# A LEPROSY SURVEY OF THE EASTERN BORDER DISTRICTS OF BASUTOLAND

# SHOWING THE RESULTS OF STRICT SEGREGATION COMBINED WITH INSPECTORATE CONTROL, AND THE HISTORY OF A LEPER FAMILY

# By R. C. GERMOND, M.D. Botsabelo Leper Asylum, Maseru, Basutoland

### I. THE LEPROSY SURVEY

In a recent article (1) an account was given of the remarkable progress in the antileprosy work in Basutoland which followed the establishment of a Native Leprosy Inspectorate in 1929. It is now proposed to examine the results of a survey of the mountain area of the country which was made in November and December, 1936, and of an investigation into the actual methods employed by the inspectors.

#### OBJECTS OF THE SURVEY

1. To establish the probable incidence of leprosy in Basutoland.

2. To examine as many discharged cases as possible.

3. To study the methods of the Native Inspectors.

4. To establish the existence or otherwise of a definite relationship between the incidence of leprosy and undernutrition, syphilis and scabies.

#### AREA INCLUDED IN THE SURVEY

The district of Qachas Nek has long been known as the most heavily infected part of Basutoland and the Melikane Valley area as the largest single focus of leprosy in the country (Text-fig. 1). Quthing district, on the other hand, although responsible for a smaller proportion of admissions, has shared with Qachas Nek the reputation of sending a more advanced type of patient to the asylum. It was therefore decided to examine as much of these two districts as possible and to give special attention to the Melikane Valley.

For the purpose of this report the surveyed area was divided into four sections, as follows:

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1. Quthing.—This section includes the Orange River and its eastern tributaries, excepting the Qomoqomong and the country south of it.

2. Qachas Nek, "South of Camp".—This section is the Orange River valley from the Quthing border to the lower Sejabatho.

3. Qachas Nek, "North of Camp".—This area includes the upper Sejabatho and Quthu streams and the valley of the Tsoelike River.

4. The Melikane Valley.—This is a small tributary of the Orange River in Qachas Nek District. Only the eastern side of the valley was covered by the survey.



TEXT-FIG. 1. Map of Quthing and Quachas Nek Districts in the eastern border of Basutoland (cf. Text-fig. 2), showing route of the leprosy survey made and the places where new cases were found.

The actual survey was conducted on horse-back, and lasted from November 16th to December 10th, 1936. Six more days were spent in travelling to and from the chosen area by rail and motor transport. Swollen rivers seriously interfered with the first part of the survey, necessitating much unexpected travelling and waiting. As the Orange River was in flood it was only possible to cross it at one point, and only half a day was spent in the Western portion of Qachas Nek District.

Personnel and method of examination .- From the sixth day onward, the

writer was assisted by one leprosy inspector in each district and, wherever possible, by a special chief's messenger. Two policemen were provided to render packs independent of the rest of the party.

The two inspectors proved invaluable; they examined as many individuals as I did and discovered at least as many new cases. We usually worked together, but on one occasion one of the inspectors travelled independently for three days. It was found essential to work in close cooperation with the chiefs and through their representatives. The best results were always obtained when a local chief, preferably the most important one in the district, was able to provide a messenger. This individual was the bearer of written instructions to minor chiefs and headmen and travelled half a day in advance of the party.

The method adopted was to examine the villages or groups of villages along the route of the survey. As often as possible, the route was made to run through villages where leprosy was known to have occurred in one or more families. House-to-house inspection was soon rejected as too slow and otherwise unsatisfactory (bad light, etc.); rallying points were therefore chosen where the people could be examined under the best possible conditions. On the other hand, whenever patients were reported as unfit to walk to the rendezvous they were visited in their own homes.

As regards the actual method of examination, children were completely stripped of clothing while the adults undressed to their waists and exposed legs and thighs. It is possible that in this way we may have missed a few very mild neural (macular) cases (i.e., adults presenting macules on the buttocks and nowhere else), but it is certain that no cutaneous (nodular) cases were overlooked. It would have been impossible to insist on more complete exposure in public.

#### POSITION REVEALED BY THE SURVEY

1. Generally speaking, there was much more poverty and undernutrition in Quthing district than in Qachas Nek. Exceptions to this rule were found on the upper Sebapala and on the Orange River between Majara's and Tsepo's on the Qachas Nek frontier. In these two areas the majority of the population were clean and well fed.

2. Malnutrition was much less in evidence in Qachas Nek district, especially North of Camp and in the Melikane Valley. There was a corresponding decrease in scabies except in the Melikane Valley, where the population was well nourished but very dirty.

3. As an indication of malnutrition, three cases of pellagra were encountered. All three were discovered in the lower reaches of mountain streams, two on the Sebapala and one on the Tsoelike River.

4. Slight finger retraction of fourth and fifth fingers of one or both hands was very common in the Quthing District (34 cases seen in 16 days). There was nothing suggestive of Dupuytren's contraction, and neither anesthesia nor ulnar thickening as in leprosy. This condition was common among both Basuto and Tembus. (The latter wear tight heavy bangles, hence the reference to Dupuytren's contraction.)

Findings	Quthing	Q. Nek S.	Melikane	Q. Nek N.	Totals
Examined	5,737	1,452	961	5,037	13,187
Scabies	650	144	102	293	1,189
	(13.2%)	(9.9%)	(10.6%)	(5.8%)	(9.00%)
Undernourish-	319	40	38	153	550
ment	(6.8%)	(2.8%)	(3.9%)	(3.0%)	(4.2%)
$Syphilis^{a}$	21	1	0	7	29
	(.39%)	(.07%)	(.0%)	(.14%)	(.2%)
Leprosy	11	6	8	17	42
	(.19%)	(.41%)	(.83%)	(.34%)	(.32%)

TABLE 1.—Numbers of persons examined and findings of the survey.

 $^{a}$  The figures refer only to gross external active syphilitic lesions and do not reflect the actual incidence, which is known to be much higher.

5. Three cases of spontaneous arrest were discovered. Of the 37 discharged lepers examined, 21 were still normal and 16 (four in each of the four sectors) showed signs of recurrence or pseudo-recurrence.

Туре	Severity	Numbers	Percentage
Cutaneous	C1	3	7.1
	C2	0	
	C3	0	
Mixed	C1-N1	1	2.4
	C2-N2	0	_
	C3-N3	0	
Neural	N1	38	90.5
	N2	0	
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TABLE 2.—Types and degrees of severity of leprosy cases seen in survey.

The numbers of persons examined, and the findings as regards scabies, undernourishment, evident syphilis and leprosy are shown in Table 1. The types and degrees of severity of the disease in the 42 leprosy cases found are shown in Table 2. The 38 neural cases are dealt with in more detail in Table 3, from which it is to be seen that 53 percent of them (48 percent of all cases found) were clinically almost negligible. Some were apparently incipient, while others were in the course of spontaneous arrest.

TABLE 3.—Lesions found in the 38 neur	al	cases	discovered.
One small macule only			. 15 cases
Two small macules only			. 3 cases
A few small macules			. 2 cases
Other early cases			. 18 cases

The extraordinary benignity of the cases encountered during the survey is further illustrated by the condition of the cases of recurrence or pseudo-recurrence. As Table 4 shows, 50 percent of them were almost or quite negligible, and none was severe or obviously infectious.

TABLE 4.-Condition of cases showing recurrence or pseudo-recurrence.

Two or three small macules	 					 	3
A few active macules	 						1
Slight local recurrence	 			0	0		1
Trophic ulcers	 						2
Septic foot	 						1
Definite recurrences, but not severe	 					 	8

That the findings indicated above are fully representative of the position in the districts, may be gathered from the fact that the more than 13,000 individuals examined were approximately one-tenth of the estimated population of the mountain area of Basutoland.

### INTERPRETATION OF RESULTS

1. Dirt and scabies were the usual accompaniments of poverty and malnutrition, but it did not follow that a well nourished population was necessarily free from either. This was most conspicious in the Melikane Valley.

2. There appears to be no definite relationship between undernutrition and scabies on the one hand and leprosy on the other. This applies not only to newly discovered cases but also to recurrences.

3. The incidence of leprosy is twice as great in the Melikane Valley as in the remainder of the surveyed part of Qachas Nek, and more than four times as great as in Quthing.

4. Is it possible on the basis of the figures provided by the survey, to calculate the probable incidence of leprosy in the country as a whole? This can be done on the assumption that: (a)the incidence of leprosy in each district is deducible from the proportion of its admissions to the asylum in a given period, and (b) the incidence in any part of a district is likewise deducible from the proportions of its admissions in the same period. Thus, during the period of nearly seven years from January, 1930, to September, 1936, there were in total 876 admissions to the asylum. Admissions from Qachas Nek District were 209, or 23.8 percent of the whole. Admissions from Qachas Nek North and Melikane were 46, or 22 percent of the Qachas Nek admissions. It would therefore follow that the 25 new cases discovered in Qachas Nek North and Melikane combined represent 22 percent of the unknown cases in the whole district, or 5.24 percent (22 percent of 23.8 percent) of the probable total of Basutoland. In other words, there would be approximately 476, or roughly, 500 undiagnosed cases in the territory, that is, an incidence of less than one per thousand if we exclude the inmates of the asylum, or a little over two per thousand if they are included. These figures are in excess of recent estimates, but they need cause no alarm considering the mild type of leprosy revealed by the survey. Indeed, from this point of view, the position is highly encouraging, if not unique.

5. In conclusion, although the survey of the worst parts of Basutoland has brought to light the existence of a larger number of lepers than hitherto suspected, it is gratifying to reflect that less than 10 percent of them may be considered as undoubted sources of infection, while the majority of the neural cases are of the mildest possible type.

#### METHODS OF LEPROSY INSPECTORS

With individual variations, the methods employed by the inspectors were as follows:

1. Inspectors' instructions are to examine suspects and contacts. They are supplied with a list of known leper families. These families are visited at intervals and all members examined.

2. When an inspector is new to a district, or visits a new part of his district, he begins by explaining his mission to the local chief or headman and to the people who may be present at the time. The leprosy proclamation is read and the symptoms of the disease are described. Printed leaflets written in the vernacular are distributed.

3. Response is never immediate. There is always the fear of reprisals against informers. For the same reason information seldom reaches the inspector through the local chief or headman; hangers-on are too difficult to evade. The method of approach of the inspector is to make friends and gradually to gain the confidence of the people.

4. When this result has been obtained, information begins to filter in. At first the greatest difficulty was encountered in regions of relatively high incidence; leper families naturally warned one another and were inclined to conceal their friends. This stage however is now passed because, the majority of lepers having now been admitted, their relatives at home have become the inspectors' best allies. Their argument seems to be: "My people have been taken away; why should so-and-so's be allowed to remain at home?" Even lepers are not always on good terms! When a village is unwilling to disclose the whereabouts of a leper, neighboring villages will usually volunteer the information. Teachers and evangelists are often of great assistance but, as I have pointed out, chiefs and headmen are seldom able to help directly.

5. When the desired information has been obtained the inspector presents himself to the chief and seeks confirmation of rumors which have reached him. The interview closes with a request which is always granted—for authority to examine the suspects.

The amount of tact and patience, of discretion and "savoirfaire" of the best type of inspector, his knowledge of his own people, of custom and prejudice, local feuds and jealousies, have convinced me that no European could hope to establish the same contact or to obtain equal results. My own results would have been very inferior but for the friendly relations of the inspectors and the population.

#### SUMMARY

1. A leprosy survey of the eastern border districts of Basutoland is described.

2. The results are summarized: 13,187 individuals examined, 42 new cases found.

3. The extraordinary benignity of these cases is stressed: 90.5 percent are N1, while only 7.1 percent were C1 and 2.4 percent C1-N1.

4. More than 50 percent of the neural cases are clinically almost negligible, the rest are early and slight.

5. Most of the recurrences are extremely mild, and none of them severe or obviously infectious.

6. The position revealed by the survey is described as highly encouraging, if not unique.

7. There seemed to be no definite relationship between malnutrition, scabies, and syphilis on the one hand and leprosy on the other.

8. The most heavily infected families were well nourished, but very dirty.

9. The probable incidence of leprosy in Basutoland is estimated at a little over two per thousand of the population.

10. The present satisfactory position is attributed to the success of the Native Leprosy Inspectorate established in 1929.

11. The methods employed by these inspectors are described. The writer is of the opinion that the employment of natives is essential.

Comment.—In a recent review of my paper mentioned (1) it is stated that "the admissions [to the asylum] increased steadily between 1929 and 1933, with a slight decrease in 1934." If this were correct it would be difficult to justify my claim that "1929 marked the beginning of a new and more hopeful era in the leprosy campaign in Basutoland." There seems to have been an unfortunate confusion of terms, for whereas the *population* of the asylum increased as stated, there was actually a steady *decrease* in admissions during the whole period.

My claim quoted is based on the coincidence of three favorable factors: (a) decrease in admissions, (b) shortened duration of disease before admission, and (c) improvement in the type of patient admitted. Of the last two, the third is the more important, for, whereas records of the duration of disease before admission are based on the declarations of the patients, the improvement in the type of patient admitted is a matter of observation and is therefore more dependable.

### II. HISTORY OF A LEPER FAMILY

#### THE GROWTH AND DECLINE OF THE LARGEST LEPROSY FOCUS IN BASUTOLAND

The following is a history of the occurrence of leprosy among the descendants of Maebaebe, a Mosuto of the Bakoena tribe.

Mantsi, one of Maebaebe's eight sons lived at Likhoele in the Mafeteng district of Basutoland until some time after the last Basuto-Boer war (1865-1868), when he migrated to what is now the Umzimvubu district of Griqualand East (see Text-fig. 2). During the next ten years or so he became closely associated with a certain Griqua, one Nels, with whom he is said to have been engaged in the cattle trade (?) of the frontier. This individual was a nodular leper and is considered as the original source of infection of Mantsi and his brothers' families.

Mantsi lived in Griqualand East until the end of the Moorosi Campaign in 1879, when he returned to Basutoland and settled for about a year at Linakeng on the Linakeng River. But, for some unknown reason, he is said to have quarrelled with the local chief Makunyapane, after which he migrated a third and last time, to the valley of the Malikane River, a tributary of the Orange.

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This valley was uninhabited at the time, but as Qacha's Nek district was still very thinly populated it does not seem that the sons of Maebaebe were "placed" here with the object of isolating them. As will be seen from the following quotation, Chief Theko Makhaola is emphatic on this point. The tradition is that Mantsi developed the first signs of leprosy shortly after his arrival in the Melikane Valley and that he was affected with the Nels type of the disease.



TEXT-FIG. 2. Map of Basutoland, indicating the migrations of the sons of Maebaebe. It illustrates the successive migrations of the Mahoë up to their establishment in the Melikane Valley and subsequently. It is interesting to note that the Melikane focus has shown less tendency to spread than might have been expected during the fifty years of its existence.

### To quote Chief Theko Makhaola of Qacha's Nek district:

These sons of Maebaebe arrived in this locality of the Melikane long ago, in the days of the late Letsie I.... They came as ordinary settlers. The reason for the spread of the disease among them is that they all belonged to the same family and freely intermarried. Thus it is that they became contaminated and came to be known as the 'Mahoë' or 'Whisperers,' from

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the verb 'ho hoeshetsa,' to whisper... As for the Tembus of Lekhetho, they are new-comers who arrived in the days of my father Makhaola, whereas the Mahoë came after the Gunwar (1880). Their relatives at Linakeng are also lepers. As to the manner of their coming, the 'Mahoë' were not placed there deliberately; they came as ordinary settlers, and, as I have stated, became heavily infected through intermarriage.

It is interesting to note that the Melikane Valley is itself known as "Mahoeng" which may be translated "the valley of the whisperers." The Tembus referred to above are much less heavily infected than the older Basuto inhabitants and form, as it were, a separate community.

Of the eight sons of Maebaebe, two remained behind at Likhoele with their father. Of the six who migrated together this was part of a large migratory movement of the Basuto two only became lepers, namely Mantsi himself, and his younger brother Nkoati. But as will be seen from Text-fig. 3, the families of the untainted brothers were less fortunate than their fathers.

Mantsi had five wives, each of whom bore him children. Although none of these wives was infected, each "house" or family became contaminated in turn. It is interesting to note that the children of the two brothers who remained behind did not all escape infection. It is reasonable to suppose that they were contaminated by lepers living in the Mafeteng district, although some of them gradually gravitated to the Melikane Valley. Presumably because they were less isolated and did not therefore intermarry to the same extent as the Mahoë, these two branches of the family were not so heavily infected.

Genealogy of the sons of Maebaebe.—The names and relationships of 97 direct descendants of Maebaebe (56 males and 41 females) who became lepers are given in Text-fig. 3. The names enclosed in brackets are of nonlepers, and the designation "N-L" has the same significance. This list does not include a group of 15 lepers belonging to a collateral branch of the family and also living in the Melikane Valley. It is extraordinary how closely related these people have become. Incidentally, the genealogy is a fine example of the memory of the average uneducated Mosuto.

Of the 97 lepers referred to, 67 have died and 30 are still alive. Of the former, 26 died in the asylum and 41 (including deserters and arrested cases) died at home. Of the 30 survivors, 16 are inmates of the asylum, 12 are arrested cases and 2 are incipient cases at present on parole and under observation.



TEXT-FIG. 3. Descendents of the eight sons of Maebaebe. Names in parenthesis [also "(N-L)" sometimes employed in the absence of a name] are those of nonlepers. Arrested cases are indicated by A, patients at home by H, and those at the Botsabelo Asylum by B. Deceased persons are indicated by crosses.

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Considering these people in more detail, 2 belonged to the first generation, beginning about 1836; 29 belonged to the second generation, beginning about 1861; 51 belonged to the third generation, beginning about 1886 and 15 belonged to the fourth generation, beginning about 1911. As regards admissions to the asylum, it is noteworthy that in 1914 (at the beginning of the leprosy campaign), the patients taken in included members of the first, second and third generations. The first representative of the fourth generation was not admitted until 1924, at the age of 16 years.

There can be no doubt that the fall in the last generation is the result of compulsory segregation. It is true that this generation is still young; the average age is 24 years. However, considering the steady decrease in the number of admissions from Qacha's Nek and the Melikane, and the corresponding improvement in the type of patient admitted (mostly N1's and a few C1's), the number of Mahoë lepers in the fourth generation will probably never equal their number in the second generation, and much less is it likely to exceed it.<sup>1</sup> In fact, everything points to the gradual decline of the Melikane focus and its probable extinction within the next few generations, provided there is no relaxation in the control of leprosy in Basutoland.

#### REFERENCES

- GERMOND, R. C. A study of the last six years of the leprosy campaign in Basutoland. Internat. Jour. Lep. 4 (1936) 219-224.
- (2) MAXWELL, J. L. A statistical review of 1,379 cases of leprosy in China. 5 (1937) 151-157.

<sup>1</sup>The onset of leprosy occurred in the first twenty-four years of life in 56.4 percent of 1,379 cases in China reviewed by Maxwell (<sup>2</sup>).

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