## CURRENT LITERATURE

*To survey adequately the current literature of leprosy is one of the most important objectives of the* JOURNAL. *The Contributing Editors are expected, so far as possible, to make sufficiently full abstracts of the more important articles to afford a clear understanding of them. Since authors' abstracts are generally to be preferred, readers are invited to submit abstracts of their own articles which have been published elsewhere.*

LARA, C. B. AND DE VERA, B. Some observations in sixteen hundred cases of apparent (clinical) recovery from leprosy. *Trans. Eighth Congress, Far Eastern Assoc. Trop. Med.* Siam, 1930. Bangkok (1932) 2 548.

Records of 1,649 cases of leprosy that had become "negative" (quiescent) and were paroled from the Culion colony from 1922 to June, 1930, are analyzed. Forty-five per cent of them had been admitted previous to 1921, when systematic and intensive treatment started, the rest after that year. The proportions of males and females were 61 and 39 per cent, respectively. There was an apparent relative advantage with the female sex, attributed to a relatively higher proportion of the less advanced cases among them when admitted. The proportion was relatively higher among children than among adults, also considered due probably chiefly to a higher proportion of early cases among the former. There is some evidence that cohabitation may be harmful. A higher proportion of paroles was obtained from cases of the neural than of the systemic (cutaneous) type. However, this was true only for the first few years of treatment, as after 5 years the relative proportions of paroles from the two types practically equalled the relative incidences of the two types among newly admitted or untreated cases. (All cases are bacteriologically positive when sent to Culion.)

The authors consider the combination of intramuscular and local intradermal injections partly responsible for a marked increase in the number of negatives in the more recent years. The eradication of nasal lesions by special local treatment has increased the negatives by 13 to 18 per cent. They consider the iodized mixed ethyl esters of the chaulmoogra-group oils as the most suitable preparation for large scale, prolonged and intensive work. A definitely higher percentage of paroles has been had among the cases that had not had lepra reaction than among the reacting cases. Of those who had had reactions, the larger proportion had more or less sharp but moderate reactions, while the smallest proportion had had only mild reactions. The proportion of cases with fluctuating and delayed improvement under treatment was higher in the reacting groups than among those without reaction.

Of the 1,659 paroles, 1,352 (81.5 per cent) had no interruption of the "negative period" or relapse of the disease while under observation, while 307

(18.5 per cent) had suffered one or more interruptions or relapses. It appears that the cases admitted since 1921 were being parolled after a shorter period of treatment than those admitted before 1921, and a larger proportion of the latter group were being parolled without any deformity, both because a relatively higher proportion of less advanced cases and improved general and special treatment. —J. O. Nolasco.

Lara, C. B. and Fernandez, G. Clinical trial of ethyl di-N-heptyl acetate in leprosy. *Trans. Eighth Congress, Far Eastern Assoc. Trop. Med.* Siam, 1930. Bangkok (1932) 2 575.

The authors made a clinical trial of the ethyl ester of di-N-heptyl acetic acid ($C_7H_{15}CH(CO_2H)C_7H_{15}$), a synthetic preparation made by Roger Adams and his co-workers, the sodium salt of which they had found to be bactericidal to the leprosy bacillus in a dilution of 1 to 250,000. This drug was compared with the standard mixed *Hydnocarpus wightiana* ethyl esters. Fifty-three selected cases were treated with each, using local (intradermal) and intramuscular injections weekly. After 15 months treatment there were 6 negatives in the test-drug group and 7 in the control group. The authors conclude that the synthetic drug had given encouraging results and opened new fields for further investigation in the chemotheraphy of leprosy, but that further trial with a less irritating preparation of it was necessary in order to evaluate it accurately in comparison with chaulmoogra oil derivatives. —J. O. Nolasco.

Samson, J. G. Treatment of leprous lesions of the nasal mucosa. *Trans. Eighth Congress, Far Eastern Assoc. Trop. Med.* Siam, 1930. Bangkok (1932) 2 602.

The author recalls the frequency with which lesions of the nasal mucosa are the last to clear up during treatment (34 per cent of a series of 690 csaes originally bacteriology positive that became negative at Culion and were parolled), and describes the treatment, with chromic acid and fulguration, of such lesions in a group of 588 cases treated in two and one-half years, of which 266 had become negative except for the nose. The chromic acid is used in 5, 10, and 60 per cent solutions, and solid. The current for fulguration is derived from a diathermy apparatus. Whenever necessary the nasal mucosa was anesthetized with cocaine. Combined treatment was generally used, alternating the two. Congestions and erosions were usually treated with the acid alone; infiltrations, nodules, and ulcers with the combined; fulguration alone was less frequently used. Ionization of sodium hydnocarpate (mixed) was tried with less benefit.

Of the 266 skin-negative cases the nasal lesions of 219 (82 per cent) had become negative at the time of the report, and of the 322 skin-positive cases 254 (79.8 per cent) had become negative in the nose. The duration of the treatment depended on the type and extent of lesion and on the kind and thoroughness of the treatment. The lesser lesions usually require a few weeks to at most a few months; the more extensive lesions may require several months to one year or more. —J. O. Nolasco.

PARAS, E. M., LAGROSA, M. AND IGNACIO, J. Plasma lipids in leprosy. Further evidence of the correlation between plasma lipids and the stage of the disease, with a note on the diagnostic significance of the red corpuscle sedimentation rate. *Trans. Eighth Congress, Far Eastern Assoc. Trop. Med.* Siam, 1930. Bangkok (1932) 2 631.

The total lipids, cholesterol, and total fatty acids of the blood plasma were determined in 31 patients who were having lepra reaction, 12 non-reacting patients who had recently improved markedly, and 14 non-reacting patients in whom the disease was practically stationary. From these cases 14 with different degrees of advancement of leprosy and practically devoid of complications were selected for the sedimentation test. The results: (1) A definite relationship was found between the plasma lipids and the clinical course of the disease. (2) It was considered probable that the breaking down of lepromata and bacilli was at least partly responsible for the increased plasma lipids in the improved cases, while the increased metabolic activity of these organisms, a part of which is the partial utilization of the blood-plasma lipids, may account for the low values obtained in the cases that have become worse. (3) The sedimentation index showed no regular correspondence with the course of the disease, except that a high index was the rule in the reaction cases. No correlation was found between this index and the lipid concentration. —J. O. NOLASCO.

MANALANG, C. Significance of pathologic findings in biopsy materials from lepers. *Mo. Bull. Philippine Health Serv.* 11 (1931) Dec.

The histologic changes in biopsied skin specimens were studied in four groups of cases: (a) 4 paroled cases, (b) 15 suspects and clinically positive cases at San Lazaro Hospital, (c) 8 clinically positive cases attending the skin clinic at Cebu, and (d) 6 clinically positive children of leprous parents, varying from 4 to 16 years of age. Of the paroled cases 3 were found to have tuberculoid lesions with perivascular round-cell infiltration, and 1 had only papillary atrophy and round-cell infiltration; of the second group 7 had tuberculoid lesions, 6 perivascular infiltration only, and 2 typical lepromata; of the skin-clinic cases 4 showed tuberculoid lesions and 4 perivascular infiltration only; of the children 3 had early tuberculoid lesions while 3 had round-cell infiltrations only. The author believes that these tuberculoid and round-cell infiltrations, which are as a rule negative to *Myco. leprae,* even with repeated examinations, precede the well-known bacillus-laden lepromata. From these findings it is concluded that a specific agent, probably a virus, precedes the appearance of the acid-fast bacillus and that, as a source of infection, the bacteriologically negative cases should receive as much attention as the positive leper. —J. O. NOLASCO.

MANALANG, C. Transmission of leprosy. *Mo. Bull. Philippine Health Serv.* 11 (1931) Dec.

In line with the findings in the preceding paper, the author believes that the evolution (not incubation) of the disease from the early lesion (usually not recognized as leprosy) to the recognizable clinical, or bacillus-positive, condition requires many years and varies in different individuals. Cases of possible unrecognized, bacillus-negative early lesions, which the author considers infectious, are believed to explain reports of infection not in consonance with

recorded experience and experimental data. The idea is exemplified by: (a) a mother with unrecognized lesions infecting her child, who becomes a frank leper though she herself may not become one for years, or perhaps ever; (b) Father Damien, concerning whom there is no proof that he or his family were entirely free from latent (unrecognized) leprosy before he left Belgium; (c) the Louisiana epidemic, which was supposed to have started from Mrs. Ourblanc, and (d) Arning's solitary successful case of inoculation. From these considerations the author thinks of the following probabilities: 1. The non-acid-fast stage of *Myco. leprae* is infectious, the acid-fast is not. 2. The disease is transmitted by frequent and prolonged bodily contact (skin to skin) in infancy or early childhood, frank manifestations appearing later in life. 3. Adults are not susceptible, though there may be exceptions. —J. O. NOLASCO.

MANALANG, C. Epidemiology of leprosy. *Mo. Bull. Philippine Health Serv.* 12 (1932) Jan.

The author believes that leprosy is transmitted by frequent and prolonged bodily contact (skin to skin) in infancy, or early childhood, frank manifestations appearing later in life. He thinks that the leprous mother more than the father is the source of infection. The failure of leprosy to spread in Minnesota is believed to be due to the Scandinavian immigrants being mostly males, while in Louisiana, as in other endemic regions, female lepers are to be found in good numbers. He believes that in the Philippines one-sixth (all females) of those who should be segregated are not segregated, because of the difficulties in discovering hidden lesions in them. These when they become mothers become propagators of the disease. —J. O. NOLASCO.

ASAMI, S. Ueber Rattenlepra in den nordöstlichen Präfecturen in Japan, nebst Kultivierung ihrer Erreger und Tierversuche mit den Kulturen. [Rat leprosy in northeastern Japan; cultivation of the organism; animal experiments with the cultures.] In Japanese, with German summary: *La Lepro* 3 (1932) No. 4.

This is an author's summary of investigations already reported in Japanese, but which the author intends to publish in English. Among 2,157 rats from Miyagi and Fukushima (and Gumma) Prefectures 17 (0.8 per cent) were found leprous. The distribution among the species is given: 11 out of 1,424 *R. norvegicus* (0.8 per cent); 6 out of 602 *R. rattus* (1.0 per cent); none among 704 *R. rattus alexandrinus* and 27 *Mus molossinus*. Infections were found only among the mature animals. Eleven were among the 907 males, only 6 among the 1,257 females.

All showed enlargement of the lymph nodes, most frequently the inguinals, though others including the peribronchial and mesenteric were affected. Skin nodules were found in 2, alopecia in 6 animals. Stefansky's division of the disease into a pure glandular and a skin-muscle type is considered appropriate. Lung, liver, spleen and kidney generally showed no noteworthy macroscopic change; testis, ovary and brain were not examined in detail. Smears revealed bacilli in the enlarged lymph nodes. Sections of lesions showed abundant acid-fast bacilli.

Cultures from the 17 leprous animals by the modified Löwenstein-Sumiyoshi method used by Ota and Sato in human leprosy cultivation gave on Petragnani's and Petroff's media 12 strains of acid-fast bacilli, the first growths requiring from 5 to 100 days. The microscopic features and effects in animals show that these are *Mycobacterium leprae murium*. The cultures are of two varieties; 3 are grayish-white or yellowish-gray (var. *cremeum*), and 9 deep ocher or orange-red (var. *vitellinum*). This distinction is not clear-cut, for there are intermediate strains and some are not stable—a creamy one may become quite yellow—but the extreme grades do not change. Subcultures grow on various media, best at 37° C.

Of white and wild rats inoculated with the cultures in various ways, 23 to 41 per cent became infected. Even guinea pigs and rabbits were infected by the same methods. The changes produced in the rats were macroscopically and histologically identical with natural rat leprosy. The typical disease was obtained in the white rat by passage through a series of animals. —H. W. W.

OTA, M. AND ASAMI, S. Culture du *Mycobacterium leprae muris*. [Cultivation of the bacillus of rat leprosy.] *Compt. Rend. Soc. Biol.* 111 (1932) 287.

This article to some extent duplicates that of Asami [see preceding abstract] but also gives further details. The authors state that though it has been questioned whether the Stefansky bacillus has really been cultivated, they are confident that Uchida's cultures are true ones; they say that Otahara has also reported cultures though the report has not been published; they then discuss their own results. With regard to the types, one of their *vitellinum* strains has a relatively dry, finely granular surface while the others are creamy, smooth and moist. All of the *cremeum* type are dry and granular. The organisms measure 2 to 4 microns, never branch, and slowly lose their acid-fast character. All the cultures, of both types, cause in white rats the same changes as occur in spontaneously infected rats. The lymph nodes enlarge after 1 to 3 months and sections show areas of massed macrophages filled with the bacilli. —H. W. W.

ASAMI, S. Histologische Untersuchungen über spontane und experimentelle Rattenlepra. [Histological investigations of spontaneous and experimental leprosy in rats.] In Japanese, with German summary: *La Lepro* 4 (1933) No. 1.

The author has recently reported on the frequency of spontaneous rat leprosy in northeastern Japan and also on the cultvation of twelve strains of acid-fast bacilli from these leprous rats, considered to be *Mycobacterium leprae murium*. Further, he has reported on the results of inoculation of these cultures into a large series of laboratory animals, especially white rats. The present study deals with the histological changes in the swollen lymph nodes and the skin and visceral lesions of these experimental animals, and a comparison of them with lesions in wild rats suffering from spontaneous leprosy and in white rats infected with natural material from leprous rats. The most-marked pathological processes were usually in the lymph nodes, sometimes in the skin, only seldom in the spleen. The other viscera were usually free from specific pathologic changes. The nature of these changes, which are for the most part composed of more or less disseminated foci of large monocytes (the so-called lepra cells)

which contain plenty of bacilli, are similar in all the three series of animals. Differences when present are only of degree and not of kind, which is evidence that the acid-fast bacilli cultivated by the author are correctly identified with *Mycobacterium lepra murium.* [AUTHOR'S ABSTRACT TRANSLATED.]*

(BELGIAN CONGO) [Leprosy, in the Annual Report on Public Health in the Belgian Congo for 1930.] Dr. Trolli. *Ann. Soc. Belge de Méd. Trop.* (1933).

According to this report the number of lepers treated in Government hospitals in the Belgian Congo during 1930 was 2,255 and the number of deaths recorded was 34. The known cases, totalling 7,398, are distributed by provinces as follows:

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| *Congo-Kasai Province:* | |
| Reported in the centers (especially from Sankuru district) | 185 |
| Noted by the Sleeping Sickness Commission (Mayumbe district 6, Kwango district 522, Kasai district 28, Sankuru district 815) | 1,371 |
| *Equateur Province:* | |
| Reported by doctors | 651 |
| *Eastern Province:* | |
| Cases in Government hospitals | 1,328 |
| Recorded by rural dispensaries | 2,163 |
| Reported by physicians of the Lomami Company | 339 |
| Reported by the Croix Rouge de Congo | 1,179 |
| *Katanga Province:* | |
| Cases in Government hospitals | 91 |
| Cases in the small leprosy hospital of the Red Cross at Elizabethville | 16 |
| Cases in the leprosy hospital of the A. P. C. Mission (Dr. Kellesberger) at Bibanga | 75 |
| Total | 7,398 |

In the neighborhood of Boende, Equateur Province, 233 cases have been found among 10,190 natives (2.2 per cent). Dr. Fourche (Sleeping Sickness Commission) considers that in the region of Kasai (Congo-Kasai Province), about 1 to 3 per cent of the population are lepers. He noted two centers near Lukelenga where the index reached 10 to 11 per cent, and another exists among the Bakete near Luiza. —A. DUBOIS.

FRASER, S. N. D. Out-patient leprosy work. *Chinese Med. Jour.* 47 (1933) 257.

Many authorities are now of the opinion that selected cases of leprosy can be treated successfully as out-patients with little or no danger to the community,

* From a translation from the German by A. C. Santos.

and that the establishment of leprosy clinics encourages early cases to attend at a time when treatment is the most effective. Work along these lines has been carried out at the Swatow Mission Hospital, but its work is being seriously hampered by an official order that all lepers in the district should be isolated. Many patients no longer dare attend the clinic, and early cases naturally will endeavour to hide their symptoms as long as possible. Compulsory segregation on a large scale is practically impossible, for the leper population in and around Swatow is estimated between 5,000 and 10,000 individuals while the municipal leper colony, situated on an island a few miles from Swatow, is much overcrowded with some 120 inmates. The colony has been instrumental in removing from the streets a large number of paupers in advanced stages, but the cost of operation is high and though treatment of a sort is given it is without hope of curing any of the cases.

Any organization to deal with the problem should include (1) a diagnostic and training center (a) to select cases suitable for treatment as out-patients and (b) to secure the coöperation of doctors undertaking this out-patient treatment; (2) one or more hospitals for the treatment of moderately advanced cases; (3) a colony for the segregation of advanced cases for whom alleviation of their condition is the only result that can be expected. Not legislation, but education is the effective method. Officials and the people themselves should realize that leprosy is not incurable, and that the leper undergoing treatment is not a danger to the community.

[FROM ABSTRACT IN *Jour. Trop. Med. & Hyg.* 36 (1933) 212.]

ANDERSON, W. H. P. The world leprosy situation. *Chinese Med. Jour.* 47 (1933) 233.

In the last ten years steady progress has been evident in all aspects of the battle against leprosy, more particularly in the question of therapy. The present means and methods of treatment encourage a hopeful outlook. This, however, is not the only weapon with which the disease must be attacked. Survey and propaganda are indispensable and the wholehearted coöperation of all classes, especially of lepers themselves, is of paramount importance. The latter is a vital need, since the full benefit of treatment cannot be secured unless the subject can be prepared for it. The treatment of early cases is also an essential factor and, where possible, segregation in suitable surroundings.

While the situation may be regarded as one of much hopefulness, there is a very real danger of creating or encouraging undue optimism. Social and economic conditions are still in need of drastic revision in many countries where leprosy is rife and whose people are often completely ignorant of even the simplest methods of hygiene.

[FROM ABSTRACT IN *Jour. Trop. Med. & Hyg.* 36 (1933) 210.]