. Ambiky, Tongobary	Village	144
22. Benato, Belo-sur-Tsiribihina	Village	64
23. Ambararatamadinika, Mahabo	Village	76
Comoro Islands		
24. Banzi	Official leprosarium	108
25. Chicondroni	Official leprosarium	72
26. Iconi	Official leprosarium	34
ISOLATED IN INSTITUTIONS, TOTAL		4,181
ISOLATED AT HOME		5,300
UNDER SANITARY SURVEILLANCE		6,230
GRAND TOTAL		15,711



TEXT-FIG. 1. Sketch map of Madagascar, showing the principal towns and the locations of the leprosy institutions. Solid block circles represent official leprosaria, open circles represent private leprosaria receiving government aid, and open triangles represent special leprosy villages.

contagious cases, and for patients whose social condition and place of habitation are such as to allow frequent control and the possibility of their attending a treatment center whenever they are required to do so.

The distribution of the various institutions referred to is shown in Table 2 and Text-fig. 1. From the former it will be seen that a total of 4,181 are recorded as isolated in institutions (3,398 in leprosaria and 783 in special villages), while 5,300 are recorded as "isolated at home" and 6,230 as "under sanitary surveillance." These figures comprise all known cases of the total period, without deductions for deaths.

SOCIAL CONSEQUENCES OF ISOLATION

The concept which has guided the organization of isolation in Madagascar is: the greatest liberty possible compatible with efficacious isolation, and the utmost understanding of the phychology of these patients, who are deeply grateful that they are considered as other patients and are not treated as pariahs whose solitary life is a horror. Following these principles, we must give thought to all the consequences which may affect our patients through being isolated.

Besides the facilities which are given them to live as to home, and the assurance of good food and sufficient clothing, it is necessary to try to introduce into our institutions the means of satisfying their spiritual needs, and of finding distractions and entertainments. Consequently, most of the leprosaria have chapels and temples (Catholic and Protestant) so that each one may follow the cult of his choice. The superintendents (*directrices*) also arrange cinema shows and plays in the open air. Everything is done, as far as is possible, to bring the patient outside of himself, and even to help his family. In that connection, persons declared as leprous are exempt from taxes.

The most serious problem, undoubtedly, is that arising from the mixing of the sexes in the institutions. Besides the wives or husbands who follow their afflicted mates there are other unions, legitimate or otherwise, and in total there result numerous births. The problem of the children complicates that of isolation. We can only wish that all cases of this type would occur under our eyes, in our institutions, and not in the bush by people who are often ignorant of their affliction. The child so born is without surveillance and often becomes leprous, and we arrive too late to save it.

In the institutions all deliveries are performed in the ma-

ternity rooms with the assistance of midwives or other experienced women. Removed from their mothers at once, the newborn infants are raised in a special building without contact with the contagious patients, and are fed by bottles which are prepared with every care. They are kept in that place until they attain the age of three years. A European nursing sister looks after them with the greatest vigilance. The mortality in these crêches is negligible, 2 to 3 per cent at the most, and much below that of the babies cared for and nursed by their mothers. (The mortality among the Malagasy in the first year of life is 30 per cent.)

At the age of three years these children are transferred to another block of buildings where they live together; there are a dormitory, a dining room, showers and place for games. At school age the boys and girls attend classes, learning to read, write and figure.

The end which we seek is to inculcate in them the love of work, and to give them a trade which, later in life, will allow them to earn a living. The girls learn housekeeping, cooking, sewing, embroidery and spinning, at the same time doing farm work. The boys, according to their aptitudes and preferences, go in for carpentry or ironwork, and gardening or cultivation of the earth; some become excellent masons and others good mechanics and car drivers. When they grow up, they are engaged as manual workers in the establishment. Their attachment is such that they do not want to leave; and among these boys and girls, from very different parents, marriages have been made from which we have already seen the commencement of the second generation.

It has become evident, however, that in the coming years it will be impossible to absorb all this qualified labor, and to lodge in the establishments all these young families. Therefore we plan to set up, at a distance of some kilometers from the present establishment, a connected but independent estate on which will be built simple but clean and pleasant houses grouped to form a village, the administration and economy of which will take the form of an agricultural and industrial cooperative. It is there that we will offer to the newly married couples, already prepared for life, the chance of living side by side in concord for the greatest benefit of all. Profiting by this social concept, we will have in a few decades the possibility of watching generations of children born of leprous parents, and we will be able to see if leprosy is or is not a hereditary disease. In the next half century our experience should be of world significance.

It is due to the development which I have been able to ac-

complish at the Hospital-Hospice of Manankavaly that all this social effort has been possible. That institution, the most important antileprosy one on the island, comprises besides the houses of the patients, a dispensary, cultural buildings, running water, and their fields. Another feature, one which is uniquely adapted to the education of the healthy child born of leprous parents, comprises quarters for the very young and for the school children, and a simple boarding house for the apprentices and a cooperative village for the new households when they marry.

The effective total of these offspring of leprous persons is at the present moment 150, from the newly born to those over 20 years old. Our wish is to gather there all the healthy children born in our leprosy institutions which are taken away from their mothers at birth. Our experiment in heredity will thus develop with a large number of subjects, and also with individuals of different races. In fifty years it will be complete.