CURRENT LITERATURE

One of the most important objectives of the Journal is to take due notice of the current literature on leprosy. For the benefit of readers to whom medical libraries are not readily accessible it is intended that, so far as possible, abstracts of the more important articles shall be sufficiently full and complete to afford a clear understanding of them, rather than merely of the nature of their content.

The Contributing Editors are depended upon primarily to provide these abstracts. However, since authors' abstracts are generally to be preferred to those prepared by others, readers are invited to submit abstracts of recent papers or reports written by them which have been published elsewhere.

LE DENTU. La Conférence internationale de Manille de 1931. *Rev. Colon. Méd. Chir.* **35** (1932) 136.

This is a very clear resumé of the most important conclusions of the Manila conference organized by the Leonard Wood Memorial for the Eradication of Leprosy, in accord with other anti-leprosy organizations and the special commission on leprosy of the League of Nations. The effort made, the writer says, was considerable. It was necessary to end the lack of precision, the irresolution so to speak, which hindered understanding between workers of different nations and retarded the complete realization of the progress which their incessant work permits one to hope for. —M. LEGER (translated).

MONNIER, H. L'évolution d'un foyer de lèpre circonscrit dans la province de Cammon (Laos) *Bull. Soc. Path. Exot.* **25** (1932) 606.

This paper deals with a small, circumscribed focus in Laos, Cochin-China, which has been known for a long time and which has remained confined to two neighboring villages because of the geographic location and the customs of the people. Out of 324 individuals there are 43 lepers (13.2 per cent) and 8 suspects. The diagnosis has been made after examination of the nasal mucus, the lymph node pulp and the skin.

Following the teachings of Marchoux, the principles of which are determined by the most recent knowledge of the contagion and the epidemiology of the disease, Monnier thinks that it would be illusory, and in any case unjust, if after these 25 years internment of the cases should be carried out.

—M. LEGER (translated).

MILIAN. Lettre à un médecin colombien étonné de la liberté des lépreux en France. *Paris-Méd.* (1932).

In the form of a letter the author sets forth his ideas on the transmission and prophylaxis of leprosy. He asks why in a leprosy country the disease

propagates with such intensity. He believes that "heredity" may sometimes be involved, having seen hereditary transmission in two families with autochthonous leprosy in France. Insect bites may play a part, but this has not been demonstrated. It is possible that the parasite may have a saprophytic form under favorable climatic conditions, but this is pure hypothesis.

The most logical prophylaxis, as in syphilis, is treatment, but unfortunately the treatment of leprosy is as yet almost nil. Isolation in villages is preferred to leprosaria. Sterilization by the X-ray would prevent hereditary transmission. Research centers are needed with physicians, chemists and biologists in them.

—M. LEGER (translated).

TISSEUIL, J. Contribution à l'étude des léproides. *Bull. Soc. Path. Exot.* **24** (1931) 763.

The author describes cutaneous lesions of leprosy suggestive of erythematous lupus which he observed in New Caledonia. These were annular areas of dark tint, the undulating borders of which were marked by an exaggeration of the ridges of the skin on which there were eminences of lighter color.

It was expected that histological examination would show tuberculoid changes, but actually there are no giant cells, only moderate cellular infiltration and numerous capillaries; in places corresponding to the eminences there was a dislocation of the skin by mononuclear cells. —M. LEGER (translated).

TOULLEC, F. ET RIOU. Un cas de lèpre atypique, avec prédominance des lésions cutanées. *Marseille-Méd.* (1931) 414.

A Negro soldier from the Sudan, who had been in France for more than six years, was sent to the Hôpital de Marseille for "desquamation and disturbances of nutrition." He presented a dark ichthyosis on the back, the abdomen, the extensor surfaces of the extremities and on the face elements which recalled the elements of Darier. He had alterations of the hairy system which suggested hypothyroidism. The diagnosis inclined toward leprosy because of an erysipeloid spot on the bridge of the nose, hypertrophy of the nerve trunks, disturbances of sensation, some mucous lesions, and febrile attacks. The Hansen bacilli were found in great numbers in the nasal secretion.

Were the lesions recalling hypothyroidism the consequence of a localization of the leprosy bacilli in the thyroid? The authors put the question without pretending to decide it, though they had demonstrated the germ, by biopsy in placques of ichthyosis and in crusted papules of the face.

—M. LEGER (translated).

VIGNE, P., FOURNIER, A. ET SIVAN. Maladie de Hansen achromique. *Marseille-Méd.* **1** (1932) 120.

An observation of a Negro from Dakar (Senegal) who presented, besides characteristic nodules, areas on the body that were whitish, cracked and scaly. The disturbances of sensation were determined with care and the diagnosis made with certainty. —M. LEGER (translated).

CORAZZINI, J. A. Cas de lèpre mixte avec lépromes non anesthésiques; chancre lépreux (?). *Algérie Méd.* (1931).

A native of Morocco had a large leproma of the nose, with very numerous Hansen bacilli. On the face were numerous other lepromata, subcutaneous, over which the sensibility was perfectly normal. There was enlargement of the cubital nerves and the beginning of a *main en griffe*. The case had started only a year before with an ulceration of the right ala nasal, which was perhaps the primary lesion. —M. LEGER (translated).

DE RAYMOND, A. Essai d'un savon total de chaulmoogra dans le traitement de la lèpre. *Bull. Soc. Path. Exot.* 24 (1931) 770; also: Le traitement des lépreux au Tonkin par injections intra-veineuses d'un savon total de chaulmoogra. *Bull. Soc. Path. Exot.* 24 (1931) 780.

In Tonkin the author has treated experimentally twenty cases in different states of the disease with the sodium chaulmoogra solution prepared by Peirier. The medicament, in a dose of 10 cc. twice a week, is very well tolerated intravenously and has given therapeutic results superior to any which the author had obtained previously with other products. The patients accepted this treatment voluntarily because they quickly saw the benefit of it.

—M. LEGER (translated).

PEIRIER. Soluté de chaulmoograte de soude pour injections intra-veineuses. *Bull. Soc. Path. Exot.* 24 (1931) 772.

The solution which the author has prepared with Krabao oil of Cambodia (*Hydnocarpus anthelmintica*), and with *H. wightiana* oil of India, is slightly hypertonic, pH 8, freezing point 0.61. To 1000 cc. of distilled water it contains 30 gm. of sodium chaulmoograte saturated to three-quarters, 26.5 gm. of antipyrine, and 48 gm. of saccharose. —M. LEGER (translated).

PEIRIER. Le principe actif des huiles de chaulmoogra. *Bull. Soc. Path. Exot.* 24 (1931) 778.

The therapeutic properties of the chaulmoogra oils in leprosy are only attributable to the constitution of the fatty acids. The other elements that have been suggested as of effect, as the vitamines or the glucosides of the skin of the seed (Stevenel), are without action. No importance is to be attached to the peculiar rotary power or to the non-saturation of the pentagonal nucleus of the chaulmoogric molecule. —M. LEGER (translated).

SANJURJO, D. and SANJURJO, M. La réaction de Vernes chez quelques lépreux et quelques témoins. *Bull. Soc. Path. Exot.* 25 (1932) 127.

At Asuncion, Paraguay, the authors have found that 66.6 per cent of sera from lepers flocculate with the perethyriol reaction of Vernes, whereas the percentage was 34.8 in non-lepers taken without selection from the consulting rooms of the hospital. They conclude that flocculation of serum of lepers by this reaction is very frequent, though it is not constant.

—M. LEGER (translated).

Cantacuzène. E. and Longhin, S. De l'existence d'un ultra-virus chez le bacille de la lèpre humaine. *Soc. Biol. Bucarest* **109** (1932) 1003.

The authors have obtained evidence of the presence of an "ultra-virus" in lepromas by inoculation of white rats. They have injected into the peritoneum of these animals a filtrate of an emulsion of lepromas, the filter used being the Chamberland L3. The injection was made 24 hours after the rats had received, also into the peritoneum, some disodium calcium phosphate.

In one instance out of ten there were found, at the end of two months, markedly acid-fast bacilli, isolated or in twos, in smears from the omentum. These bacilli were within large mononoclear histiocytes, in vacuoles, or were outside the cells doubtless on account of the destruction of the latter.

—M. Leger (translated).

Haddad, E. Contribution à l'étude de la Lèpre au Kasai (Congo Belge) d'apres 127 cas observés en pratique itinérante. (Contribution to the study of leprosy in Kasai (Belgian Congo) on the basis of 127 cases observed in travelling practice.) *Ann. Soc. Belge Méd. Trop.* **11** (1931) 311.

Besides some clinical remarks the author furnishes a certain amount of epidemiological information. He thinks that the number of lepers in this region must be over 10 per cent, having personally observed more than 5 per cent. Some details on the different ways of infection are given: 6 per cent of the cases might be of conjugal origin, 36 per cent by household infection from living with lepers, 58 per cent through living in endemic areas. Among 208 people who lived with lepers for more than one year, 47 of them (22.5 per cent) were found to have leprosy. Some details are also given on the birth-rate among lepers.

—A. Dubois.

Vanderbranden, F. Premier cas de lèpre diagnostiqué au Congo Belge chez un European. (First case of leprosy in a European diagnosed in the Belgian Congo.) *Ann. Soc. Belge Méd. Trop.* **11** (1931) No. 1.

The author reports a case of cutaneous leprosy, bacteriologically controlled. The patient was a Portuguese residing in Belgian Congo. The source of infection was not established.

—A. Dubois.

Adant, M. La réaction de Botelho dans la Lèpre. Technique d'Ichikawa et Baum. (The Bothelho reaction in leprosy. Technic of Ichikawa and Baum.) *Compt. Rend. Soc. Biol.* **107** (1931) 907.

Adant, M. La réaction de Rubino dans la Lèpre. (The reaction of Rubino in leprosy.) *Compt. Rend. Soc. Biol.* **107** (1931) 909.

Adant, M. La cuti-réaction à la Tuberculine chez les Lépreux. (The tuberculin reaction in leprosy. *Compt. Rend. Soc. Biol.* **108** (1931) 447.

Adant, M. Au sujet de la réaction de Rubino. (Rubino's reaction.) *Compt. Rend. Soc. Biol.* **110** (1932) 119.

[The matter of the above four articles is included in the abstract of the more general communication which appeared in the *Ann. Soc. Belge Méd. Trop.* **12** (1932) 259.]

ADANT, M. Quelques recherches sur la Lèpre. (Some researches on leprosy.) *Ann. Soc. Belge Méd. Trop.* 12 (1932) No. 4.

The studies here reported were made in the little leprosy hospital of Lueno, at Elisabethville, Katanga, Belgian Congo, and in the laboratory of Elisabethville. The author tried, without success, to grow the bacillus of Hansen on the media of Sonnenschein and on that of Löwenstein. No growth was obtained either on these media unmodified, or on them after the addition of a dead culture of the B.C.G. tubercle bacillus. Inoculations into monkeys (2 *Cynocephalus* and 2 *Cercopithecus*) remained negative. The same negative result was obtained with splenectomized animals.

Sero-reaction methods were also studied. The Itchikawa and Baum modification of the Botelho reaction was positive in 10 out of 14 patients (71.4 per cent), and negative in 138 non-lepers.

Matefy's reaction (flocculation of serum by 0.5 per cent aluminum sulphate) gave 14 positive results in 15 lepers, but also 27 positive out of 65 persons who were clinically neither leprous nor tuberculous.

In the author's opinion the reaction of Rubino (the last modification) seems very useful. The absorption of the heteroagglutinins of the serum by fresh red corpuscules of sheep permits the maintenance of the substances which are due to leprosy and which cause the sedimentation of the formalinised corpuscules. In these conditions the reaction becomes quite specific and presents a useful aid in diagnosis.

Allergy in lepers was also studied with tuberculin and lepromin. With regard to tuberculin the author obtained nearly the same results as in non-lepers from the same neighborhood. Concerning lepromin, the tests gave negative results in all the cases submitted to Bargehr's technique, whether on lepers, parents of lepers, or any other natives. —A. DUBOIS.

DE SOUZA-ARAUJO, H. C. Le traitement moderne de la Lèpre dans les principaux centres de Leprologie. (Modern treatment of leprosy in the principal centres of leprology.) *Bruxelles-Méd.* 11 (1931) 630.

A lecture based on observations of the treatments practiced in the most important leprosy hospitals of the world. The author gives a brief summary of his basic treatment which includes the use of tablets of chaulmoogra soap; injections of chaulmoogra ethyl esters, or alepol, or antilebbrina (a mixture devised by Prof. Rivalta of Milan consisting of ethyl esters 75 per cent, cod liver oil lipoids 25 per cent, and an anesthetic); galvano-cauterization of local lesions; occasional painting of them with trichloracetic acid; and various adjunctive treatments as with tonics or laxatives, and the treatment of concomittant disease. The author insists on the importance of local applications.

—A. DUBOIS.

BERNARD, R. Sur la Lèpre au Bresil et en Argentine. (Leprosy in Brazil and Argentine.) *Bruxelles-Méd.* 11 (1931) Nos. 45 and 46.

A review of the anti-leprosy campaign in these countries. —A. DUBOIS.

MARRAS, A. [The Matefy reaction in leprosy.][1] *Rev. Sud America* (1926).

The author has applied in 20 cases of leprosy, of which 7 were cases of the nodular variety, 6 were mixed, 4 were anesthetic, and 3 were initial leprosy, the agglutination reaction of Matefy, proposed and advocated as a useful laboratory reaction for the diagnosis and prognosis of tubercular forms. The results were positive in all cases, even in the initial forms in which there was a slight clinical symptomatology, whereas they were constantly negative in several other dermatosis examined at the same time, and positive again in sera of individuals having active tubercular forms.

For this reason the author, who explains the agglutination as due to a great quantity of small particles in the serum because of disequilibrium between the quantities of albumins and small particles caused by the alteration of the affected tissue, holds that this reaction should be a part of serological reactions proposed for the diagnosis of leprosy, especially because the intensity of the positiveness of the reaction has been superior in the more serious and rapidly advancing cases (tubercular leprosy).

That would give an importance to the reaction from the point of view of diagnosis and prognosis, as it has been the case with tuberculosis, an infection which has many points of similarity with leprosy, as for example the etiological agent and the alterations in pathological anatomy, etc. —N. A. SERRA.

MARRAS, A. [The miostagmin reaction, stalogmometric and precipitating, in leprosy.][1] *Biochim. at Terap. Exper.* 15 (1928) 264.

The author, after a few brief bibliographical notes, tells of the application of the miostagmin reaction in its two varieties, the stalagmometric and the precipitating, in 33 cases of leprosy of which 5 were tuberous leprosy, 14 mixed leprosy, 11 anesthetic leprosy and 3 initial leprosy. In the stalagmometric variety the author mixed the serum together with the synthetic antigen (acid ricinolic) and leprous antigen prepared from young leprous nodes abundant with bacillus of Hansen. In the precipitating variety he used only the synthetic antigen.

The technique followed in the first variety is that usually followed in stalagmometric tests, namely, dilution of 1 cubic centimeter of clear serum to which was added 0.1 cubic centimeter of antigen titrated with 9 cubic centimeters of physiological solution. After keeping the test tube in a water bath at 50 degrees for an hour, and then at room temperature for two hours, he made the reading with the stalagmometer of Traube. This test was controlled with serum diluted with a physiological solution without antigen. Positivity is indicated by the increased number of drops found in the serum with antigen, as compared with the serum alone.

In the precipitating variety to 0.2 cubic centimeters of clear and fresh serum he added 1 cubic centimeter of antigen made up by an emulsion obtained by diluting one part of mother liquor (acid ricinolic, ethyl alcohol) with 9 parts of absolute methyl alcohol. The reading was made after keeping the test-tubes for 24-36 hours at 37° C. The positive serum contained more or less fine particles in suspension in a clear liquid.

[1] Translated from the French by Miguel B. Zialcita.

The results can be summarized as follows. Of 69 reactions with the stalagmometric test, 6 per cent were positive with leprous antigen and 72 per cent with synthetic antigen. Of 81, with the precipitating test, 8 per cent were positive. Such positivity has been more marked in tuberous leprosy, in which the reaction has been positive in all the cases examined. Of 64 tests in mixed leprosy, 2 per cent were positive with the stalagmometric variety and 100 per cent with the precipitating variety. Of 63 tests in anesthetic leprosy with the stalagmometric test, 6 per cent were positive, and of 54 with the precipitating 15 per cent were positive.

This reaction having shown itself more sensitive than the others used in leprosy, having given constant positive results in the serious cases studied, having revealed the leprous infection even in the cases of initial leprosy in which the clinical symptomatology was reduced to achromatic and hyperchromatic spots with hyperplasia of the lymph nodes, the author believes it should be used as a complement in the diagnosis of declared, or latent or initial leprosy.

—N. A. SERRA.

MARRAS, A. [On the toxicity of leprous urine.] [1] *Jour. Italien de Derm. et Syph.* (1928).

In testing for the degree of toxicity of the urine of 14 lepers, of which 2 were affected with nodular leprosy, 5 with mixed, 6 with anesthetic, and 1 with initial leprosy, urotoxical values were obtained lower than those reported by other authors who have studied the toxicity of normal urine. The urine toxicity has not only been compared with regard to the clinical variety of the disease but also with respect to treatment (antileprol, sodium chaulmoograte, Serra vaccine or only with local, physical treatment), and with the different stages of the infection (progressive period, remission period). The conclusion reached is that the leprous urine is less toxic than the normal urine.

In explanation of this low degree of toxicity in the leprous urine the author disagrees with the conclusions of Campana and Cortona who hold that there is no special toxin for leprosy, and with those of Calderone and Chateriere who explain the minimum degree of toxicity to the slow material change in lepers. They affirm that it must be accepted that the bacillus of Hansen has a particular toxic principle, of which there are clinical evidences (erythema), and anatomopathological signs even in the kidneys, but they hold that this toxic principle, precisely on account of the frequent localizations with productive and degenerative changes, even of the renal filter with alterations of its function, chooses other channels of elimination. Such channels are looked for in the cutaneous changes (erythema, ulceration, phlyctena, numbness), and in the intestines, seat of predelection of leprous localizations. Aside from these channels of elimination, which would explain sufficiently the hypotoxicity of the leprous urine, they hold that because of the slowness of production of toxic substances due to the chronicity of the leprous infections, the organism has time to neutralize these toxic principles as they are formed.

[1] Translated from the French by Miguel B. Zialcita.

On the other hand, they do not exclude the possibility that a factor of importance in the determination of hypotoxicity may be an alteration of the vegetative nervous system, which controls in large part, directly and indirectly, the organic metabolism. —N. A. Serra.

Marras, A. [Cholesteremic oscillations in the blood of lepers.][1] *Arch. de Biol.* (Reference?)

While studying the cholesterin content in the blood of 26 lepers, before and after specific treatment (antileprol-chaulmoograte, Serra vaccine) the author has drawn coefficients which have given rise to considerations of some importance.

He repeats the idea that this substance has an eminently antitoxic property, which is inferred from the preponderance of hypocholesteremia, especially in cases of nodular and mixed leprosy, above all in those with predominance of nodular clinical manifestations. Furthermore, the degree of hypocholesteremia is proportionate to the seriousness of the infection and the state of activity and evolution of the disease, while on the contrary the values are higher in quiescent stages of the disease, when the defensive powers are high. These facts are, moreover, confirmed by the recovery of the values following antileprosy treatment, especially if it diminshes the seriousness of the process and thus improves the general condition.

However, the author has observed a constant and unchanged cholesterin value in three cases of leprosy which resulted in death. From that the author concludes that the behavior of the free coefficient of the blood is a prognostic indication because, especially if it is repeated several times during the treatment and in different periods of the infection, it indicates the progress and the seriousness of the affection, the degree of organic resistance of the patient, besides revealing the efficacy of the curative power of treatment given. —N. A. Serra.

Marras, A. [Behavior of the enzyme reaction in leprosy.][1] *Arch. de Biol.* (Reference?)

The author discusses the fundamental principle of this reaction, which according to the originator (Sivori) would reveal the greatest or least quantity of immune substances elaborated by the organism in defense against a morbid agent. These are demonstrated by treating the serum of patients with a specific antigen in the presence of ninhydin. The author reports the results obtained with this reaction in 29 cases of leprosy of which 5 were tuberous, 12 mixed, 10 anesthetic, and 2 initial.

The results, in summary, were: Constantly positive in the nodular cases; positive in six mixed cases in which the prevailing clinical manifestations were nodular, and partial in the other six; in the anesthetic cases positive in one, partial in eight, and negative in one; positive in one and partial in the other case of initial leprosy.

The number of positive results obtained with this reaction is proportional to the seriousness of the clinical varieties, and is inversely proportional to the duration of the infection itself. These conclusions are in keeping with the prin-

[1] Translated from the French by Miguel B. Zialcita.

ciple of the reaction, and show its practical importance. Since it is more sensitive in the initial or acute forms, it is of great help for the early diagnosis of the leprous infection, and in connection with its treatment. —N. A. SERRA.

MUIR, E. How leprosy is spread in the Indian village. *Lep. in India* 4 (1932) 63.

The spread of leprosy in an Indian village is discussed. The author describes a visit to a typical village showing a leprosy incidence of about 3 per cent. He tells how infectious patients of lower castes were found milking the cows of the higher castes; the village barber, himself a neural case, shaved a highly infectious Brahmin and shortly afterwards, with no cleansing of his instruments, shaved healthy people. Here there seemed to be no fear of leprosy. The author discusses the difficult problem of control of leprosy under such conditions and considers that such work might form a part of general public health work.

—J. LOWE.

ROY, T. N. Vocational leprosy distributors. *Lep. in India* 4 No. 3 (1932) 13.

The author discusses the vocations of leprosy patients in Calcutta. Infectious cases were following such occupations as house servant, washerman, grocer, tailor, cook, and even a maid servant in a doctor's house. —J. LOWE.

MUIR, E. A method of recording the lesions of leprosy. *Lep. in India* 4 No. 3 (1932) 20.

A method is described of dividing the body surface to permit indicating or recording with comparative precision the sites of lesions, injections, etc. The body area is divided into 100 parts, each of which is indicated by a symbol consisting of three or four letters and a figure. In recording lesions the author uses, together with these symbols, various abbreviations to indicate the clinical changes in the lesions. —J. LOWE.

MUIR, E. The intradermal method of injecting hydnocarpus preparations in leprosy. *Indian Med. Gaz.* 67 (1932) 121.

The author gives a general discussion of the principles underlying this method of treatment. He considers that the factors tending to cause improvement possibly may be (1) local irritation of the lesions, (2) a special action of the drug on *M. leprae* at the site of the injection, (3) a possible liberation in the body of antigens to *M. leprae* as the result of the local irritation and breaking down of lepromata, and (4) the general effect produced by injecting into the body any irritant substance. He regards the second and third factors as "somewhat hypothetical."

He discusses the difficulty of controlled experiments on a large scale in leprosy treatment, but thinks that treatment by intradermal injection offers an opportunity for controlled experiment in individual patients. A patient with marked symmetrical lesions is chosen. The lesions on one side of the body are infiltrated with hydnocarpus esters, and the lesions on the other side are infiltrated with the drug to be tested, this being made up in such form that the local irritant effect in the two sides is about the same. If the improvement is more marked on one side than on the other side, then this indicates that there is a property possessed by the first drug which is not possessed to the same degree by the second. The author describes one such experiment, hydnocarpus esters being

tried against a solution of sodium hydnocarpate with equally irritating properties. The esters were found to produce much more improvement than the sodium salt.

The author finds that slow absorption of a drug given intradermally is an asset rather than a disadvantage, as the beneficial action is more prolonged. He finds that pure hydnocarpus oil, if heated to about 48°C. in a simple apparatus, can be given by intradermal injection, and proposes comparative tests of these preparations and the esters.

The technique of intradermal injections is carefully described. —J. LOWE.

MUIR, E. Potassium iodide in the treatment of leprosy and in confirming its arrest. *Lep. in India* 4 (1932) 76.

In certain picked cases of cutaneous leprosy with a low sedimentation index, the oral administration of potassium iodide, in doses working up to 240 grains once a week, may be of distinct value; but the author considers that it should never be given without controlling its administration by the sedimentation test. The sedimentation index should never be above 15 to begin with, and the dosage of the drug should be regulated so that there is only a temporary rise of not more than 5 points. The induction of lepra reaction by potassium iodide is dangerous and should be avoided. —J. LOWE.

MUIR, E., and CHATTERJI, S. P. The use of mercurochrome soluble 220 in leprosy. *Lep. in India* 4 (1932) 4.

The use of mercurochrome-soluble 220 is discussed. The author finds that it can be given safely in nearly all cases of leprosy in doses ranging from 3 to 10 cubic centimeters of a 1 per cent solution intravenously; that it has a marked effect in clearing up septic conditions which frequently complicate and aggravate leprosy; that it has a marked action in controlling lepra reaction; and that it causes liquefaction-abscess formation, evacuation and healing in cutaneous lesions. He finds that it can be given intradermally with benefit, the dosage for this purpose being 1 to 3 cubic centimeters of a 3 per cent solution. —J. LOWE.

RAO, G. R. and ROY, A. T. "Mercurochrome-220 soluble" in leprosy work. *Indian Med. Gaz.* 67 (1932) 124.

These workers report the use of this preparation in twelve cases of leprosy complicated by sepsis (acute or chronic), neuritis and vague pains, and *B. coli* infection. The usually recommended dose of 0.5 milligram per kilogram of body weight was found to be too great, causing a marked febrile response and sometimes mercurialism. They therefore adopted a dose of 0.375 milligram per kilogram of body weight and found that this dosage gave the same results as the larger dosage. A 1 per cent solution of the drug in distilled water was given intravenously. They report a marked action of mercurochrome in clearing up septic infections anywhere in the body and in alleviating obscure, painful, and febrile conditions. It had a marked effect in *B. coli* infections. —J. LOWE.

DIKSHIT, B. B. Pharmacology of salts of the fatty acids of chaulmoogra oil. Part 1., "Alepol." *Indian Jour. Med. Res.* 19 (1931) 775.

This article is based on animal experiments and bacteriological investigation. The main conclusions are as follows: (1) In 1 in 200,000 dilution "alepol" in-

hibits the growth of the tubercle bacillus. (2) In 5 per cent solution it has a marked irritant effect on the tissues. If dissolved in Locke's solution, this irritation is diminished. (3) Large doses depress the cardiovascular system and stimulate the respiratory system. (4) Oral administration causes gastrointestinal irritation. —J. LOWE.

RAO, G. R. Studies on serum proteins in leprosy, with special reference to hydnocarpus treatment. *Indian Jour. Med. Res.* **19** (1932) 993.

This paper reports an investigation into the serum proteins in leprosy by the use of three tests in 252 cases of leprosy and 56 controls. These tests were: (1) The estimation of the albumen and globulin content of the blood, (2) the sedimentation test, and (3) the formaldehyde test. Briefly, the findings were:

1. In all types of leprosy the serum albumen is below normal. The diminution is mostly marked in neural cases and less marked in the cutaneous.

2. In leprosy of all types serum globulin is increased, the increase being less marked in neural cases and more marked in the cutaneous.

3. Injections of the hydnocarpus preparations caused a rise in the globulin content which lasted for two days after which it fell, the decrease being less marked in the neural cases and more marked in the cutaneous in whom it fell to below the level of the untreated control cases. After several more days with no further injections, the globulin content rose markedly and remained high until the reaction subsided.

4. The sedimentation index was lowest in healthy controls, higher in neural cases, and highest in the cutaneous.

5. The formaldehyde test performed by Napier's technique gave no positive results, a few doubtful results, and mostly negative results. In the few doubtful cases the author considers that there may be a Leishmania infection.

—J. LOWE.

MUIR, E., and CHATTERJI, S. N. The infection of stratified epithelium in leprosy. *Indian Jour. Med. Res.* **19** (1932) 1163.

The authors describe and illustrate a patient with a slight anesthetic patch on the foot as the only obvious sign of leprosy, but in whom skin examination in various parts of the body showed slight infiltration and numerous acid-fast bacilli. Sections of skin showed large round clumps of acid-fast bacilli in the Malpighian layer of the epithelium, flattened clumps present between the superficial squamous epithelial cells, and also bacilli in the loosened squamous epithelium of the surface. *Mycobacterium leprae* were thus being constantly shed from the unbroken epithelium of skin in which there was practically no visible lesion. Scrapings from other patients with skin lesions and unbroken epithelium have given positive findings in some cases. —J. LOWE.

COWAN, T. A. The Wassermann reaction in leprosy. *Malayan Med. Jour.* **7** (1932) 46.

The author gives a comparison of the Wassermann reactions (Kolmer method) of 593 classified lepers with those 444 non-leper prisoners, and concludes that in advanced leprosy there is a definite tendency for a falsely positive type of reaction to occur. —G. A. RYRIE.

STRACHAN, P. D. Chaulmoogra oils in the treatment of leprosy. *South African Med. Jour.* 7 (1933), 210.

The author has analysed the treatment histories of the patients who were in the Botsabelo Leper Asylum (at Maseru, Basutoland, South Africa) during the decade 1921-1930. Of the 1436 patients considered, the majority were very advanced, a condition more recently remedied by the appointment of six trained native travelling inspectors. About 900 patients had submitted to more or less treatment.

In this analysis special attention was given to N-1 and N-2 cases because it was expected, on grounds of general observation there and claims from elsewhere, that treatment of these groups would show good results if they could be gotten in any group. All cutaneous and mixed cases were grouped together because it was to be expected that the results of treatment would be poor. N-3 cases were excluded, as they would have unduly weighed favorable findings without treatment.

Treatment is classified as: (1) *nil* or *trivial* if less than 10 injections were taken; (2) *inadequate* if more than 10 but less than 20 in any six months period; and (3) *adequate* if 20 or more, provided 20 were taken in a six months period. This standard is admittedly low. Nevertheless, the total number of arrests were 375, or 26 per cent of the 1436 patients.

Of the whole, 826 patients (57.5 per cent) were classified as of C type and "mixed." The arrests among the 461 of these who received treatment were 61, or 13.2 per cent, while among the 365 who received practically no treatment only 14, or 3.8 per cent became arrested. A positive association between treatment and arrest is seen, but the result is considered poor. Among the 168 least advanced (C-1) cases that received treatment the percentage of arrests was higher, 21.4.

The N-1 and N-2 cases totalled 520. The results in these, analyzed by treatment classes, were:

1. *Trivial*— Patients, 112, arrests 59, or 52.7 per cent
2. *Inadequate*—Patients, 307, arrests 128, or 41.7 per cent
3. *Adequate*— Patients, 101, arrests 49, or 48.5 per cent

Total— Patients, 520, arrests 236, or 45.4 per cent

Over 50 per cent of the group of N-1 and N-2 cases that received practically no special treatment became arrested, after coming into a favorable environment and receiving treatment for their predisposing and intercurrent diseases. The results in the treated group were no better.

Owing to the inadequacy of the treatment taken by most of the patients a definite opinion for or against the treatment cannot be reached. However, the facts indicated by the data, together with the slowness and uncertainty of results in the less suitable cases, have made the treatment very unpopular among the patients. This loss of faith on their part is a serious drawback.

(AUTHOR'S ABSTRACT).

DE WILDERMAN, E. Plantes contre la lèpre. *Cynometra* sp. [Plants effective against leprosy]. *Ann. Soc. Belge Méd. Trop.* **12** (1932) No. 2, Oct.

The author calls attention to a communication of Dr. Baulnois, of the French colonial troops, which describes the anti-leprosy measures used by natives of the Ivory Coast, and cites three cases of cure obtained with the "leprosy tree." This is *Cynometra vogelii* Hook, of the family *Leguminaceae,* of which some members have been found in the Belgian Congo. The medicament is an infusion of the bark, used internally or externally, or a powder of the bark applied to ulcers, as of the nose.

The author cites different varieties of this plant that are used against other affections, and concludes that it would be useful to make chemical and pharmacological studies of all the *Cynometra,* at least of their barks and their seeds. (From an abstract by J. Br., in *Jour. de Pharm. Bruxelles* [1933] No. 2).

DE SOUZA-ARAUJO, H. C. Ensayo de cultiva del "Mycobacterium leprae" (Coccothrix leprae Lutz, 1886), par el methodo de Sumiyoshi-Shiga. *Rev. Argentina Dermatosif.* **16** (1932) 335.

DE SOUZA-ARAUJO, H. C. Essais de culture du Mycobacterium leprae (Coccothrix leprae, Lutz, 1886) par la méthode de Sumiyoshi-Shiga. *Compt. Rend. Soc. Biol.* **111** (1932) 331.

The first of these articles, which gives details of the unsuccessful efforts to cultivate the leprosy bacillus by the method used by Shigo, is in Spanish but is followed by a brief resumé in French which is essentially the same as the second article referred to and is almost identical with the article by the same title which appeared in the first issue of the JOURNAL. —H. W. W.

ARAUJO, H. C. DE SOUZA. Resultados practicos de conferencia internacional de leprologia de Manila. *Rev. Med. Cir. de Brazil* **40** (1932) No. 1.

This article is essentially a review, in many places practically a direct translation, of the Report of the Leonard Wood Memorial Conference on Leprosy, which was published in the *Philippine Journal of Science* 44 (1931) 449-480. However, there are numerous and sundry comments and explanatory remarks by the writer, some of them of critical nature. There is also included a brief summary of the findings of the Bangkok meeting of the leprosy commission of the League of Nations, (Publication C. H., 970, League of Nations, Geneva, 1931). —H. W. W.

HALL, F. The Leper Hospital, Makogai. Government Printer, Suva, Fiji. (1927) 32 pages, illustrated.

This is an attractive booklet originally written by the man who served as Medical Superintendent from 1911 to 1920, and revised and brought up to date (1926) by his successor, Dr. E. A. Neff. It includes brief descriptions of Makogai Island and the leprosy institution, certain historical and administrative information, and in all is a statement of considerable interest to those concerned with such institutions. —H. W. W.

HEIMBURGER, LE ROY F. Tsinan Leper Hospital. 1926-1932 Report of the Medical Director. The University Press, Tsinan, Shantung, China, 1932.

This is a concise description of the institution and the work done therein. The hospital, opened in 1926, is located on a 3½-acre plot near the Cheeloo

(Shantung Christian) University and has a capacity of 50 patients. The buildings, which are of brick, are described briefly, as are the accommodations, organization and services of the institution.

The patients come from the out-patient department of the University Hospital and are treated by the hospital staff. Those who are hospitalized are bacteriologically positive, but on the whole are in the earlier stages of the disease and are selected as apparently suitable for effective treatment. A total of 169 patients have been treated since 1926, at an average monthly cost of $15.50 (Chinese currency). Of these 117 have been discharged, 60 of them (35.5 per cent of the whole) "parolled" after being clinically and bacteriologically free from signs of active disease for six months, the others at their own request or because of non-progress under treatment or other reasons.

Chaulmoogra ethyl esters (unmodified) were first used, but because of painful local effects and general febrile reactions *Hydnocarpus wightiana* oil with 4 per cent creosote has been used more recently, with less disturbance and fairly good therapeutic results. Injections are given weekly. Supplementary treatment with gold preparations given intravenously has apparently given better results, and no untoward reactions. The period of hospitalization of those parolled after this combination treatment was comparatively short. No selection of cases was made except that preference was given those having reactions following the routine treatment. Note is made of the "general good feeling of the patients following an injection of the gold as compared with the inertia, malaise and general discomfort after the routine oil injections." Mercurochrome intravenously was tried on a few cases, with apparently favorable effect.

An analysis is also made of the out-patient work done among the patients not admitted to the hospital. Four hundred fifty-two patients were registered, 3 per cent of all the new cases in the dermatological clinic. Of these only 23 (5.7 per cent) were females. The youngest was 11 years, with symptoms for 6 years, the oldest 69, with symptoms for 2 years, the average age being 29.4 years. The neural type predominates greatly in this part of China, the proportions among those recorded being 81.7 per cent neural, 8.5 per cent cutaneous, and 9.8 per cent mixed—C-1, N-1, etc. (Leonard Wood Memorial Conference classification). The most common cutaneous lesions seen are made maculo-papular plaques with a raised scaly border surrounding an atrophic center. Comparatively few can avail themselves of the out-patient treatment offered. Only 24 were receiving it with any regularity at the time of writing.

Data are given on the results of serological tests. Positive Wassermann reactions are considered not abnormally high among these patients. The following table is given:

TABLE 1.—*Serological tests for syphilis*

Source	Test	Strongly positive		Weakly positive		Negative		Total number of tests
		No.	Per cent	No.	Per cent	No.	Per cent	
Cases of Leprosy ...	W. R.	18	8.7	61	29.4	128	61.9	207
University Hospital .	W. R.	1176	15.1	193	2.5	6394	82.4	7763
Cases of Leprosy ...	Kahn	8	16.3	2	4.0	39	79.7	49

Strongly positive Wassermann among the lepers are much less common than among the general ward cases. The weakly positive Wassermann reactions are not considered indicative of syphilitic infection without other evidence. Among the small number of lepers tested since 1930, the Kahn test has given about the same percentage of strong reactions as did the Wassermann among the ward patients, and much fewer doubtful reactions than did the Wassermann among the entire group of lepers tested. —H. W. W.

(BRITISH EMPIRE LEPROSY RELIEF ASSOCIATION.) The Empire's Open Sore. Annual Report for 1931, London.

The increased interest in leprosy in recent years has resulted in discoveries of unsuspectedly large numbers of cases in various countries, and the former estimates of the world lepers at two to three million are inadequate. Surveys have revealed two to three early cases for every advanced one, so that the total must now be placed at between five and ten millions, according to L. Rogers. Of these the British Empire may contain from 1,250,000 to 2,500,000. Fortunately, "practically all modern authorities agree that the day for rigid compulsory segregation has gone," with great reduction in the cost of antileprosy schemes. Although there has been no very recent outstanding discovery in treatment, the modern methods will in the course of time bring the early cases to a state of health and the late infective cases to a state of noninfectivity.

Funds are still urgently required to place more leprosy officers in British African colonies for treatment and research work. Three courses of training in the Calcutta School of Tropical medicine were attended in 1931 by 104 doctors, mostly sent by provincial authorities, and 23 more were taught at Dichpali, Deccan. Many of them have opened dispensaries in which several scores of thousands of lepers are now being treated at a very small cost, as compared with segregation. In the Almora and Kangra areas in the Himalayas a survey showed 304 out of 652 villages to be infected, and 48 doctors were trained for follow-up work. A grant by the Association of £500 to British Guiana provided for surveys and the establishment of treatment centres, and the after-care of discharged patients has been arranged as is done in tuberculosis. In South-west Uganda a new island colony has been opened in Lake Bunyoni. In Tanganyika a new treatment centre has been completed at Kilimaninde, and grants from the Association have been made for the work at Shinyanga and Peramiho, resulting in an increase of capacity from 303 to 782 at the latter place. In Southern Rhodesia two government institutions provide for 613 lepers. On the other hand, the whole-time leprosy workers of Nigeria and the Gold Coast have been abolished owing to government economics, but the good work started by them is being continued. During 1931 close to 550,000 doses of hydnocarpus preparations were distributed by the Association at the cost of £900, and £2,430 was given in grants. The report concludes with a description of the work in an Indian out-patient centre financed by the Association. Illustrations of settlements and cases under treatment are included. —L. ROGERS.