

CURRENT LITERATURE

It is intended that the current literature of leprosy shall be dealt with in this department. It is a function of the Contributing Editors to provide abstracts of all articles published in their territories, but when necessary such material from other sources is used when procurable.

SAGHER, F. Leprosy; a review of the literature of 1946 and 1947 and part of the literature of 1945. *Dermatologica* **97** (1948) 227-243.

This concise *uberblick* of the literature of leprosy for the period 1945-1947 is unlike anything seen by the reviewer since Klingmüller ceased publishing the annual supplements to his monumental book, and the thought is entertained that the idea of its production may have come from those supplements. The topical divisions are: general considerations; etiology (bacillus, staining methods, culture, serological investigations); epidemiology, transmission and animal experiments; clinical considerations; pathology; treatment [with a chemical diagram of the DDS radical]; and statistics, prevention, control and classification. It ends with a section of extremely condensed references, which number no less than 345. This product should be useful to all serious leprosy workers for orientation and reference purposes, and it is regrettable that it did not appear in a periodical available to more of them. From the following reference it appears that this author published a similar survey two years previously: *Die Lepra; in den Kriegsjahren bis Anfang 1946*, *Dermatologica* (Basel) **95** (1946) 210-230. —H. W. W.

[MALTA] The Chief Government Medical Officer. Report on the Health Conditions of the Maltese Islands and on the Work of the Medical and Health Departments, including the Emergency Medical Services, for the Year 1947. The Malta Government Gazette, Supplement No. III, 14th January, 1949.

Information regarding leprosy in the Maltese Islands is found chiefly in the reports of the two leprosy hospitals, St. Bartholomew's on Malta and the Sacred Heart on Gozo. In the latter the number of patients averaged 13.7 (7.7 men, 5.9 women); one (female) was admitted, one (male) died, none was discharged. In the former, as reported by Dr. E. Bonnici, medical superintendent, the population averaged 74 (51 men and 23 women)—making the total for the two Islands about 88, the same as in the preceding year. There were 10 admissions of which 5 were voluntary, and 11 deaths. Many of the cases are advanced lepromatous. Treatment continued to be mainly symptomatic. All but two patients refused chaulmoogra preparations, and they had to stop because of lepra fever. Diasone had been tried, for the first time, on two patients; one of them had to quit because of reaction and anemia. Streptomycin was being tried on one, with some changes of the nodules but none of the bacteriological findings. Leprosy fever remained the main major problem in treatment; it seemed to affect the strong and weak alike, with no relation to any factor such as exertion or food; and it always left the patients worse off and usually with chronic nephritis, a common terminal condition. It would seem that, at least in the laboratory of the Central Hospital, the nasal

smear is depended upon for bacteriological diagnosis. There is a system of "outdoor medical relief" in the way of grants to sick persons and their dependents. This included "subsidies" to families of inmates of leprosy hospitals (42 recipients) in the amount of £2,182 for the year. [See News item, elsewhere in this issue, regarding the distribution of such payments.]

—H. W. W.

- ARNOLD, H. L., JR. Two weeks in Micronesia. Proc. Staff Meet., The Clinic (Honolulu) **15** (1949) 21-32.

This is an interesting and enjoyable day-to-day account of a trip made by the writer and Drs. Sloan of Hawaii and Aycok of Boston, on invitation of the U. S. Navy, to the western zone of the Central Pacific Trust Territory; and from it at least the beginning of an understanding of the set-up in that region can be gained quite painlessly. The leprosy situation being a primary concern of the group, some space is devoted to the new regional leprosarium on Tinian; but apart from the statement that on Yap, which was visited, there had been found some 70 cases in a population of a little more than 2,000 there are no statistics. [Certain features of the official report of this group are dealt with in the News section of this issue.]

—H. W. W.

- AUSTIN, C. J. Leprosy in Fiji and the South Seas. Seventh Pacific Science Congress, New Zealand, February 1949. (Abstract, mimeographed.)

The origin of leprosy in some of the South Sea Islands has at times been attributed to its introduction by Chinese about the middle of the last century. In the Cook Islands, however, it has been traced back six generations, and in Fiji its treatment is mentioned by a European doctor in 1837; and on philological and mythological grounds it is argued that it has long been endemic. The Fiji Government opened a leprosy settlement fifty years ago, and in 1911 Makogai, the present isolation and treatment center, was opened. In 1921 Samoa, and later New Zealand, Cook Islands, Tonga and the Gilbert Islands, joined with Fiji in a cooperative scheme and sent their patients to Makogai; and a maximum of 703 patients were under treatment at the end of 1947. New Zealand has had no new cases of its own for the past 20 years. The cases from Fiji itself increased from 40 in 1911 to 472 in 1947, but they have now fallen to 420—only 5 more than in 1931—and reasons are given for assuming that this number represents practically all of the cases in Fiji. An analysis of types and prognosis shows that the most advanced cases and the poorest results are found among the Gilbert Islanders and Samoan, the Cook Islanders present much earlier types and show better results, partly at least due to the fact that 116 of their 244 admissions are related or connected by marriage—which fact must facilitate the follow-up of contacts. The total number of admissions to Makogai, from 1911 to 1948, is 3,032; 910 (30%) have been discharged, 1017 (35%) have died, 436 Indians (14.4%) have been repatriated at their own request, and present inmates number 669 (22.1%). The Fiji Government is spending about £40,000 per annum on the leprosy scheme, of which approximately £15,000 is recoverable from the other participating Administrations.—[From abstract.]

- DUBOIS, A. Evolution clinique de la lèpre au Congo Belge. [Clinical evolution of leprosy in the Belgian Congo.] Bull. Acad. Roy. Med. Belgique **11** (1946) 407-415; also Arch. Med. Belgica **2** (1947) 516.

This represents a classification of 1,548 native leprosy patients in the Belgian Congo, living apart in agricultural villages. Only 260 of them (about 16%) are multibacillary. Those with mutilations are about 50% of the neural cases, and—when mutilated lepromatous ones are included—two-thirds of all patients. There are 504 cases with ulcerations. There are 113 slightly advanced cases in isolation for other than medical reasons, or expecting "parole" or ambulatory treatment. —AUTHOR'S SUMMARY.

ZANETTI, V. Contribution à la connaissance de la lèpre au Congo Belge. *Epidémiologie, évolution clinique, classification*. [Contribution to the knowledge of leprosy in the Belgian Congo.] *Ann. Soc. belge méd. trop.* **28** (1948) 105-146; *also Arch. Med. Belgica* **3** (1948) 474.

The author relies on the successive censuses of the native population of the Pawa region to study the evolution of leprosy endemicity in a Mabudu group of about 15,000 people. It is not easy to sum up the various statistics; they concern the miscellaneous important particularities already mentioned in that country. Leprosy frequency is 4%. Nodular leprosy is relatively infrequent, down from 12% to 7%. The paucibacillary forms predominate, with a tendency to the development of the acroteric symptoms of neural leprosy. The diverse clinical forms are described, and tabulated according to sex and age. One finds all details desired of features such as age at the time of appearance of lesions, localization of the lesions, and bacteriological findings. —A. DUBOIS.

DOULL, J. A. Studies on the epidemiology of leprosy. *Proc. 4th Internat. Cong. Trop. Med. & Malaria, Washington, D. C., Department of State, Washington, 1948, Vol. 1*, pp. 353-364.

A review is presented of certain epidemiological features of leprosy as observed in the municipalities of Cordova and Talisay in the Province of Cebu, Philippines. Segregation of bacteriological positive patients had been compulsory in the Philippines for more than 25 years prior to commencement of the studies in 1933. The risk of attack for persons exposed to leprosy in the household was found to be more than six times that for persons not known to have been subjected to the same exposure. The risk was eight times as high as that of the general population when the primary case was neural. The risk of attack for persons exposed in the household was associated with age at first exposure, being highest for those exposed in infancy and early childhood. The data indicate an average period of about ten years between first exposure and onset, if exposed under 10 years of age. Approximately 30% of males exposed in the household to lepromatous leprosy developed the disease before reaching the age of 25 years. Little difference was observed in the subsequent risk of contracting lepromatous leprosy as between those exposed respectively to a lepromatous father, brother, or sister. Field studies are being continued in the Philippines with the principal objective of throwing light on the unknown facts which determine susceptibility to leprosy. —F. A. JOHANSEN.

McCoy, G. W. Leprosy: Factors in public health management. *Pub. Health Rep.* **63** (1948) 1522-1526.

The author believes that intelligent management of the public health program of leprosy in the United States calls for reconsideration of isolation. The clinical types in relation to communicability are considered

with the suggestion that the patient be given the benefit of the doubt that his disease is communicable, and particularly that neural cases should not be isolated. The factors of diagnosis are discussed and general considerations as to the epidemiological factors such as whether or not the individual had ever lived in an endemic area. The United States is considered by areas with regard to the communicability of leprosy, as follows: very feebly communicable, such as the New England States; feebly communicable, South Carolina, Georgia, Minnesota and California; markedly communicable, as in Texas; and highly communicable as in Louisiana and Florida. From the public health point of view cases might fall into one of the following groups: (a) no special consideration, noncommunicable cases in areas where transmission is unlikely; (b) home isolation or general hospital, cases in areas where spread is likely to occur; (c) special hospitals, communicable cases in areas where spread is likely to occur. The attitude of the general public must always be considered, and the public should be educated in the realities of the problem. —F. A. JOHANSEN.

- SIMONS, R. D. G. PH. Modern conceptions concerning the compulsory isolation of leprosy patients. Contagious malignant morbus Hansen *versus* noncontagious benign hansenine. Proc. Roy. Soc. Med. (Section Dermat.) **41** (1948) 751-754.

[This article, which was abstracted in the *J. American Med. Assoc.* **140** (1949) 225, is evidently quite the same one as is dealt with in the following briefer and more straightforward abstract.—EDITOR.]

- SIMONS, R. D. G. PH. De maligne contagieuse morbus Hansen of lepra en de begigne contagieuse hansenide. [On the malignant contagious morbus Hansen, and the benign noncontagious hansenide.] Arch. belges Dermat. et Syphil. **4** (1948) 1-6.

The author discusses the modern concepts of the contagiousity of leprosy and the measures of isolation or segregation which result from them. Bacteriologically negative patients ("hansenide patients") need not be isolated, but they nevertheless should be placed under regular observation. Such measures may give hope and confidence to the patients, and avoid unnecessary expense. The nasal mucus is infectious only in lepromatous leprosy, and the nasal mucosa is not a portal of entry but a point of localization. In tuberculoid leprosy the Virchow cells, characteristic of the contagious forms, are not found. It is probable that insects of short radius of action play a rôle in the spread of the disease. For psychological reasons the word "leprosy" has been replaced, and should be more and more, by a terminology which distinguishes the contagious and the noncontagious forms. The author presents a scheme of the different forms and their new names.—[From abstract in *Arch. Med. Belgica* **3** (1948) 320.]

- SEN, P. Plea for a study of social aspects in leprosy. Lep. India **19** (1947) 123-127.

Dr. Sen in this article makes a *prima facie* case for institution of a study in sociology in leprosy. He says that for successful control of leprosy doctors should consider the character and personality of each patient, know his environment and take into account all the social and emotional factors that may disturb him. The basis of any program must be a broad concept which includes both organic and social components of the disease, and not organic component alone. The social problems of the patient have been

defined and evaluated on the basis of a combination of medical and social data. He then describes the various principles and methods of such a study.—[Abstract from *Indian Med. Gaz.* **84** (1949) 78.]

- ✓ CHIYUTO, S. Leprosy control based on transmission, susceptibility and pathogenesis. *Month. Bull. Bur. Health (Manila)* **24** (1948) (July-Aug.)

The author recapitulates his and Manalang's one-time "new orientation" regarding the transmission, susceptibility and pathogenesis in the control of leprosy. By the "virus theory" they hold that even the bacteriologically negative cases are capable of transmitting the disease; and, because of findings with the lepromin reaction, they believe that adults are immune and that infection is acquired only in infancy or early childhood, before the age of three years. Mention is made of an editorial [*J.A.M.A.* **136** (1947) 1156] on a report of two American Marines who simultaneously contracted leprosy at the sites of tattoos [see *THE JOURNAL* **16** (1948) 514], in which editorial it was said that those two cases provide strong evidence for inoculation as a method of transmitting leprosy. Chiyuto speaks of the report as one of the "innumerable written anecdotes . . . to suit the fancy of the writer who entertains preconceived ideas concerning the disease," and refuses to accept the conclusion indicated, asserting that "there must be scientific evidence that the Marines in question were free from any sign of early leprosy before they were tattooed and not the mere hearsay evidence of presumption of being free from leprosy." According to his and Manalang's views the transmission of leprosy boils down to the susceptibility of children under three years of age and adult immunity; and unless leprosy control measures are planned for the protection of young children, the disease will continue to wreck havoc on humanity. —J. O. NOLASCO

- ✓ MANALANG, C. The transmission of leprosy. *Month. Bull. Bur. Health* **24** (1948) (July-Aug.).

This paper is an analysis of and comment on the case of the two young American Marines who were tattooed in Australia and developed leprosy at the sites of the tattoos about 2½ years later and reported by Porritt and Olsen, who concluded that the two cases provide strong evidence for the spread of leprosy by inoculation [see preceding item]. Manalang sarcastically insists that the two Marines contracted their leprosy in their infancy, though without offering any evidence to support that opinion. —J. O. NOLASCO.

- ✓ CHIYUTO, S. Reorientation of the control of leprosy with emphasis on infantile susceptibility. *Month. Bull. Bur. Health (Manila)* **24** (1948) (July-Aug.).

The author advocates village isolation in endemic communities, with special provision regarding newly born children of leprosy parents. —J. O. NOLASCO.

- ✓ DUBOIS, A. Classification de la lèpre. [Classification of leprosy.] *Acta tropica* **4** (1947) 289-297.

In this paper, published prior to the Havana Congress, the author proposed going back to the former classification of paucibacillary (A) and multibacillary (B) forms. The subdivisions of the two forms can be reconciled with those of the Cairo classification. —AUTHOR'S ABSTRACT.

- DUBOIS, A. Classification de la lèpre selon le Congrès international de la Havane (1948). [Classification of leprosy, Havana Congress.] Mem. Inst. Roy. Colon. belge **19** (1948) (No. 3).

A purely documentary paper giving the classification adopted at Havana and comparing it with that of the Cairo Congress. There is no discussion.

—AUTHOR'S ABSTRACT.

- RODRIGUES VIEIRA, L. Contribuição ao estudo da forma incharacteristica. [Contribution to the study of the incharacteristic form.] Arq. Mineiras Leprol. **7** (1947) 23-25.

In order to contribute to an understanding of the diverse forms of the leprotic inflammation which, by the discriminating, are excluded from the polar types, and hence in order that they be not deprived of classification are included under the common title of "incharacteristic," the author reviewed about 100 biopsy specimens from such cases in the pathology section of the Leprosy Division of Minas Gerais. The quantitative and proportional variations among histiocytes and the epithelioid contingent of the specimens led him to count these cells differentially in several microscopic fields of each specimen and to establish an index which, he believes, provides a criterion of value in prognosis and classification. As regards its prognostic significance, he holds that it can also be applied to the lepromatous and even the tuberculoid forms. The gradual appearance of epithelioid cells in lepromatous lesions is an indication of improvement, and high or low percentages of histiocytes in tuberculoid lesions indicate lesser or greater mildness of the process. Findings in the incharacteristic forms indicate very varied pathogenic conditions. For example, in one case there were 100 histiocytes to 50 epithelioid cells, indicating a relative lack of defensive cytologic specificity. In another case the proportion was 300 epithelioid cells for every 100 histiocytes, indicating a favorable prognosis and making clear the criterion of classification since it indicated a future tuberculoid case. This procedure is held to be "a discriminating element of diagnosis and prognosis showing the evolutive tendency of the cases." —[From abstract in *Rev. brasileira Leprol.* **15** (1947) 217.]

- PARDO CASTELLO, V. & PIÑEYRO, R. Lazarine leprosy; its position in the present classification of leprosy. Proc. 4th Internat. Cong. Trop. Med. & Malaria, Washington, D. C., Department of State, Washington, 1948, Vol. **2** pp. 1313-1317.

[This article is reprinted in full in this issue, p. 65.]

- LATAPI, F. & CHEVEZ ZAMORA, A. Lepra lazarina en Mexico. [Lazarine leprosy in Mexico.] Proc. 4th. Internat. Cong. Trop. Med. & Malaria, Washington, D. C., Department of State, Washington, 1948, Vol. **2**, pp. 1307-1312.

Writing under a title which had been set up by the organizers of the Congresses, the authors here refer, at the outset, more specifically to what is called "lazarine" leprosy than they did in the papers read a month earlier at the Havana Congress [see *THE JOURNAL* **16** (1948) 279 and 421-429]. They point out that the term was employed more exactly than by other authors when Lucio and Alvarado applied it to the peculiar variety of leprosy which is now known by Lucio's name. The history of the matter is gone into more fully than elsewhere, with quotations from the original text—which was reproduced by Gonzales Urueña in his book, *Leprosy in*

Mexico (1940)—and with an account of the senior author's rediscovery of the form in Mexico City in 1938. It is stated that it is the predominant one in the northeast part of the country; among the leprosy cases seen in Mexico City, which come from various parts of the country, the prevalence is 15-20%. The condition is described summarily [as also in the article referred to above], with some emphasis on the contrast between the healthy appearance of the patients at the beginning and their subsequent rapid deterioration, and also on the contrast between the harmful effects of chaulmoogra and other drugs and the "real resurrection" seen under sulfone treatment. —H. W. W.

SCHUJMAN, S. Los tubérculos de la lepra tuberculoide; su estudio diferencial con los de la forma lepromatosa. [The tubercles in tuberculoid leprosy; their differentiation from those of the lepromatous form.] *Semana med.* **35** (1948) 676-683.

The author points out that tubercles, [the word obviously used in its morphological sense of dermatology] which are so abundant in the lepromatous form of leprosy are not confined to that form but can also be found in the tuberculoid form, especially in reaction cases. When the tuberous elements are predominant, as in those described in this paper, such cases can be confused with the lepromatous form—a lamentable confusion since actually they are of opposite significance and prognosis, one being benign and the other malign. The author offers a comparative study of the tubercles in tuberculoid and lepromatous leprosy, establishing their clinical, bacteriological, histological, immunological and evolutive characters. —AUTHOR'S SUMMARY.

PESSIN, J. Peripheral neuropathy in neural leprosy; report of a case. *Arch. Neur. & Psych.* **60** (1948) 288-296.

This report, of a case which had been undiagnosed for twenty years, was presented to illustrate the widespread involvement of the nervous system in leprosy; to call attention to the etiologic role of *M. leprae* in peripheral neuropathy; and to emphasize the manner in which this type of neural leprosy may resemble other neurologic syndromes. The progression of neurological signs and symptoms suggested several diagnoses, such as chronic progressive muscular atrophy (Aran-Duchenne type) and syringomyelia. Examinations of the skin for leprosy bacilli over a period of years were negative. Two signs which are unlikely to occur in syringomyelia are the *main en griffe* deformity and the loss of ability to sweat. The diagnosis was made when numerous bacilli were obtained from the nasal mucosa. This report contains an excellent history and follow-up of the patient for a period of twenty years until he was admitted to the Carville leprosarium. —F. A. JOHANSEN.

CONTRERAS DUEÑAS, F. & IBARS, A. Un caso de uretritis hanseniana revelada merced a la penicilina. [A case of leprosy urethritis detected by penicillin.] *Actas Dermo-sifilog.* **38** (1947) 562.

Report of the case of a neural patient, in whom no bacilli were found in various sites tested, who had gonococcal urethritis and was treated with penicillin. The urethral suppuration persisted though the gonococci disappeared, but there were found large numbers of globi with typical Hansen bacilli. Their appearance in this locality is attributed to the urethral inflammation which had been provoked by the gonococci. The secondary

infection persisted after the primary one had been overcome by the penicillin. In this case it was due to the Hansen bacillus, as in others it is due to that of Koch or other microorganisms.—[From abstract in *Fontilles* (1947) 650 (July).]

MARTI, R. R. Grupos sanguíneos y lepra. [Blood groups and leprosy.] *Fontilles* (1947) 609-616 (July).

The results obtained in the investigation of the blood-groupings of 269 patients at Fontilles agree in general with those published by other authors. It is concluded that leprosy is not liable to occur preferentially in any one of the blood groups; that the disease does not alter nor modify the blood group of the individuals affected; and that there does not seem to exist the least relationship between the different clinical forms and the blood groups.—[From author's summary.]

SALOMÃO, A. Ligeiras considerações acerca de tres casos de tentativa de suicidio em leprosos. [Certain considerations regarding three cases of attempted suicide by leprosy patients.] *Arq. Mineiras Leprol.* 7 (1947) 27-29.

In his daily contact with leprosy patients of all social conditions, the author has always noticed the small number of suicides among individuals of even the higher and more educated classes who are suffering from diseases believed incurable. Thus he was led to report the observations of three cases of attempted suicide in leprosy. None of them, he concludes, made the attempt because of the disease. He holds it to be undeniable that there is a modification of the character of the patient after knowing himself being leprosy, but between that condition and suicide there is a wide gap. Suicides in leprosy are rare as compared with what is seen in tuberculosis.—[From abstract in *Rev. brasileira Leprol.* 15 (1947) 219.]

JOHANSEN, F. A. & ERICKSON, P. T. Studies on the therapy of leprosy. *Proc. 4th Internat. Cong. Trop. Med. & Malaria, Washington, D. C., Department of State, Washington, 1948, Vol. 1 pp. 365-373.*

This report first relates the experience at Carville in treatment with chaulmoogra oil, which drug was abandoned in 1947 in favor of the sulfones. The use of promin, diasone and promizole is discussed as regards dosage, toxicity, blood and urine concentrations, as well as the clinical and bacteriological status of the patients under treatment. Markedly superior therapeutic action in lepromatous cases, both early and advanced, is demonstrated by the improved clinical status of the patients as compared with their condition during the chaulmoogra regime. These drugs, however, are not the complete answer to the treatment problem, and further search for quicker-acting therapeutic agents is called for. Streptomycin therapy was instituted in 10 cases (2 gm. in 8 doses per day for 4 months, then 1 gm. in 2 doses a day for 7 months), but at the end of the 11 months it was found that, compared with therapeutic results obtained, the toxic effects were too severe to justify continuation of that treatment. Five of these cases had received sulfone treatment concurrently with no apparent special effect.

—F. A. JOHANSEN.

COCHRANE, R. G. New developments in the therapy of leprosy. *Proc. 4th Internat. Cong. Trop. Med. & Malaria, Washington, D. C., Department of State, Washington, 1948, Vol. 1, pp. 374-381.*

The therapeutic effects of the hydnocarpus drugs as well as the sulfones are discussed. Failure of hydnocarpus treatment is ascribed to insufficient dosage and faulty administration. In the author's experience, intensive intradermal injections combined with subcutaneous injections in dosages of 15 cc. per week causes 50% of early lepromatous cases to become bacteriologically negative in less than two years. Regarding treatment with the sulfones—promin, diasone and sulphetrone have been used—it is recommended that, for the present, it be reserved for the more advanced lepromatous cases, relapsed cases, and those cases which have not responded to hydnocarpus therapy. It is urged that the hydnocarpus remedies should not be discarded, but that the search for more effective chemotherapeutic and antibiotic agents should be continued, and that the fact be borne in mind that no remedy will be of ultimate avail unless practical of administration and reasonable in price. The need is stressed for investigation into the modern application of orthopedic, physiotherapeutic and manipulative measures to prevent sequelae due to tissue damage.

—F. A. JOHANSEN.

549 ✓ ROGERS, SIR LEONARD. Combined chaulmoograte and sulfone treatment of leprosy and tuberculosis. *Lancet* **1** (1948) 515-517.

The author holds that chaulmoogra and the sulfones act differently. He found, at the time he introduced the sodium salts more than thirty years ago, that chaulmoogra acts by a fat-splitting property and by breaking down the protective fatty envelope of the bacilli, thus rendering them vulnerable. This occurs in the lesions, with the risk of surviving organisms being disseminated by the blood. The sulfones, on the other hand, act by destroying the bacilli entering the blood stream, so that fresh lesions by blood transmission are prevented. Having thus shown that the actions of the two classes of drugs are complementary, he recommends the use of the two drugs simultaneously, although the sulfones should be given for some weeks before administering chaulmoogra in doses large enough to cause softening of the nodules and dispersal of the organisms—[In part from abstract in *Trop. Dis. Bull.* **45** (1948) 614, and in part from an abstract supplied by R. Chaussinand, who commented: Guided by the same reasoning we have instituted, since September 1947, the mixed chaulmoogra-diasone treatment of 40 cases. This treatment is well supported and the results observed to date are interesting, although definitive conclusions cannot as yet be arrived at.]

322 (+) HARKNESS, A. H. & BROWNLEE, G. Leprosy treated with sulphetrone in 1943. *Proc. Roy. Soc. Med.* **41** (1948) 309-310, Sect. Derm. No. 2, 123-124.

This brief report tells of the first application of this particular sulfone in the treatment of leprosy. The patient had lived in British Guiana, had been employed for some months during 1927 in the leprosy colony there, and had first noted manifestations in 1934. By October 1942, when treatment was begun, there were multiple nodules with abundant bacilli, and various neural manifestations. Starting with 1.5 gm. a day the dose was rapidly increased to 6.0 gm., the fluid intake being restricted to 3 pints daily. This treatment, together with ferrous sulfate, was given continuously for fifteen months with no toxic manifestations. All nodules were absorbed and no new ones have appeared since; the nasal smears became negative after twelve months and have remained so. In the

discussion Brownlee recounted briefly the development of the sulfones after Buttle and others in 1937 discovered the antibacterial activity of the parent diaminodiphenyl sulfone and work was undertaken to devise derivatives without its toxicity, and refers to studies of sulphetron^e reported in 1948, one involving its use in combination with streptomycin in experimental tuberculosis in animals. —R. CHAUSSINAND.

HERRERA, G. El diamidin en el tratamiento de la lepra. [Diamidin in the treatment of leprosy.] *Rev. med. dominicana* 3 (1948) No. 4.

This drug [which is admitted by the manufacturer to be chemically the same as that called diasone by another firm, but is claimed to be less toxic because of some difference of production] was tried out on 55 patients, of which 8 were previously untreated and 47 had received promin for at least six months. How long they were treated altogether does not appear, and nothing is said of controls. The drug "produces toxic reactions similar to those of other sulfones," it is said, but emphasis is laid on the fact that some of the patients were able to take 2 gms. daily for six weeks without interruption, and the report ends with the statement that the toxicity is low and the efficacy high. —H. W. W.

TRACY, T. D. Failure of streptomycin in the treatment of leprosy. *American J. Med. Sci.* 214 (1947) 385-388.

The patient was a Filipino steward's mate, U.S.N., presenting lesions supposedly two months or less in duration but multiple and widely distributed, some of them spoken of as nodules. The type is not stated; smears were found negative but bacilli were found in biopsy sections both before and after treatment, apparently in considerable numbers. Streptomycin was administered for 55 days with an initial dose of 4 gm., and 2 gms. every two hours for 72 hours, thereafter 0.5 gm. every 4 hours, the total being 175 gm. No improvement was seen except with respect to the ichthyotic condition of the legs which, however, returned to the original condition after treatment was discontinued. The bacilli in sections showed no difference from those in the pretreatment specimen. —H. W. W.

CHAUSSINAND, R., PARIS, C. & CROUGUE, O. Essais d'un traitement ambulatoire de la lèpre par la streptomycine, émulsionnée dans les esters éthyliques de chaulmoogra. [Treatment of leprosy with an emulsion of streptomycin in chaulmoogra ethyl esters.] *Bull. Soc. Path. exot.* 41 (1948) 573-576.

Hoping to arrive at a synergistic complex of medicaments, the authors experimented, in two lepromatous cases, with daily injections of an emulsion suspension of streptomycin in chaulmoogra ethyl esters. The streptomycin was dissolved in 1 cc. of distilled water and the solution mixed with 1 cc. of the esters, with prolonged shaking, after which the injection was made immediately, intramuscularly or subcutaneously. One case (L3, with nodules) received in 79 days a total of 42,000,000 units in 79 cc. of esters, while the other one (L2, without nodules) received in 98 days 135,500,000 units in 98 cc. The treatment was well borne, with no complaints except of slight lassitude and a little loss of weight. The improvement observed, clinical and bacteriological, was hardly more marked than that obtainable with chaulmoogra ethyl esters alone. The action of streptomycin on the infection, then, seems to be minimal; and it is

concluded that this antibiotic, the prolonged use of which is costly, cannot be recommended for the treatment of leprosy. —AUTHORS' ABSTRACT.

CHAGLIASSIAN, H. T. Calciferol treatment of leprosy. *J. Invest. Dermatol.* **10** (1948) 303 (May).

The favorable results obtained with calciferol in tuberculosis of the skin (*lupus vulgaris*) induced Chaglassian, of the American University of Beirut, to try it in two cases of tuberculoid leprosy. He administered 600,000 units three times in the first week, twice weekly for the next three weeks, and once weekly thereafter for seven weeks and four months, respectively. Considerable improvement was obtained in both patients, and the author intends to continue the experiment in a larger group of patients. —[From abstracts.]

ESCHER, D. H. & JOHANNY, R. A preliminary report on the treatment of leprosy with vitamin D₂. *Med. News Bull.* **1** (1948) 3-14.

The authors, of the Faculté française de Médecine in Beirut, mentioning the experience of Chaglassian of the American University with vitamin D₂, tell of their trial of that material (a Swiss product, Wander) in four clinic cases. The doses were 600,000 I.U. 3 times a week for the first two weeks, 2 times for the next two weeks, and once a week thereafter for months. All of them improved in "considerable" degree and the authors, with full recognition of other possible factors, attribute the change to the vitamin. Three of them had been given chaulmoogra without benefit, and one got promin; but because of expense she had only 2 gm. doses instead of 5 gm., and she showed the most marked improvement during the periods when she stopped promin and was on the vitamin. [The possibility that such combinations or alternations of drugs might possibly have played a part in the results is not mentioned.] —H. W. W.

PEREIRA, A. C. Tratamento de lesões tumorais em lepra reacional. [Treatment of tumoral lesions in reactional leprosy.] *Arq. Mineiras Leprol.* **7** (1947) 13-21.

This report is a clinical and therapeutic study of lepra reaction seen in noninfectious cases in a leprosy dispensary. Reactions, the clinical symptoms of which are very varied, are not preferentially exclusive in any one form of leprosy, occurring in tuberculoid, incharacteristic and lepromatous cases. The treatment employed was generally the same as that used in the allergic dermatoses, the condition being regarded as manifestation due to an allergen. To demonstrate the results of desensitizing treatment the author cites a case with tumoral lesions cured by calcium lactate taken orally in daily doses of 2 gr. for several months. The Mitsuda test was positive in his cases. In some of them, in the reactional period, the nasal mucosa, the cutaneous lesions, and the glands became bacteriologically positive, the bacilli usually disappearing with the improvement of the condition. The therapy indicated is identical with that used in allergic dermatoses. [From abstract in *Rev. brasileira Leprol.* **15** (1947) 218.]

METCALFE, J. W. The importance of leprosy in orthopedic surgery. *U. S. Naval Med. Bull.* **48** (1948) 656.

Metcalfe considers it probable that increased numbers of sporadic cases of leprosy may appear in the temperate zones as the result of mass migrations of troops and families through endemic areas during the war

period. Certain symptoms of leprosy simulate orthopedic lesions, and so the patient with beginning leprosy may appear at the orthopedic clinic for diagnosis. The author describes some of the lesions, particularly those involving the bones and joints. Roentgenologic findings on fingers and toes include notching of tip, sliced off appearance, collar button absorption of short phalanges and enlarged nutrient foramen. Joint lesions include: subchondral cysts, degenerative changes, ankylosis and subluxation. Among the larger lesions the author mentions: (1) transverse linear zone of rarefaction at phalangeal epiphysis as a sign of leprosy osteochondritis; (2) cystic degeneration near nutrient artery of phalanx as sign of a leprosy osteomyelitis; (3) concentric bone atrophy with narrowing of shaft without rarefaction, and (4) absorption of distal articulating surface of bone with "awl-shaped" appearance, also likened to that of a "sucked candy stick." The author shows that diagnosis of leprosy must include a wide variety of dermatologic, neurologic and other conditions. The specific diagnosis depends on the demonstration of the Hansen bacillus, which is best done by making a small oblique incision in the skin at the border of the pigmented or anesthetic area with a razor blade and scraping a drop or two of serum for acid-fast staining.—[Abstract from *J. American Med. Assoc.* **139** (1949) 413.]

ESQUERRA-GOMEZ, G. & ACOSTA, E. Bone and joint lesions in leprosy; a radiologic study. *Radiology* **50** (1948) 619 (May).

In this study, carried out in Colombia, roentgenograms were made of 532 persons—(483 with leprosy), 5 suspects, and 44 normals. Decalcification and rarefaction may be seen at an early stage. Trabeculations are prominent and may show rupture, leaving clear zones, involving both ends of the phalanges and the distal ends of the metacarpals and metatarsals. These changes are based on impaired circulation, disturbed calcium salt metabolism, and nerve disorders due to poor condition of conductive nerves. Hypertrophy and hyperostosis are typified by widening of the proximal end of one or more phalanges to cover the adjacent phalanx like a cap, with or without mutilations. Reabsorption and atrophy are most prominent in the distal phalanges. Simple reabsorption occurs as an osteitis, with eventual bone destruction and joint involvement. Reabsorption of atrophy follows the ulnar nerve distribution. In that case the diaphysis of the distal phalanx resembles a sharpened pencil; later only the proximal third remains, giving the "color-button" appearance; finally the unthinned paraarticular portion gives the "hood" image. Mutilations are usually symmetrical. Perforating plantar ulcers may be followed by secondary infection, osteoarthritis and ankylosis. Analgesic whitlow in leprosy is a true osteomyelitis but is without pain in the early stage. Fractures are frequent and may be followed by opaque callus. Joint lesions due to reabsorption and atrophy may result in "claw hand" and "gale hand" deformities. Of the 483 leprosy patients, 306 (63%) showed definite bone changes; of the other 177, 68% showed suggestive findings, the prominent signs being decalcification (63) and rarefaction (28). The article contains 24 illustrations. —F. A. JOHANSEN.

PEYRON, A. & MARIE-SUZANNE (SOEUR). Sur la distinction des bacilles et des mitochondries dans les lésions de la lèpre humaine. [Distinction of the bacilli and the mitochondria in the lesions of human leprosy.] *Compt. rend. Soc. Biol.* **135** (1941) 213.

In a report from the Institut Pasteur and the leprosy services of the Hôpital Saint-Louis, the authors state that, in their study of the cytology of human and murine leprosy, they have employed various techniques but finally settled upon the fixing fluid of Nemeč and the staining method of Volkonsky. In preparations so made the Hansen bacilli are stained blue or green while the mitochondria are red; chromatin is green. Several drawings show the various intracellular structures concerned, including stellate bodies ("*crystalloides a topographie radiaire*") which stain red by Volkonsky and black by Da Fano. It is concluded that theories of relationship between mitochondria and bacteria are erroneous. —H. W. W.

BERGEL, M., FERNANDEZ, J. M. M. & SERIAL, A. Nuevo método para la investigación bacterioscópica de bacilos ácido-resistentes. [New method for the examination for acid-fast bacilli.] Rev. Méd. de Rosario 37 (1947) 32-38.

This method is based on that of Fernandez and Olmos, which employs density differences to concentrate leprosy bacilli, and that of Dharmendra, which involves chloroform separation. It is for the direct extraction of acid-fast bacilli from organic materials with chloroform or ether—after dissociation by physical means if necessary—centrifuging, and evaporation of the fat solvent. (1) With fluid materials (as blood, urine, gastric contents, spinal fluid, etc.), 1/10th the amount of chloroform is added (not over 30 cc. even with volumes over 300 cc.) and the mixture shaken for 5-10 minutes. After depositing, the supernatant liquid is removed and the chloroform is evaporated to a syrupy consistence. Ether (20 cc.) is added and shaken for a few minutes, one minute is allowed for the settling of the insoluble elements, and the supernatant ether is centrifuged 10 minutes at 2,000 r.p.m. or more. The sediment is removed with a Pasteur pipette (scraping the bottom of the tube), spreading on a slide (albuminized, if desired), and stained as usual. (2) With other materials (as pus, sputum, and tissue suspension), 2-4 gm. is placed in a bottle with 30-40 cc. of ether, some pieces of glass (not beads) the size of grains of corn, and about 20 drops of alcohol (to prevent emulsification), and shaken strongly until dissociation is complete. The supernatant ether is centrifuged and smears are made and stained as before. Among other details are the following: Liquids which tend to coagulate, treat with sodium citrate. Of urine, use 500 cc. and 30 cc. of chloroform. Blood is first hemolyzed with distilled water. If, after shaking with chloroform, there is difficulty in separation (as with highly albuminous liquids), distilled water is added until good separation is obtained. Tissues are first boiled and cut into small pieces, then ground in a mortar while adding ether. If the chloroform residue is thin, as that of spinal fluid, or very small in amount, it is smeared directly without treating with ether. Smears can also be made of chloroform residues before treating them with ether. Also part of the said residue could be spread and stained as a previous step for its subsequent extraction with ether, centrifugation and staining of the sediment. —AUTHORS' SUMMARY.

LEON BLANCO, F. & FITE, G. L. Silvering of lepra bacilli in tissues. Arch. Path. 46 (1948) 542-549.

Tissues are fixed in formaldehyde and stained by a modified silver technique whereby the bacilli are colored deep brown to black. The procedure is very tedious, but because the whole tissue undergoes prolonged

treatment the bacilli are well fixed and are disturbed very little by subsequent embedding and sectioning; thus their true relationship to the tissues may be studied. The authors describe streams or columns of bacilli in highly active lesions, and also configurations similar to small fungus colonies, with hyphae radiating out from a central point. In active lesions the bacilli appear straight and long, and they stain uniformly well with silver and show no granulation. In the chronic lesions the macrophages containing bacilli become large and vacuolated, and bacilli lie in the cytoplasm between the vacuoles. In this case they are silvered less deeply, and they are curved and bent around cell nuclei and vacuoles. Globi seem to form within a cell or a group of fused cells after degenerative cell changes with loss of nucleus and cytoplasm. In large, old globi the vacuoles fuse to form a single large one occupying most of the globus, with bacilli lying around its rim, the bacilli progressively poorly silvered. Pleomorphism also occurs, especially where degenerated bacilli are found. In the silver preparations a halo surrounds each bacillus, but its significance is not known. The authors believe that the poorly-colored bacilli represent an inactive, degenerating condition, while well-staining bacilli in active lesions represent growing organisms. Illustrative photomicrographs accompany this interesting article.

—F. A. JOHANSEN.

ROTBERG, A. & SOUZA CAMPOS, N. Lepromino-reações em indivíduos sãos em São Paulo, não comunicantes. [Lepromin reactions in normal noncontacts in São Paulo.] *Rev. brasileira Leprol.* **16** (1948) 267-275.

The authors performed the lepromin test on 163 adults and 94 minors in the state of São Paulo, all in good health and with no known contact. A part of the adult group was also given the Mantoux test with 1:10,000 tuberculin. Both the early (Fernandez) and late (Mitsuda) reactions were found frequently positive, the latter in the higher percentage, although children were frequently negative. There was usually agreement between the early and late reactions, in both negativity and positivity, but a late Mitsuda reaction appeared in many Fernandez-negative cases. A comparison with the Mantoux reactions supports the views that tuberculin sensitization influences the *early* lepromin reaction. Nevertheless, the tuberculin negative cases with positive Fernandez reaction, and the tuberculin positive cases with negative Fernandez reactions, show that there are perhaps other factors to be investigated. The *late* lepromin reaction did not seem to be influenced by the tuberculin sensitization.— [From authors' summary, in English.]

UTRILLA, A. Estudio de sueros procedentes de leprosoos practicado con antígeno de cardiolipin. [Study of sera from leprosy patients examined with cardiolipin antigen.] *Fontilles* (1947) 597-600 (July).

The results obtained with 34 sera from leprosy patients using the cardiolipin antigen were analogous to those obtained with the other antigens commonly used in the diagnosis of syphilis. There was agreement in both the positive and the absolutely negative results, and very similar results in those cases—common in leprosy—of weak, irregular positivity without concordance in the different reactions. Also in agreement with other flocculation reactions, the results in slightly advanced neural cases

were usually negative; it was most common in the marked lepromatous ones, with a frequency higher than with other such tests.—[From author's summary.]

GUILLEN, J. & IBARS, A. La reacción de Takata-Ara en los enfermos de lepra. [The Takata-Ara reactions in patients with leprosy.] Fontilles (1947) 601-608 (July).

This test was made in 86 cases (see tabulation). Two types of positive reactions were observed, one with weak flocculation up to the 7th tube, and the other with strong flocculation up to the 8th tube. The results were:

Type of case	Number of patients	Weak positive	Strong positive	Total positive
Lepromatous	41	36%	25%	60%
Mixed	29	31%	20%	51%
Neural	14	14%	5%	19%
Tuberculoid	2	(1 case)

Of 10 healthy persons at the institution, none gave a positive reaction. After referring to other reports the authors point out that the modern view of this reaction is that it does not concern solely lesions of the liver, but has a broader significance; and consequently they do not regard the findings as indicative of alterations in that organ, but of more general disturbances which may affect other organs. They draw attention to the marked abnormalities often seen in leprosy with respect to the erythrocyte sedimentation rate and various nonspecific serum reactions. The reaction puts in evidence the marked alterations of the plasma proteins which occur, and provides a means of control which should make one more moderate with respect to medication in patients giving positive reactions. —H. W. W.

KAHN, R. L., VILLALON, F. T. & BARIBEAU, B. J. Universal serological reactions with lipid antigen in leprosy. *J. Bact.* **54** (1947) 84-85.

It was observed that quantitative precipitation systems with sera and lipid antigens employing salt concentrations lower than physiological (0, 0.15, 0.3, 0.6%), and higher than physiological (1.2, 1.5, 1.8, 2.5%), will give positive reactions after ice-box incubation in practically all persons and in animals. In some instances such reactions are obtained on immediate readings of the tests, without incubation. The term "universal" has been applied to these reactions because they apparently represent a common characteristic of all sera. The strength and serological patterns of these reactions vary to some extent in different persons and in different animals. The present report deals with results of universal reactions in cases of leprosy. It was found that in tuberculoid leprosy, in which the host's immunity to the disease is presumably high, the precipitation results without incubation are practically negative. In lepromatous leprosy, in which the host's immunity to the disease is presumably low, the results without incubation are markedly high. The results in transitional cases of leprosy are intermediate between these two extremes. It is believed that these findings are of practical value in the diagnosis of the various types of leprosy and in the prognosis of the disease. [A report on this work was also read at the Havana Congress; see *THE JOURNAL* **16** (1948) 289.] —F. A. JOHANSEN.

NAKAMURA, K. Studies on cultivation of the leprosy bacillus. *Hawaii Med. J.* **8** (1949) 265-266.

Using a culture medium made of mucin from the submaxillary gland of the ox, starch, glycerin, malachite green, inactivated human or ox serum, phthiocol, and thiamin and riboflavin in distilled water, at a pH of 6.6 to 6.8, and incubating at alternating temperatures of 25° C and 37° C for 3 days each, the author has—he believes—succeeded in cultivating *M. leprae* from 7 human cases, and the Stefansky bacillus from 3 rats. "Seven or 8" successful subcultures of the latter, and "4 or 5" of the former, have been grown. The human bacillus, separated from the culture medium, gives Mitsuda's reaction in parallel with lepromin prepared by the usual method. The organism does not grow on ordinary media, glycerin agar, or culture media used for tubercle bacilli. Growth on the author's medium requires 30 to 40 days for the initial culture, and subcultures were made at 6 to 8 week intervals. The author believes he has guarded adequately against mere serial dilutions of the original inoculum.

—H. J. ARNOLD, JR.

SOUZA-ARAÚJO, H. C. Estudo bacteriológico de escarros de leproso-tuberculosos em tratamento com a estreptomicina. [Bacteriological study of sputa from leprosy patients with tuberculosis, treated with streptomycin.] Mem. Inst. Oswaldo Cruz 46 (1948) 669-671.

In a previous study the author obtained 31-43% positive cultures of *M. tuberculosis* from sputa of hospitalized leprosy patients. A new series from patients at the Curupaity colony has been examined. From 14 advanced cases of active leprosy with pulmonary tuberculosis under streptomycin treatment, the sputa treated by the Petroff method and cultured on Loewenstein medium, 13 showed after fifteen to forty-five days growths of Koch bacilli of eugonic type. Thus, streptomycin did not affect the pulmonary flora. Three of the 14 patients died within two months after the cultures were obtained. Three out of those 13 positive patients gave nonchromogenic cultures, of eugonic type, associated with chromogenic ones quite similar to cultures of acid-fast bacilli isolated previously by the author from leprosy material. One of the 3 patients who died showed, in smears of fresh sputum, only characteristic globies of Hansen's bacillus, (globies of Marchoux, not globi of Neisser). Probably he died from leprosy pneumonia. The eugonic-type cultures are being inoculated in guinea-pigs and the chromogenic ones, similar to leprosy cultures, will be inoculated in white rats and mice. —AUTHOR'S SUMMARY.

CHAUSSINAND, R. L'infection murine due au bacilli de Stefansky n'est pas une "lèpre." [The murine infection due to the Stefansky bacillus is not a "leprosy."] Bull. Acad. Méd. 132 (1948) 486-487.

Despite the common characters which their bacilli present, these two infections differ so widely in their nature that it is a mistake to apply the same denominative term to them. The author's studies have shown that the Stefansky bacillus possesses antigenic properties very close to those of the tubercule and paratubercule bacilli. Thus the lepromatous leprosy case, anergic to the Hansen bacillus, does not react to the intradermal injection of heat-killed Stefansky bacilli, tubercle bacilli, or paratubercule bacilli, if he is insensitive to 0.01 gm. of crude tuberculin given intradermally. On the other hand the lepromatous case, anergic to the Hansen bacillus but reactive to tuberculin, reacts with a local infiltration to diverse antigens. Furthermore, the reaction to killed Hansen bacilli (the Mitsuda reaction) does not reach its acme until the third to fifth week,

whereas the reactions to the other bacilli mentioned do so after one or two weeks. These observations have been confirmed with the monkey and the guinea-pig. Guinea-pigs inoculated by implantation of the murine lesion quite often become weakly positive to tuberculin, while those similarly implanted with the human leproma never do. The allergic phenomena of the Stefansky and other bacilli, then, are identical and clearly different from those of the Hansen bacillus. The infection induced by the Stefansky bacillus is in reality closer in nature to tuberculosis and the paratuberculosis than to human leprosy. The word "leprosy" applied to the murine infection should be replaced by "paratuberculosis." —AUTHOR'S ABSTRACT.

CHAUSSINAND, R., PARIS, C. & CROUGUE, O. Essais de traitement par la streptomycine de l'infection murine due au bacille de Stefansky. [Attempts to treat murine Stefansky infection with streptomycin.] Ann. Inst. Pasteur **75** (1948) 92-94.

To lots of a suspension of Stefansky bacilli (photometer optical index 170), streptomycin was added in increasing doses (200, 400, 500, 1000, 2000, 6000, 8000 and 16,000 units per cc.) and the containers, together with a control lot, were left at laboratory temperature, protected from light, and shaken at intervals. Stained smears made after six and twenty-four hours and four days showed no differences. Inoculations of 0.5 cc. doses of all streptomycin concentrations, made after six hours and four days in a total of 110 white rats, caused infections of the same evolution as those of 30 control rats inoculated on the same dates with the control suspension. Despite the negative results of this *in vitro* observation, the authors carried out some *in vivo* experiments. In one, 30 rats were inoculated with the same dosage of bacilli as before and treatment was begun two and one-half months later—when infiltration could just be felt at the site of inoculation—and was continued for two months with doses of 4000, 6000 and 8000 units twice a day. The rats which were sacrificed two to seven months after the beginning of the treatment all presented lesions similar to those of the controls. A variant experiment involving 50 rats and 40 mice, in which treatment was begun two days after inoculation, gave similarly negative results. It is concluded that the Stefansky bacillus must be included among the pathogenic agents which are insensitive to streptomycin. —AUTHOR'S ABSTRACT.

CARPENTER, C. M. Studies on murine leprosy; a progress report. (Report to the Division of Research Grants and Fellowships, U.S.P.H.S.; mimeographed.)

This work, previously done in Rochester, N. Y., is being continued in Los Angeles since the transfer there of the author as head of the Department of Infectious Diseases of the local branch of the University of California School of Medicine. Two papers were presented at the Havana Congress and one of them, an electron microscopy study, was published in THE JOURNAL [**16** (1948) 361-366]. In order that more may be learned of the internal structure of the bacillary cell a special technique of sectioning them is being developed, so that cross sections at different levels may be photographed. The course of murine leprosy in protein-depleted rats has been found to be somewhat similar to that in normal controls, except that the depleted animals were much more resistant. Protein-depleted rats inoculated with heavy suspensions of human lepromatous tissue showed, six months later, only small local lesions at the point of inocu-

lation. The infection in ground squirrels, kangaroo rats, hamsters and two strains of mice is being observed. —H. W. W.

TISSEUIL, J. Essai de culture de bacille de Stefansky en Sauton en association avec la levure de Springer. [Attempt to cultivate the Stefansky bacillus in Sauton's medium in association with the Springer yeast.] *Bull. Acad. Méd.* **131** (1947) 92-94.

The Stefansky bacillus incubated at 37°C. with the Springer yeast in the synthetic medium of Sauton retains its virulence for more than 35 days. —[From abstract in *Bull. Inst. Pasteur* **45** (1947) 707.]

ASHBEL, R. The metabolism of rate lepromas and of rat leprosy bacilli. *Trans. Roy. Soc. Trop. Med.* **40** (1947) 457.

Rat lepromas heavily infected with Stefansky bacillus contain cells of uniform type (reticulum) crowded with bacilli. Their respiratory quotient, studied by the Warbug method, ranges from 0.56 to 1.1. The respiratory quotient of bacilli extracted from lepromas is from 0.6 to 1.1. The author has not observed aerobic or anaerobic glycolysis.—[From abstract in *Bull. Inst. Pasteur* **45** (1947) 707.]

COLLATERAL TOPICS

ARNOLD, H. L. JR., & AUSTIN, E. R. "Diasone" treatment of actinomycosis of the jaw; report of a case. *J. American Med. Assoc.* **138** (1948) 955-956.

This article is a brief report, with before-and-after photographs, of a 40-year-old Filipino milker of cows in Hawaii who suffered from typical cervicofacial actinomycosis, with characteristic yellow sulfur granules in the pus. He was treated with penicillin on two occasions with only partial and temporary relief, and then diasone treatment was instituted (0.32 gm. three times daily, increased 1 daily tablet each week until 5 a day was reached). The drainage of pus stopped within a week, and the lesion rapidly decreased in size, having virtually disappeared by the end of the fourth week. Treatment was discontinued at the end of the sixth week. It is suggested that diasone is worthy of further trial in the treatment of actinomycosis. This treatment was employed because the senior author, when visiting Mexico, had been shown by Dr. Fernando Latapí a case of that infection improving rapidly under that drug, and had been told of two others which had been so treated with the same results.

—AUTHOR'S SUMMARY.

GARB, J. Tuberculosis cutis colliquative (tuberculous gummas), healed rapidly with local applications of promin jelly; report of a case. *Arch. Dermat. & Syph.* **58** (1948) 308-313 (Sept.)

Three ulcerative tuberculous gummas in a Negress, confirmed by histologic examination and guinea-pig inoculation, which had failed to respond to 6 units of roentgen rays filtered through 1 mm. of aluminum healed rapidly—in seven weeks—with local application of 5% promin jelly (promin 5%, tragacanth 3%, propylene glycol 10%, and water 80%; Parke, Davis & Co.); and at the time of writing they had remained so for two and one half years. The good result is attributed to the bacteriostatic effect of promin and to its slow diffusion in the tragacanth jelly base, which permitted continuous contact with the tubercle bacilli.

Because of the rapid healing and the ease of application it is recommended that promin jelly be given a trial in cutaneous and other accessible extrapulmonary tuberculosis before using other methods, such as calciferol with its attending danger of serious complications in the vital organs. Mention is made of three other reports of the use of this material in superficial tuberculous lesions, two of them from British and one from Australian sources.

—AUTHOR'S SUMMARY.

CORNBLEET, T. Combined calciferol and streptomycin in lupus vulgaris. *J. American Med. Assoc.* **138** (1948) 1150-1153.

The vitamin D treatment of lupus vulgaris, it is said, goes back a full century when Emery in Paris (1848) prescribed a liter of cod liver oil a day. The outlook for the patients with that affection has been changed with the development of calciferol (vitamin D₂) treatment in France, England and Belgium during the recent war. However, benefit usually ceases after between five and nine months, and many cases show persistent foci of residual activity in the lesions, and to them Charpy applied cauterization. Cornbleet has combined streptomycin and calciferol therapy with benefit. The first five cases so treated were given calciferol alone (100,000 to 150,000 units daily) until it ceased to be of benefit, after which the more expensive streptomycin was given (1 gm. daily) along with the calciferol (100,000 units daily) for periods of six to nine weeks. All signs of activity apparently cleared up. Two subsequent cases were given the combined treatment from the outset, and in them all lesions regressed so rapidly that treatment was discontinued after seven and eight weeks. The author suggests the possibility of a synergistic action, a sensitization of the tubercle bacillus by the calciferol to the effects of the streptomycin. He warns of the dangers of these potent drugs, and of the improbability that the improvement gained represents a permanent, complete cure. In discussing calciferol treatment generally he remarked that, in a few patients who "obtained more spectacular degrees of improvement" than usual, there were "initial toxic reactions" which perhaps represented "a kind of paradoxical effect or variety of Herxheimer reaction," or perhaps reactions to impurities contained in the calciferol.

—H. W. W.

DIJKSTRA, C. [Results of vitamin D₂ treatment in 111 patients with noncavernous, open pulmonary tuberculosis.] *Nederlandsch Tijds. v. Geneesk.* **92** (1948) 3385.

Because vitamin D₂ produced favorable effects in patients with tuberculosis of the skin and mucous membranes, Dijkstra tried this medication in noncavernous open pulmonary tuberculosis. The patients were given one tablet containing 30,000 units three times daily for eight to ten months. In some of them bronchoscopy disclosed mucosal changes in the form of tubercles, ulcerations, granulations, and caseation, while in others the mucosa was merely red and swollen. In many of them the sputum had been positive for nearly two years, in others for shorter periods. Many of them had been treated unsuccessfully for more than a year by other methods. In all of them the sputum became negative in 3 to 6 months after the start of the D₂ medication, and the mucosal changes in the bronchi disappeared.—[From abstract in *J. American Med. Assoc.* **139** (1949) 1041.]

SASANO, K. T. A study of the bacteriostatic and bactericidal activity of promin, diasone, sulfathiazole, sulfaguanidine and streptomycin on the H-37V strain of *M. tuberculosis*. American Rev. Tuberc. **59** (1949) 461-465.

Insufficient laboratory work has been done, the author holds, with the chemotherapeutic agents developed in the past few years, especially in relation to their bacteriostatic and bactericidal properties with respect to the tubercle bacillus. Using the H-37V strain and fluid culture media, sulfathiazole was found to be bacteriostatic in much higher dilution than promin (5 mg. against 40 mg. per 100 cc. for complete inhibition), while diasone was slightly less effective than promin. The bactericidal effects values, the final tests being made with both cultures and guinea-pig inoculations, showed promin to be somewhat more effective than diasone in the lower concentrations used, while both were much more effective than streptomycin, the activity of which was "slight." The other drugs tested showed no such effect at all in the lower concentration used—at which promin was still completely effective on 48-hour exposure while diasone was not.

—H. W. W.

NUKADA, S. & RYU, C. Hetero-specific alteration therapy for pulmonary tuberculosis. Japanese Med. J. **1** (1948) 181-192.

The resistance of rabbits or guinea-pigs against bacterial infection increases after vaccination (immunization) with a certain variety of hetero-bacteria—"hetero-specific increase of resistance," due to an increased defensive power acquired by a particular biological alteration of tissue cells. [See Nukada and Matsuzaki, *J. Exper. Med.* **40** (1924) 661.] The resistance of guinea-pigs or rabbits against infection by human or bovine tubercle bacilli can be increased by previous vaccination with *E. typhi* or *N. gonorrhoeae*, and the highest degree of "anti-tubercular" resistance can be produced by vaccination with a mixture of typhoid and gonococcal vaccine. Minimal, nonirritating doses of typhoid-gonococcal vaccine injected subcutaneously repeatedly at weekly intervals influence favorably the course of experimental tuberculosis in rabbits and guinea-pigs. A mixed autolysate, a combined autodigestion product of *E. typhi* and *N. gonorrhoeae* called "heterosate," acts to increase the anti-tubercular resistance more effectively than do the bacteria alone. Experimental fatal tuberculosis in rabbits, produced by intravenous injection of a large dose of high virulent human tubercle bacilli, may be cured in approximately 80% of cases within one year by subcutaneous injections of gradually increasing doses of heterosate, with remarkable macroscopic and microscopical differences in the lungs between the treated and the untreated groups. Clinically, 932 patients—705 outpatients and 227 inpatients, in most of whom the disease was relatively mild—have been treated with the heterosate during a five-year period (1940-1945), the material being injected subcutaneously at weekly intervals, starting with minimal doses and gradually increasing within the limits of irritation. Of 703 incipient disease and mild cases, 550 recovered completely and 151 improved; of 229 moderately and severely ill patients, 107 improved and 72 recovered.— [From author's summary. In the *J. American Med. Assoc.* **139** (1949) 269, is to be found a critical review of a book by these authors, entitled: Hetero-Specific Alteration Therapy: A New Treatment of Pulmonary Tuberculosis Based on Specific Cellular Alteration Produced by a Mixed

Autolysate of Typhoid Bacilli and Gonococci. Japan Medical Publications Co., Ltd., Tokyo and Kyoto, 1948; paper, pp. 80, with 5 illustrations.]

HASEGAWA, S. Studies on the chemotherapy of tuberculosis. Japanese J. Exper. Med. **20** (1949) 69-101.

It is stated that this article, which derives from the Institute for Infectious Diseases of Tokyo University, is a summary of the principal points of a monograph published in 1942. The latter was based on more than 10 years' work with H. Kondo and others in what was intended to be a search for a cure for leprosy, but which was directed towards tuberculosis because experimental animals could not be infected with leprosy and ("in those days") the bacillus could not be cultivated. Having discovered several essential oils which "strengthened the action of snake venom" he sought for something that would have the effect of weakening its action and hit upon a certain group of alkaloids, those of the biscoclaurin type. Of them, cepharanthin and isotetrandrin were found to be especially effective in inhibiting the formation of tubercles in experimental tuberculosis in guinea-pigs. Attention was concentrated on the former substance, the pharmacology and chemical properties of which are dealt with briefly. The results of treatment of various forms of tuberculosis in man are related. The efficacy of this substance in leprosy was demonstrated by the author's associates T. Hashimoto and K. Mitsuda, especially the former who found it superior to chaulmoogra; some serious cases "were cured in just about a month—something that is almost unbelievable" [sic]. Details are given of the experience of K. Furumi, who in the course of 4 years (1942-1946) used cepharanthin in 522 leprosy cases, 133 of them for more than one year. A table shows some degree of improvement in all of 103 nodular ones, and 51 of those called "lepra maculosa" in Japan [tuberculoid]. Of the former, 65% made "remarkably good progress" and 8% were "completely cured"; the respective figures for the maculosa group are 14% and 8%, respectively. Several photographs illustrate improvement obtained.

—H. W. W.