

NOTES ON THE WORK OF THE UNITED STATES NATIONAL LEPER HOME *

BY O. E. DENNEY, M.D., D.T.M., F.A.C.P.

Surgeon, U.S.P.H.S., Medical Officer in Charge, Carville, Louisiana.

POPULATION AND ADMISSIONS

Since this hospital was inaugurated in 1894 as the Louisiana Leper home, its mean annual population has continued gradually to increase. The present actual capacity is 356, though it is rated as having 425 beds. The space intended for the other 69 is used for infirmary purposes to care for those too ill to occupy their own living quarters, and for services such as the dental, X-ray, and physiotherapy clinics.

The mean population of the hospital for the last fiscal year was 356, an increase of 34 over the previous year. A total of 80 patients was admitted, the largest number in the history of the hospital. Of these, 61 were new cases, 5 were returned absconders, 9 were patients previously paroled who were provisionally readmitted for brief intervals of observation or the treatment of minor complaints, the sequels of leprosy, and 2 were paroled patients returning for further treatment because of relapse of leprosy. Three were not considered to be showing evidence of leprosy and were unconditionally released.

The source of the new patients—as regards nativity rather than admission—was eleven states of Continental United States (53 patients) and 13 other countries or territories (27 patients). The largest numbers of the former group were from Louisiana (29), Texas (9), and Florida (7). Of the foreign groups the largest were from Mexico (8), the Philippine Islands (5), and Jamaica (3).

The well-known endemicity of leprosy in the Gulf Coast States has continued relatively undiminished in severity. The Mexican population of the hospital has steadily increased. The marked in-

* This article is a condensation of the annual report of this institution. Though the JOURNAL cannot ordinarily print such reports of leprosy asylums and hospitals, the U. S. Federal Leprosarium is so unusual an institution that an outline of its features and activities is of interest, quite aside from the various clinical and other observations recorded here.—EDITOR.

crease in admissions from Louisiana as compared with the average for the preceding 40 years (12) or those for 1931 (9) would appear to be due primarily to economic rather than to public health reasons.

THE TECHNICAL SERVICES

LEPROSY THERAPY (DR. JOHANSEN)

One hundred and seventy-two patients are taking, as routine treatment, intramuscular injections of chaulmoogra oil-benzocaine twice a week, the average dose being 5 cubic centimeters. Chaulmoogra oil by mouth is being taken by 185 patients, in doses from 5 to 50 drops three times daily; the minimum dose has been 3 drops, and the maximum 125 drops, three times daily. Intramuscular injections of the ethyl esters of both chaulmoogra and hydnocarpus oils have been continued during the past year, but the number of patients receiving these preparations has steadily diminished; of those receiving the former only one or two report weekly. The inference unavoidably to be drawn from the diminished number of patients taking these treatments is that neither of these ethyl esters is definitely specific for leprosy. It is possible that in some cases improvement may be properly attributed to these oils; perhaps they may be of benefit in leprosy in somewhat the same way that cod liver oil is in tuberculosis; but it is obvious that if they were specific for leprosy, results would have been obtained that would have attracted more and more patients to this clinic to receive treatment. It is thought that results from these intramuscular injections do not warrant insistence on the part of the staff in having patients receive them, and the clinic is dependent entirely on volunteers. Under these conditions the number in attendance is a fair estimate of the patients' opinion of the value of these oils, and the patients' opinion is not to be neglected in drawing conclusions.

An attempt is being made to administer systematically by mouth arsenic in the form of Fowler's solution (*Liquor potassii arsenitis*), in such a way as to eliminate the danger of arsenical keratosis of the palms and soles. Fowler's solution has been used at Carville for many years with excellent results, but has been prescribed cautiously and with the fear of its producing keratoses. In former years patients too frequently obtained the drug from outside the hospital and—with great confidence in its curative properties in arresting fever and causing the disappearance of evanescent nodules—continued treatment of themselves beyond the limit of safety, with re-

sulting permanent damage to the skin of palms and soles. The present effort consists in interrupting administration of the drug by regular periods of rest. About forty patients are now on this regime and none has developed keratoses.

Whether it is due to their confidence in Fowler's solution or whether it is merely a desire to try a new method of administration cannot be said, but it is a fact that the number of patients who come for inspection and for their prescriptions for arsenic is augmenting. It is believed that if a safe method of administering arsenic in sufficient doses and over a sufficient period of time can be found, that this drug would be of benefit to a large percentage of patients.

Several new experimental treatments have been started or carried on through the year, but results have not yet been of sufficient significance to justify a detailed report. The use of erysipelas streptococcus antitoxin, in doses averaging 10 cubic centimeters given intramuscularly, has apparently been helpful in lessening the severity and duration of acute erysipeloid reactions.

Deaths.—There have been twenty deaths (56 per thousand) attributed to a total of twelve conditions concomitant with leprosy. Of these, pneumonias were responsible for six deaths, nephritis for three, and pulmonary tuberculosis and chronic leprous laryngitis for two each.

DERMATOLOGIC SERVICE (DR. HOPKINS)

The incidence of skin diseases other than leprosy among both the newly admitted and the old patients is about that which could be expected in a general hospital of the same number of patients. There have been many instances of striking resemblance between lesions proved to be leprous and lesions due to other skin diseases.

The more important of these cases have been among patients coming with a diagnosis of leprosy which could not be corroborated, and who were subsequently discharged as not being lepers. One of these cases proved to be syphilis, in another the most probable diagnosis was erythematous lupus, in a third the evidence pointed definitely to acnitis, and in a fourth there was only a confused sensory disturbance and some enlargement of the ulnar nerve. In the first two of these cases the resemblance to leprosy was so striking that notes from staff reports are quoted here.

First case.—This is cited as a rare instance in which a facies characteristic of nodular leprosy proved to be due to syphilis.

On the patient's admission there were nodules on the face, arms, and hands which in size, shape, and color were remarkably similar to what might occur in nodular leprosy. There were also lesions on the back. The nodules on the face were symmetrically distributed in the ear lobes, over the forehead and in the region of the eyebrows in a manner that exactly simulated the arrangement expected in leprosy, but there was no loss of eye-brows.

Before treatment with mercury, iodides, bismuth and neosalvarsan the facies of this patient were so strongly suggestive of leprosy that anyone experienced in this disease would have felt justified in making a diagnosis as positively as it could be made without bacteriological examination. As the lesions rapidly disappeared under anti-luetic treatment, the resulting scars bore less resemblance to leprosy than to lues, being in appearance typically like syphilitic scars.

It should be admitted that the symmetrical distribution and general appearance of the lesions, as well as the facies of the patient at the time of her admission, did not suggest that an error in diagnosis had been made; it was only after repeated failure to find acid-fast bacilli that the suspicion of lues was aroused. A strongly positive Wassermann reaction and the rapid disappearance of lesions during the administration of iodides was regarded as evidence confirmatory of lues.

The clinical resemblance in this case to leprosy rather than to syphilis lay in the fact that the nodular lesions were far too large for any of the secondary syphilitic eruptions, and the perfect symmetry of their distribution was most unusual for a tertiary tubercular syphilide, while in regard to size and symmetrical distribution the lesions were in exact conformity with the usual appearance of leprosy. The characteristic appearance of leprosy was produced not so much by the individual lesions as by the massing of these lesions in regions especially prone to the development of lepromata, including especially the forehead, supraorbital region and ear lobes. A positive Wassermann reaction is not uncommon in leprosy and is often a contributing cause for mistaking leprosy for syphilis. Many cases of leprosy have been admitted to the leprosarium after having been treated for syphilis because of having a positive Wassermann, but it has seldom if ever before happened that a positive Wassermann was interpreted as being due to leprosy when syphilis was solely responsible for the reaction.

Second case.—This is cited as an unusual instance in which the circinate macules of leprosy were very closely simulated by those of erythematous lupus.

The patient presented bizarre figures on the extensor surface of the forearm suggesting mycosis fungoides in the premycotic stage. On the wings of the nose, the ciliary borders of the lids, the cheeks and the back of the neck were atrophic lesions, some with thin crusts, one of which bled. In many of the lesions

follicles were plainly discernible that suggested disseminated erythematous lupus. Almost all of the lesions were surrounded by narrow, deeply pigmented borders which had the appearance of being elevated, resembling annular erythema multiforme.

At the elbows the pigment was quite dark, like that of lichen planus. There were masses of lesions over the tips of both elbows, almost black and considerably indurated. Near the left elbow there were abrasions suggesting erythematous lupus.

The provisional diagnosis was, first erythematous lupus, and second, leprosy. In favor of lupus were deep scarring, follicular involvement, scaling, and also superficial scarring. In favor of leprosy was the occurrence of deeply pigmented areas without other lesions in the same area. These pigmented areas seemed to be rather the precursors of nodular leprosy than symptoms of erythematous lupus. This case also proved not to be one of leprosy, and was also discharged after a period of observation.

EYE, EAR, NOSE AND THROAT SERVICE (DR. MCNAIR)

The facilities of this service are extensively used by the patients. The weekly clinic has an average attendance of two-thirds of the total inmate population. Between visits of the consultant routine medication is administered under the supervision of the resident staff, and nearly 90 per cent of the patients daily receive attention.

NEURO-PSYCHIATRIC SERVICE (DR. CAZENAVETTE)

During the year 67 new patients were examined and 98 old ones were reexamined, in addition to which there were many consultations. Twenty-two of the reexamined patients were candidates for parole; all of them showed marked improvement in the neurological manifestations, and many showed complete restoration of sensation in areas markedly anesthetic at the time of their admission.

A point observed was the frequent persistent involvement of the peripheral nervous system, including both cranial and spinal nerves, to the exclusion of any manifestations pointing directly to the more central nervous regions. At no time were symptoms found pointing to involvement of the spinal cord, brain or meninges.

ORTHOPEDIC SERVICE (DR. McILHENNY)

During the year 321 patients availed themselves of this service, a total of 23,479 treatments being given. Conservatism in surgery has been adopted and operative procedure is resorted to only when deformities and osseous lesions demand it. Many cases presenting

necrosis of digits have had the condition greatly ameliorated by the continued use of hot hypertonic salt solution or hot saturated boracic acid solution applied as soaks for one hour daily, and hot wet compresses during the time between soaks. By far the majority of such lesions are treated daily in the clinic with soaks, and the compress treatment is applied in their rooms, which has greatly reduced the number of cases requiring hospitalization.

Preventive treatment is gradually being extended because the patients are coming to understand that deformities may occur, and that periodic examinations will enable the physician to anticipate and arrest such conditions before serious contractions take place. In cases of claw hands due to tendon contractions, manipulative reduction with repeated splinting produces certain degrees of correction; plastic operative correction, such as tendon lengthening, is not deemed wise in such cases until the disease has become arrested, because of the possible increase in the general condition and consequent recurrence of the deformity. In arrested cases tendon operations should result in satisfactory correction. However, few cases demand such procedure; palliative measures for prevention of these deformities have proved very beneficial.

DENTAL SERVICE (DR. PREJEAN)

A total of 3,213 dental treatments were given, and dental examinations were made on 77 newly admitted patients. Among the latter there was noted a decrease in the percentage of intraoral leprous lesions. Nodulation of the tongue was observed in a few cases where the skin type of leprosy predominated. In one patient having nodular manifestations of the disease there was a large mass of leprous tissue, located in the hard palate, measuring approximately two inches antero-posteriorly and one inch laterally.

LABORATORY SERVICE (DRS. WOOLEY, EDDY, AND DENNEY)

A full time bacteriologist has been added to the staff for the purpose of attempting to correlate the results that others have obtained in recent years in the cultivation of acid-fast bacilli encountered in lepers. Comparative studies of subcultures from the parent strains are being made, and the original isolation experiments are being repeated one by one in an endeavor to obtain identical or similar strains. As time permits original lines of thought are being followed in the hope that other members of the almost ubiquitous group of acid-fast bacilli may be isolated. A report soon to appear

in the Archives of Dermatology and Syphilology deals with the comparative behavior, in the presence of rabbit leukocytes, of fifty acid-fast bacilli obtained culturally from lepers and from various other sources.

The routine laboratory work has increased with the increase in population. Certain blood and urine examinations, previously considered here as of academic interest, have proved of clinical value and are being performed more or less routinely. The bacterioscopic examination of patients in the hospital and the reexamination of paroled patients has continued to occupy considerable time, an average of 100 patients being examined monthly. Autopsies were performed on 16 patients, 80 per cent of the deaths.

Seventy patients whose blood serum contained low diffusible calcium, even though the total calcium was normal, were treated with viosterol. Their blood sera were analyzed about every six months for total calcium, diffusible calcium, phosphorus, albumen, and globulin. Encouraging clinical results were obtained in these patients, whose diffusible calcium was increased to the approximately normal range.

X-RAY SERVICE (SISTER MARTHA)

A special technic for soft tissue delineation has been developed. While this may not be of medical or scientific value it may be of interest from an artistic angle, and probably will impress those who are unfamiliar with the skin lesions of leprosy. X-ray illustrations of bone lesions in leprosy are quite common in the literature, but no reports have been found of attempts to delineate the skin involvement by radiographs. The discrete nodules and the diffuse thickening of the skin are well visualized and make a striking contrast to the rigid flat surface of sclerodermic skin. The accentuation of the pathological processes at the points most subject to exposure are the high lights in these pictures. More experimentation will be necessary to determine the limitations or usefulness of this technic before it is fully described.

NURSING SERVICE (SISTER MARTHA)

There has been a lessening of the acute nursing problems which were faced during the previous year, resulting in a release of infirmary accommodations for other purposes. A diminishing discontent among the patients is noted, which may be interpreted as a spirit of appreciation of the economic distress outside the hospital.

DIETETIC SERVICE (SISTER CATHERINE)

Unusual demands are made upon the dietetic department of this hospital, which must cater to the dietary tastes and habits of patients not only from every section of the United States but from many foreign countries as well. Furthermore, as all the patients come under the classification of chronics, it is essential in the interest of satisfaction to provide a very great variety in the food served.

The ambulant patients are served in an attractive mess hall, divided by semi-partitions into a series of small dining rooms. This permits congenial groups getting together, congeniality often following along national lines—the Greeks, the Filipinos, the Chinese, etc., each having their separate dining alcoves. Patients confined to their rooms and to the infirmary buildings are given, twenty-four hours in advance, a menu on which they check the articles of food they wish served or substitute others of their own choosing. This allowance for individual preference has contributed more largely, perhaps, than anything else to the elimination of complaints regarding food. The minimum daily ration cost during the year was \$0.374.

MISCELLANEOUS

The Materiel Section operates the farm and dairy, which produces with continued economies milk, meat (beef and pork), and vegetables and fruits. The repair and upkeep of the reservation, with its 109 buildings, is an increasingly expensive item because of the age of the buildings.

The patients' out-door recreation facilities consist of a nine-hole golf course, a baseball diamond, a concrete tennis court, soccer football courts, etc. Athletic equipment and musical instruments are purchased from the "Leper Patients Benefit Fund." Moving-picture equipment for sound pictures has been installed, and films have been contracted for. Ten daily newspapers and fifteen monthly or weekly magazines are purchased by the Government for use by the patients, and popular fiction is purchased from the Benefit Fund. Large amounts of mail and money are handled for the patients, and the transactions at a local bank amounted to \$30,000 during the year.