CURRENT LITERATURE

One of the most important objectives of the JOURNAL *is to take due notice, in this department, of all of the current literature of 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 group of Contributing Editors is 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. Abstracts copied from other publications will be duly credited.

HENDERSON, J. M. Preliminary observations on an acid-fast organism isolated from human leprous lesions. *Indian Jour. Med. Res.* 19 (1931) 145.

The author describes an attempt made by Muir to cultivate the leprosy organism by a slight modification of Shiga's method, the material being taken from a human nodule. Of many tubes inoculated only one showed a growth of acid-fast bacilli, and that only after eight months' incubation. Once started, growth occurred rapidly in subculture and on many media. Various cultural and staining experiments are described. Attempts to demonstrate the presence in cases of leprosy and in filtered cultures of bacterial antibodies to the cultured organism gave negative results. The author concludes that the relationship of the cultured organism to *M. leprae* (Hansen) is at the moment completely undetermined. —J. LOWE.

LOWE, J., and E. B. CHRISTIAN. Bacteriological examination in leprosy. A study of the comparative efficiency of the methods in common use. *Indian Jour. Med. Res.* 19 (1932) 867.

The authors describe an experiment based on the examination of one hundred sixty patients by various methods; (a) nasal examination by smear, (b) nasal examination by scraping, (e) skin examination by the slit method, and (d) skin examination by the clip method. They conclude (a) that nasal examination gives positive results in only a small percentage of cases, and in all these cases bacilli were also found in the skin; (b) that the scraping method in the nose gives more positives than the simple smear; (*c*) that skin examination gives twice as many positive results as nasal examination; (*d*) that the clip method is slightly more efficient than the slit method in the skin; (*e*) that the lobe of the ear is usually the best site at which to make the examination; and (*f*) that positive findings are sometimes made in skin that appears normal.

—J. LOWE.

ROY, A. Relapse of active signs in "burnt out" cases of leprosy. *Indian Med. Gaz.* 67 (1932) 12.

The writer quotes four cases declared "burnt out" who showed definitely active lesions after an operation. He thinks that reinfection cannot explain this. He concludes that they were genuine relapses and thinks that the term "arrested with deformity" adequately describes their condition before relapse.

—J. LOWE.

HENDERSON, J. M. A note on the formation of leprous nodules of the skin. *Indian Med. Gaz.* 66 (1931) 483.

The author considers that nodules are caused by bacillary embolism, and that the appearance of the nodules depends roughly on which of the three vascular zones is affected by the embolism, and on the structure of the skin affected. He points out that the arterial supply in the skin falls roughly into three parts: (1) the cutaneous arterial network in the deepest part of the corium, (2) the subpapillary network, (3) the terminal arterioles and capillaries in the papillæ. Embolism in the deep plexus causes the deep nodule, palpable but sometimes not visible. Embolism in the superficial vessels causes the projecting nodule. It is noted that nodules are commonest in those areas where, according to Wetzel and Zottermann, the diameter of the capillaries is greater; namely, in the ear lobes and in the cheeks.

The histology of the young nodule is described as (1) a focus of acid-fast bacilli in the endothelial cells lining the capillary at the site of embolism, (2) oedema of the surrounding skin elements, (3) acid-fast bacilli in dilated lymph spaces and in phagocytic cells (histiocytes). In the developed nodule multinucleated giant cells are found to be uncommon. In old nodules the granulation tissue of the nodule stains characteristically orange yellow with Levaditi stain, in marked contrast to the surrounding skin. Nodules tending to subside show large numbers of cells containing acid-fast granules. The author considers that these cells are simply proliferated, connective-tissue mast cells which normally show acid-fast granules; but he mentions the suggestion that these granules are of bacterial origin, similar to the Much granules of the tubercle bacillus.

Nodules in reaction are described as sometimes showing (1) fatty degeneration and breaking down of lepra cells, (2) polymorphonuclear leucocytic invasion, (3) diepedesis of red cells, (4) infiltration of the subepithelial layer of the corium, which is usually unaffected, and (5) liquefaction, breaking down of the overlying epithelium, and discharge of the contents.

This article is well illustrated by color plates. —J. LOWE.

DIKSHIT, B. B. ALEPOL in leprosy. *Indian Med. Gaz.* 67 (1932) 7.

This paper describes the treatment of 200 cases of leprosy with "Alepol" for an average period of only two and one-half months. The drug was given either intramuscularly as a 3 percent solution in distilled water, or intravenously dissolved in Locke's solution, 1 or 2 per cent. The dosage was from 1 to 5 cubic centimeters, regulated by the sedimentation test. The results are described as comparing favourably with those obtained by hydnocarpus oil. The Wassermann reaction is said to have been positive in 70 per cent of the cases.

—J. LOWE.

LEMAIRE and BARDENAT. Observation of a case of leprosy. *L'Algérie Medicale* No. 38 (1931) 72.[1]

The case is that of a man, 22 years of age, race not stated, originally from Tunis, from which place he was taken in infancy to reside in Algiers. At the age of 15 years he followed the callings of chair mender and shearer of dogs and horses, and lived in the vicinity of Algiers, where leprosy is of rare occurrence. His parents, who were dead, had never presented any signs of leprosy, and his three brothers and two sisters were all apparently uninfected. The patient does not remember having come in contact with a leper. The disease started about four years ago—nodular leprosy with typical leonine facies. No Hansen bacilli were found in the nasal mucosa or in the circulating blood, but were found in material obtained from a nodule. —EDM. SERGENT.

(ALGERIA) *Bull. San. Algeria* 26 (1931) No. 409, 349.[1]

Official statistics on contagious diseases for the year 1931, record the discovery of one case of leprosy in the interior of the Department of Algiers, one in the Military Division of Algiers, but none in the Department of Oran or Constantine. In Tunis there were 7 cases in 1931, but none in Morocco.

The figures recorded are certainly erroneous, at least for Morocco. They are given here with reservations, and only because they were published officially. —EDM. SERGENT.

LOUSTE, LEVY-FRANCKEL, and GADAUD. A case of erythromacular and atrophic leprosy of Moroccan origin. *Bull. Soc. French Derm. et Syph.* 38 (1931) 27.[1]

A case of mixed tubercular and neural leprosy in a Moroccan (originally from South Morocco), who had been in France for five months, presented about eighteen months after onset cutaneous lesions (tubercles on the face and the thorax, annular leprides on the limbs) and marked neural changes. The disease very suddenly presented anesthetic phenomena and phenomena of the hyperesthetic type, particularly a plantar keratodermia. The Bordet-Wassermann reaction was negative, as was also the Hecht. The presence of the Hansen bacillus could not be verified, either in the blood or in the nasal mucosa.

In a discussion of this paper Jausion claimed that he never succeeded in securing a positive Wassermann reaction in a non-syphilitic leper. He added that the serum from lepers is strongly anti-complementary, this being also the case with negroes. —EDM. SERGENT.

HOFFMANN, W. H. Gold treatment of leprosy. *Lep. Rev.* 2 (1931) 43.

The therapeutic value of gold preparations in various affections of the skin, and especially in tuberculosis, made it desirable to try their influence on leprous affections. Attention was turned to some of the organic compounds, as krysolgan, and others of still higher efficacy and diminished toxicity, as solganal, which is better adapted for intravenous and intramuscular injections.

[1] Translated from the French by Anna B. Banyea.

The value of such chemotherapeutic methods is indicated by the effects in acute affections of the eye, which are so painful and so often result ultimately in blindness. A number of such cases were treated with krysolgan intravenously, the preparation being easily soluble in water. There was prompt curative effect on the acute symptoms of the affected eye, producing an immediate relief of the pain and other irritative troubles. There was reduction of the specific leprotic process, which came to a standstill, the eye being saved from destruction.

From these results it is probable that gold treatment, perhaps in combination with chaulmoogra oil, will have some influence on generalized leprosy as well. Further studies on this problem should be made, to find out what forms of the drug will give the best results. Undoubtedly in leprosy we must not rely on one treatment alone, but should have as many therapeutic methods as possible.

(AUTHOR'S ABSTRACT)

SHIGA, K. Culture of leper bacilli and formation of colonies. *Jour. Chosen Med. Assoc.* 19 (1929) No. 3.

It was found that leprosy bacilli in the tissues degenerated if put in an ice box and were difficult to stain after a month, but that they may keep their normal shape and retain their staining characteristics if put on a medium. Many authors declare that the bacilli of leprosy are able to multiply to a certain degree on culture media.

The author's experiments, begun in November of 1928, were made with nodules of leprosy. They were treated according to the method of Sumiyoshi for making cultures of the tubercle bacillus from sputum. The nodules were ground in a 5 per cent solution of sulphuric acid, the emulsion was put in an incubator for twenty minutes, and was then centrifugated. The precipitate was put on the media. Various kinds of media were used, including konnjak (mannan, *Amorphiphallus connjac* C. Koch), kohritohfu (frozen, porous albumen of beans), potatoes, etc., and on certain occasions ascitic fluid, and albumen-free medium (for tuberculosis bacilli culture), to which egg yolk, etc., was added. In every case glycerine was an absolutely necessary ingredient of the medium. Among these media, success was first attained with potatoes. This medium was prepared as follows: Potato wedges were boiled thoroughly in glycerine bouillon and the reaction corrected. They were then put into test tubes that contained either glycerin bouillon, or ascitic fluid, or albumen-free medium. The surface of the potato was inoculated with the nodule emulsion and the tubes carefully incubated.

During the first month most of the bacilli degenerated and became less stainable, but after two months the surviving bacilli began to multiply little by little on this medium (second generation). In this way the third generation of the leper-bacilli culture was obtained. After a month on glycerine agar with ascitic fluid, and on albumen-free medium, gray-white colonies developed on the surface. On microscopic examination rather large heaps of leper bacilli were seen. The colonies were moist and tough, and look somewhat different from ordinary tuberculosis bacilli, resembling more that of poultry tuberculosis. In this way 5 strains of organisms were obtained, all from leper nodules.

—A. G. FLETCHER.

AUSTIN, C. J. Leprosy in children; a study of 100 cases in the Central Leper Hospital, Makogai, Fiji. *Ann. Med. and Health Report* for 1930, Fiji. [Reprinted in *Jour. Trop. Med. & Hyg.* 35 (1932) 113.]

Of 1,450 patients admitted to the leper hospital at Makogai, Fiji, in nineteen years, 105 were under the age of 15 years. The 72 of these still available have been studied. The ratio of children to adults has been increasing steadily from 2.72 in the first five years to 12.32 in the last five; this is regarded as a sign of increasing confidence in treatment. The sex distribution was nearly equal. The neural, cutaneous, and mixed types gave percentages of 54, 21, and 25, respectively. Among 54 patients with a history of the initial lesion, it was maculation or swelling of some part of the body surface in 45. Fourteen of the 105 cases have been provisionally discharged since 1918, after being bacteriologically negative for two years, but 2 relapsed and were readmitted; 13 of them were neural cases. Fourteen more neural and one mixed have been negative for at least six months. Pulmonary tuberculosis was the commonest cause of death, being responsible for 9 of 15 deaths. In spite of a tendency to hide them, 61 of the 105 cases gave a history of one or more leper relatives, and 4 of them had 6 to 19 infected relatives. Infection was most frequent among cousins, sisters, brothers, sons, and daughters. There were three probable instances of conjugal infection, both husband and wife being leprous. It was considered almost certain that the instances of familial leprosy studied represent a considerable understatement, and a cogent argument for frequent and thorough examinations of family contacts. A thorough survey of the Fiji group and other islands served by Makogai, as has been conducted in Cook Island, is needed, with special search for early nerve cases in children. A list of the contacts of all diagnosed cases should be kept and they should be examined frequently and thoroughly over a period of at least five years for incipient cases of the disease. —L. ROGERS.

CRUIKSHANK, C. Leprosy in Southern Bahr-el-Ghazal, Anglo-Egyptian Sudan. *Lep. Rev.* 3 (1932) 3.

This area is adjacent to the French and Belgian Congo frontiers and has high rainfall (65 inches), and leprosy rates. Regular annual inspections of the whole population of 121,000 for sleeping sickness allowed of a simultaneous search for leprosy. In 1929, of the 58,136 people of the Yambio District 1,556 (2.8 per cent) were found to have leprosy. Within eighteen months after preparing a leper settlement, 2,700 cases were admitted, housed, and treated. A second survey was then made, when cases were brought forward instead of being hidden, and the total reached 3,220, or 5.3 per cent of the population. Eighty-four per cent of these, including all the infectious cases, are now under segregation. The settlement area comprises 30 square miles, with 40 miles of roads, so that the inmates have plenty of land to cultivate and are nearly self supporting. Administration is carried on through leper chiefs who form the "Leper Chiefs' Court." Treatment is given weekly.

Alepol is administered intravenously up to a maximum of 10 cubic centimeters of a 5 per cent solution. This treatment can usually be continued for a year, with one month's rest after three months, without thrombosis occurring.

Intramuscular injections are more painful and lead the patients to avoid treatment.

In the Tambura District 3,300 cases of leprosy were found among 61,000 people, or 5.5 per cent, but the great majority were very early and mild cases. Thus in the two districts there are 6,500 cases, of whom 4,800 are segregated. The remaining uninfective cases are inspected regularly, and any that become infectious are isolated. Moreover, all highly infectious nodular cases are separated from their relatives and housed in a special camp. The Tambura district shows a high proportion of self-arresting, very mild, uninfective cases not requiring treatment. As yet there have been few spectacular "cures" of nodular cases, and it is only considered necessary to treat the infective ones. Much reliance is placed on improving the housing conditions and diet to raise the resisting powers of the patients. —L. ROGERS.

WAYSON, N. E. Leprosy in Hawaii. *Lep. Rev.* 3 (1932) 9.

Segregation of infectious lepers has been compulsory in Hawaii since 1865. Suspected cases are examined by a board of three physicians, unless the patient accepts the opinion of one official physician of the Receiving Station. At this station the cases are under observation and treatment for an average of twenty months before those not amenable to treatment are sent to the leper settlement which is located on an isolated peninsula of Molokai Island. In 1895 the lepers numbered 2.5 per cent of the population of 40,000, but they have fallen slowly to about 1 per cent. These are mostly native Hawaiians, but there is an increasing number of Filipinos, owing to their immigration in large numbers. Nearly 70 per cent are skin cases. Between 20 and 30 per cent of the patients admitted in the last ten years, mostly of the neural type, have recovered sufficiently to permit of their release under supervision, but many have relapsed. —L. ROGERS.

COCHRANE, R. G. Leprosy in the Rhodesias. *Lep. Rev.* 3 (1932) 25.

Leprosy is not so prevalent in the Rhodesias as in Tropical Africa, but it is widespread, although in the absence of surveys the number of cases is not known. Under the Leprosy Repression Ordinance authority for compulsory segregation is available, but it is used sparingly. In Southern Rhodesia there is a well organized Government settlement at Ngomaharu for some 400 patients, mostly advanced ones, which might well be developed into a central training station for the colony. Some 260 more lepers are cared for at Mtoko, in the northeastern part of the country. This station is run on voluntary lines and contains a much larger proportion of early cases than does the Ngomahuru settlement to which many of the cases are admitted under the compulsory system. A Swedish Missionary settlement also has 70 cases. The author considers that the requirements to meet the present situation are surveys, with treatment for early cases, and the training of medical officers to deal with patients in local dispensaries. The compulsory powers should be retained but used sparingly. Northern Rhodesia has 1 per cent of lepers in parts. Surveys and the provision of facilities for treatment are urgently required. —L. ROGERS.

ROBERTSON, R. L. Garkida Agricultural-Industrial leprosy colony. *Lep. Rev.* 3 (1932) 50.

This institution is situated in northeastern Nigeria and was opened in September, 1929, with 300 acres of land. One hundred fourteen lepers are being treated regularly. In 11 per cent the disease has been arrested or almost arrested, 65 per cent are definitely improved, and 26 per cent are unchanged or have become worse. This is considered satisfactory for a start. Careful histories showed that 64 per cent of the patients have relatives who are affected, a long period of close contact preceding the appearance of the disease. Alepol is chiefly used, as ethyl esters cause more pain. The doses should be increased slowly to avoid injurious reactions. Trichloracetic acid is applied at intervals. Injections by the infiltration or plancha method are given those with a few, well defined skin lesions. Good results were obtained in eye cases with three to six injections of 1-20 grain doses of gold chloride at ten-day intervals. A well-balanced diet and treatment of complicating diseases are essential to success.

The author thinks the incidence of leprosy in parts of the area where he worked is as high as 5 per mille. School children are often found to be affected. Advanced and maimed cases are now kept apart from the early ones with great advantage. The suggestion is made that the double advantage of economy and provision of beneficial work for the unmaimed lepers can be obtained by combining agricultural experimental stations with leper colonies. In this one all the lepers work the whole morning, and education and treatment are carried on in the afternoons. Admission is entirely voluntary and no coercion is required. Permanent camps, a long-time program, educational propaganda, and continuous treatment for three or four years is needed for a proper antileprosy effect. —L. ROGERS.

FLETCHER, A. G. Country clinics or dispensaries for treatment of leprosy cases. *Lep. Rev.* 3 (1932) 58.

This is a very interesting account of an attempt to treat all the lepers in out-patient dispensaries in the North Kyong-sang Province (Keisho-do) of Korea, in which there are about 2,000 cases among a population of 2,000,000. At the capital town of Taiku there is a leprosy hospital which accommodates 410 of the more advanced contagious cases.

For the treatment of the early cases a chain of ten village dispensaries was planned. The cost of establishing these was estimated at 5,000 dollars, with an annual operating cost of 3,500 dollars. Money was supplied by supporters in the United States, but it was not until 1928 that permission was obtained to open one clinic as a demonstration. Three years' work in this has shown that, although it has not been possible to discover all the early cases, 70 permanent residents are being treated regularly. Recently a second clinic had 75 patients within two months of being opened, including a number of very early ones. In this stage of the disease chaulmoogra oil is a sufficient remedy, for all the early cases have shown decided improvement and some have been cleared of all symptoms, while 10 to 15 per cent of the more-advanced cases were greatly benefited. The appreciation of the people is shown by urgent requests for further clinics from many widely separated districts. The early

cases are treated on a separate day from the advanced ones to prevent their mixing and to encourage the early cases to come. It is hoped that soon it will be possible to visit the homes of the patients to examine contacts for early cases. The more advanced infectious cases are sent to the leprosy hospital, so as to insure the best treatment to render them uninfectious as soon as possible. The writer concludes that "the country clinic is the most humane and efficient method of eradicating leprosy" by preventing early cases from going on to the infective stages; and that ten such clinics in addition to the colony "will meet every need of all the sufferers of our province, and within a minimum time and for a minimum cost will insure the complete eradication of the disease." —L. ROGERS.

WILSON, R. M. Leprosy in Korea, with special reference to the Soonchun Leprosy Colony. *Lep. Rev.* 3 (1932) 81.

This worker considers that there is "nothing so good, simple, and economical as plain chaulmoogra oil with camphor, 4 to 6 cubic centimeters injected subcutaneously twice a week, combined with exercise and outdoor employment." At Soonchun this includes growing vegetables and raising rabbits as the cheapest source of meat. The author believes that with determination and persistence most cases in the early stages of the disease will respond to treatment satisfactorily. Exposure to the sun's rays by wearing short sleeves or working without shirts is beneficial. For complicating syphilis 0.5 grain doses of salicylate of mercury is given, dissolved in chaulmoogra oil. The oil is obtained in 50-gallon tanks from Bankok, Siam. It has proved almost impossible to persuade the patients to take injections of the esters. During a meeting in Tokyo the government officials reported their plans for the eradication of leprosy from the empire in the next 30 years. At present in Korea only 2,000 of the probable 20,000 sufferers are receiving treatment, and many of these are non-infectious, arrested, incurable cases. The other 18,000 cases are unattended and are spreading infection. —L. ROGERS.

JOSEPH, W. C. Hydnocarpus wightiana. *Lep. Rev.* 3 (1932) 22.

This is a brief account of the preparation of H. *wightiana* oil for use in leprosy. The tree grows naturally in the Western Ghat mountains of India; its fruit ripens from March to June, but should be picked in the middle of this season to avoid gathering unripe or overripe ones. After sorting out the most suitable seeds the pulpy coating is removed and the seeds are thoroughly washed and dried at once, and again sorted to reject the unsuitable ones. The oil is pressed without the application of excessive heat, and then exposed to the sun's rays and the open air for a few days, after which it is to stand undisturbed for about a month. It is then filtered and tested, when it is ready for sale. The annual demand is now twenty times as great as formerly and reaches about ten tons a year. —L. ROGERS.

JACKSON, J. T. Some observations on the influence of the hydrogen-ion concentration of the pain reaction in the administration of sodium hydnocarpate solution by subcutaneous infiltration. *Lep. Rev.* 3 (1932) 67.

Careful trials were carried out in the Bankura Leprosy Home in Bengal with solutions supplied and tested by Dr. Henry of the Wellcome Chemical

Research Laboratory. The conclusion was reached that solutions with pH values varying between 9.19 and 9.25 gave equally good results as far as exceedingly low pain reaction is concerned. —L. ROGERS.

MUIR, E. "Solganol B" in the treatment of leprosy. *Lep. in India* 4 (1932) 7.

The author quotes a report of a trial of Solganol B, first as a general treatment for leprosy, and second as a treatment for eye complications. This drug was found to produce no beneficial results in either case and was considered as being definitely harmful in some cases. —J. LOWE.

PEACOCK, P. M. C. Ascomycetes in the treatment of leprosy. *Lep. in India* 4 (1932) 11.

Beneficial results are reported from the injection of a solution of *Amylomyces*, a yeast. The result of the injection is the production of lepra reaction, which is followed by clinical improvement. Good results are claimed for this form of treatment of the eye complication of leprosy. Details are not given. —J. LOWE.

RAO, R. G. Intradermal leprolin test. *Lep. in India* 4 (1932) 13.

An attempt has been made to verify the results obtained by Bergher, De Langen, and de Vogel who claim to have obtained a specific reaction for immunity in leprosy by the intradermal injection of "leprolin." This reaction is said to be present in quiescent and healed cases, and in healthy contacts with a subliminal or latent infection, and to be absent in cases of active leprosy. It might be of great use therefore, in diagnosis of doubtful early cases. The author tried the test using two kinds of leprolin, made from reacting and non-reacting leprotic lesions, applying them to active cases of leprosy of various types and also to arrested cases and healthy controls. A further control was made by injecting normal saline into the same patients. Local and general reactions were recorded. It was found that there was nothing specific about the local reaction, that it was produced in some healthy controls and in some cases of active leprosy, and that it was produced sometimes by normal saline. The writer concludes that aqueous emulsions are not potent antigens and considers that anti-forminised emulsions may give better results. —J. LOWE.

CHATTERJI, S. N. Critical review of the Leonard Wood Memorial conference report. *Lep. in India* 3 (1931) 142.

The author reviews critically the report of the Leonard Wood Memorial Conference on Leprosy. He criticises the administrative classification of cases ("open" and "closed"), and finds great difficulty in applying the suggested clinical classification. He thinks that bacteriological examination should be given greater prominence and that the results of bacteriological examination should be made the basis of classification. —J. LOWE.

WADE, H. W. Comments on a criticism of the Leonard Wood Memorial conference report. *Lep. in India* 4 (1932) No. 2, 55.

This is a reply to the criticisms of the Leonard Wood Memorial Conference reported by S. N. Chatterji, *Lep. in India* 3 (1931) 142.

The author recognizes the difficulties of applying the classification adopted, but believes that though it is not by any means perfect, it is an advance and that its adoption will facilitate progress. He believes, however, that there may be difficulty in properly classifying cases showing "tuberculoid" lesions, which he considers to be not "leprotic" in the sense of the definition of that word as defined by the conference. —J. LOWE.