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EDITORIALS

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SURVEYS AND CENSUSES

An outstanding feature of leprosy work during the past decade or so has been the increasing attention paid to its epidemiology. Previous to that, interest had centered largely on therapy with the then new chaulmoogra derivatives, and in time there followed a better appreciation of the clinical and pathological features of the disease, and more attention to its public health aspects. For a time there was a belief that a practical solution of the control problem was in sight—that through the establishment of chains of outpatient clinics so many cases could be rendered noninfectious that the numbers of new ones would decrease progressively to the point of control. However useful such clinics may be, that hope for them waned.

It came to be realized that if the situation was to be faced intelligently it was necessary to obtain more definite information of epidemiological nature than in the past. It was essential to know not only the crude incidence of cases in the populations concerned, but also data such as the proportions of the different forms of the disease, the elements of the population most affected by it, and the general conditions that make for the existence or absence, its fre-

quency or infrequency, its increase or decrease. Emphasis was placed on this matter by the Manila and Bangkok conferences (1930, 1931), and the Cairo conference (1938) especially stressed the importance of scientific epidemiological investigations.

This was a new development, for the older literature on the occurrence of leprosy in various regions was mostly based on information gained by other means. It is true that, under the special system set up in Norway about the middle of the last century,¹ fairly accurate knowledge was gained regarding its incidence and distribution there. Also more or less definite were investigations of certain foci such as Iceland and Memel in East Prussia. The reports emanating from Esthonia² were apparently based wholly on case histories and were correspondingly limited in scope.

The figures for leprosy obtained in general official censuses merit no consideration in this connection. In India, the highest figure ever obtained in that way since 1872 was 147,911 (1931), yet it is believed³ that between one-half and one million cases exist in that country. In the special quinquennial leprosy "censuses" made in Japan—by the police—the numbers recorded decreased from a high of 30,357 in 1904 to 15,274 in 1935.⁴ But it is said that Murata believes the present total to be over 60,000 and increasing, and estimates of from 30 to 40 thousands are mentioned by others.⁵ Surveys in southern Japan, to be mentioned later, have led to the conclusion that the true figure is probably two or three times the official one.

In the work directed toward ascertaining the actual conditions in different regions there are to be seen two widely diverse types of investigation, with intermediate variants. On one hand there is the superficial inquiry, involving minimal expenditures of time and effort, designed only to obtain a rough approximation of the crude incidence. On the other hand there is the intensive investigation of selected areas, relatively time-consuming and expensive, based on actual enumeration of the total population and physical exami-

¹ LIE, H. P. *Trans. Roy. Soc. Trop. Med. & Hyg.* 22 (1929) 357; reprinted, *THE JOURNAL* 1 (1933) 205-216.

² SPINDLER, A. *THE JOURNAL* 3 (1935) 265-278; references to TALVIK, S. *Die Lepra im Kreise Oesel, Tartu, 1921*; and KUPFFER, A. *Beih. z. Arch. f. Schiffs- u. Tropenhyg.* 36 (1933) 373-380.

³ ROGERS, L. and MUIR, E. *Leprosy*. Bristol, John Wright and Sons, Ltd., 2nd ed., 1940, 34.

⁴ The figures for the 1940 census are not available, but it appears that in Japan proper the known cases in leprosarria (8,840) and registered as out-patients (7,714) then totalled 16,054 (See *THE JOURNAL* 9 (1941) 367).

⁵ See note on a report by Miyagawa, in *J. A. M. A.* 107 (1936) 444; *THE JOURNAL* 5 (1937) 222 (news item.) Also see RICHTER, W. *Dermat. Wchnschr.* 108 (1939) 37.

nation of as many of them as possible, with attention to the conditions that might prove to be epidemiological factors.

In the former of these two types of inquiry Muir has been the pioneer and outstanding advocate with his "Propaganda-Treatment-Survey" ("P.T.S.") scheme.⁶ Santra, who carried out much of the work of this nature in India, is said to have examined in eleven years some two and one-half millions of people in fourteen provinces.⁷ After the Bangkok conference the French made a concerted effort to gain a comprehensive idea of the numbers of lepers in their territories, under the direction of the *Commission Consultative*, headed by Marchoux. The original plan provided that this work "should be done by physicians of the *Assistance médicale* while carrying on their ordinary duties, and when possible by specialists in leprosy." Delinotte's review⁸ reveals how much information was gained through that effort up to 1938—and how much remained to be done. There would be little point in citing other examples of the more simple surveys, though mention may be made of unusual trips of investigation by Germond, in the eastern district of Basutoland,⁹ of Groll to examine the aboriginals in Northern Queensland, and of Musso, for the same purpose, in Western Australia.¹⁰

Of the intensive type of investigation, in which an actual census is made and epidemiological data collected, the first example is the one made in 1933 of Cordova, Cebu, in the Philippines. With the background of the experience of Rodriguez in that region, Doull collaborated with him and other associates,¹¹ under the auspices of the Leonard Wood Memorial, in first enumerating the entire population of the municipality and then examining carefully all who could be gotten to the clinic—a total of 98.3 per cent of the 6,063 persons enumerated. Following that Guinto and Rodriguez investigated in similar manner two other areas in that region, one of them all but free from leprosy.¹² The study of the two leprous areas is being continued on a long-term basis. In the Virgin Islands,

⁶ It appears that the word "education" has recently been substituted for "propaganda," presumably because the latter has become malodorous.

⁷ See news item, *THE JOURNAL* 7 (1939) 107. According to Rogers and Muir³, the surveys of Muir and his assistants involved a total of 2,435,160 persons in 4,560 villages. To attain such a total in 11 years, excluding only Sundays, an average of over 700 persons must have been examined every day.

⁸ DELINOTTE, H. *THE JOURNAL* 7 (1939) 517-547.

⁹ See *THE JOURNAL* 6 (1938) 303-314.

¹⁰ See *THE JOURNAL* 8 (1940) 375 and 9 (1941) 368; news items.

¹¹ DOULL, J. A., RODRIGUEZ, J. N., GUINTO, R. and PLANTILLA, F. C. *THE JOURNAL* 4 (1936) 141-169.

¹² GUINTO, R. S. and RODRIGUEZ, J. N. *THE JOURNAL* 9 (1941) 149-166; 315-325.

under the same auspices, Saunders conducted a similarly intensive investigation of the island of St. Thomas and a part of St. Croix.¹³

Studies of like nature have also been reported from India and Africa. Lowe¹⁴ selected for the purpose an area containing 10,000 people living in 42 villages, in the Bankura District of West Bengal. The work was done over a period of 18 months by a special staff which recorded and examined the whole population (4,909 males and 5,091 females). Here, too, the area is being kept under observation. More recently Lowe and Santra¹⁵ reported a less intensive survey of a colony of Santals, in Northern Bengal. In an effort to examine without a detailed enumeration "as far as possible" all of the 3,900 persons in the colony, 3,600 (1,923 males and 1,677 females) were seen.

In Nigeria, Davey¹⁶ has made two surveys of the town of Etitiana, in the Nkporo District, with a trained staff and the cooperation of the people. In the first one (1937) the examinations were made compound by compound, but in the second (1939) house-to-house visits were made and the inhabitants of each, including absentees, were enumerated. Only by this method, it was found, could reliable results be obtained. A total of 1,892 people were examined and 56 absentees were listed for later examination. Much more extensive, if less intensive, was the investigation made by Degotte and a special team under the "S.A.M.I. survey method" in the Nepoko District of the Belgian Congo.¹⁷ In this area of 1,120 square kilometers the inhabitants were officially summoned to gather in selected places, and more than 38,000 people were examined at the rate of 3,500-4,000 a month, special inquiries being made in the houses of the lepers discovered. Regarding the people not seen, it is simply stated that their number could not be known; but among such a primitive, tribal population the method employed was probably more effective than in most other regions.

It would be impracticable to do more than mention examples of other work of more or less intermediate nature that has been done. First among these is that in Ceylon where, since preliminary surveys made in 1933,¹⁸ much of the country has been cov-

¹³ SAUNDERS, G. M. *THE JOURNAL* 10 (1942) 1; SAUNDERS, G. M. and GUINTO, R. S. *THE JOURNAL* 10 (1942) 20. (These articles, originally scheduled for this issue, appeared in the first of the war volumes.)

¹⁴ LOWE, J. *Lep. in India* 10 (1938) 41-49.

¹⁵ LOWE, J. and SANTRA, I. *Lep. in India* 12 (1940) 43-54.

¹⁶ DAVEY, T. F. *THE JOURNAL* 9 (1941) 77-86.

¹⁷ DEGOTTE, J. *THE JOURNAL* 8 (1940) 421-444.

¹⁸ COCHRANE, R. G. and DE SIMON, D. S. *Leprosy survey of Ceylon, 1933*. Government Press, Colombo, 1934, 42 pp.

ered section by section with, on the whole, special attention to school-children. Educational work has been carried on, and clinic centers have been established for treatment of cases and for control work;¹⁹ it was planned that data such as that of economic conditions, housing, etc., would be collected as the work progressed.

Much field work has been done in the Netherlands Indies in recent years. According to Sitanala²⁰, the procedure is first to determine the number of cases with the aid of the Civil Service, and then to establish centers for the examination of the patients and all members of their households; the results, he adds, serve as a starting point for further steps. The measures employed in all phases of leprosy work necessarily vary considerably in different parts of this diverse territory, but apparently the surveys were in general of semi-intensive nature.

Several investigations have been made in Japan since 1935, the available reports of which are confined to brief foreign-language authors' abstracts except for a report on the influence of climate by Shinouma and others.²¹ A group headed by Asima²² examined 1,892 people in three villages in the Shiso district, near Kobe, where the total population was 2,130, and Tachikawa,²³ with Mitsuda, investigated two villages in Yamaguchi Prefecture. Other reports are of work of F. Hayashi and his colleagues in the islands south of their station at Kagoshima, Kyushu. In a single month, it is stated,²⁴ he and K. Nagai examined 18,236 out of the 19,321 inhabitants of Kikai Island, near the large one of Oshima half-way between Kyushu and Formosa, and made special inquiries regarding the cases found. Maeda and associates²⁵ surveyed, presumably in similar manner, a city and five villages in Northern Oshima with a population of some 67,000 persons. Going farther south, Hayashi *et al.*²⁶ examined 7,470 out of 7,954 inhabitants of Yoron Island,

¹⁹ COCHRANE, R. G. Leprosy in Ceylon; report of second visit of investigation (etc.). Government Press, 1936, 29 pp.; also, *Lep. Rev.* 8 (1937) 17-23. COCHRANE, R. G., DE SIMON, D. S., and FERNANDO, A. C. *THE JOURNAL* 5 (1937) 61-65. DE SIMON, D. S. *THE JOURNAL* 6 (1938) 435 (abstract).

²⁰ SITANALA, J. B. *THE JOURNAL* 6 (1938) 430 (Abstract).

²¹ SHIONUMA, E., NAGAI, K., and MAEDA, T. *THE JOURNAL* 6 (1938) 315-324.

²² ASAMI, S., SAHURAI, H., OHASI, K., and IMURA, S. *La Lepro* 6 (1935) suppl. 73 (*THE JOURNAL* 5 (1937) 86).

²³ TACHIKAWA, N. *La Lepro* 9 (1938) suppl. 85.

²⁴ NAGAI, K. *La Lepro* 8 (1937) suppl. 75 (*THE JOURNAL* 7 (1939) 111).

²⁵ MAEDA, T. *La Lepro* 8 (1937) suppl. 81 (*THE JOURNAL* 7 (1939) 112).

²⁶ HAYASHI, F., MAEDA, T., FUKUDA, S., and NAGAI, Y. *La Lepro* 10 (1939) suppl. 53 (*THE JOURNAL* 8 (1940) 532).

near Okinawa. Iesaka²⁷ made two sample surveys (on Miyako and Yonakuni) in the southernmost islands of Okinawa Prefecture, near Formosa. In none of the abstracts referred to is there any information regarding procedure, but evidently the surveys were at most of intermediate nature, made without actual enumeration of the populations and without attention to sociological or other general epidemiological data.

Mention should also be made of an extensive investigation of the leprosy situation in Colombia that has been under way for some time,²⁸ but that is apparently being done by a special staff operating throughout the country in various ways other than actual field surveys. In Brazil, activities differ from part to part but more or less similar work is being done in some areas, as indicated by a recent report by Pompeu Rossas from Maranhao.²⁹ In his work, aside from the attention given contacts, the examinations made were of groups such as school children, laborers, business employees, military personnel, etc.

In the Pacific area, Innes and a small staff, travelling arduously, made sample surveys in seven islands of the Solomon group, with special attention to Malaita,³⁰ collecting data on the cases of leprosy found, prevalent diseases, and other features of the situation. The study of the notable outbreak in Nauru,³¹ unique as that is in the annals of the epidemiology of leprosy, hardly comes within the usual concept of field surveys because of the small area and population involved and the close supervision of the people that is maintained.

There arises here a question of nomenclature. Different as are the types of inquiries that have been made, no clear differentiation is made in discussing them, and consequently a reader is liable to consider comparatively, data that actually are not comparable. A comment on a similar situation in a very different field³² protests against the application of the term "bird census" to what, the writer states:

. . . was in no sense a census, but simply a more or less superficial

²⁷ IESAKA, K. *La Lepro* 10 (1939) suppl. 15, 17 (THE JOURNAL 8 (1940) 532).

²⁸ Numerous items regarding this work appeared in THE JOURNAL from time to time.

²⁹ POMPEU ROSSAS, T. THE JOURNAL 9 (1941) 167-176.

³⁰ INNES, J. R. *Lep. Rev.* 9 (1938) 122-128; THE JOURNAL 6 (1938) 501-513.

³¹ BRAY, G. W. *Proc. Roy. Soc. Trop. Med.* 23 (1930) 1370; reprinted, THE JOURNAL 2 (1934) 319-323. GRANT, A. M. B. THE JOURNAL 2 (1934) 305-310. CLOUSTON, T. M. THE JOURNAL 4 (1936) 437-440 and *Lep. Rev.* 8 (1937) 23-29.

³² POUGH, R. H. *Science* 94 (1941) 213, Aug. 29.

list of the species of birds noted during the course of a morning's walk. . . . The word "census" has been widely misused in this way in the past, and it would seem highly desirable to arrive at some general agreement as to what constitutes a "bird census."

If we adhere strictly to the dictionary definition of the word "census," a true bird census . . . would be almost impossible to take on a May morning. In view of the increasing need in ecological work for real censuses . . . it would seem wise to call any record which does not represent a conscientious effort to record every single individual bird in the area at the time, a "bird count" or "bird list."

Such a suggestion is applicable in our particular field. Considering the dictionary definitions of the terms "survey" and "census"—the term "leprosy count" (or "leper count") would be useful but an innovation hardly likely to be adopted—it is found that though there is overlapping there is also authority for a distinction. One meaning of *survey* is (noun): "a general view, as from above"; (verb) "to inspect; to view attentively, as from a high place . . ." On the other hand *census* signifies an "enumeration of the population . . . generally with classified information relating to social and economic conditions."

On the basis of this distinction "survey" would be applied to the nonintensive type of inquiries, including most of the intermediate variants, whereas "census" would be restricted to the intensive type of investigation, in which the whole population is actually enumerated and examined and correlative data collected. In view of the labor and expense involved in the latter kind of work there is obviously little hope that the leprosy world can be more than sampled in this manner, but such censuses as are made are worthy of special recognition. This matter is one which would be appropriate for consideration by an international leprosy conference, but in the meantime individual workers would do a service by adopting such a distinction.

—H. W. WADE