

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.

- 6 MELSOM, R. S. A survey of leprosy cases. *Acta Derm.-Vener.* **28** (1948) 256-261.

This is an account of the 3 new cases that occurred in Norway in the five year period 1941-1945 (the Norwegian statistics being made up in five-year periods). One of these cases was of the nodular (lepromatous) type which turned very malignant, there developing very large necrotic ulcers on the limbs and body (lazarine type?). The two others had the indeterminate form with polyneuritic affections (Ip). One of them was presumably infected while serving as a mate on an American ship during the travelling to the Far East. He was isolated at Carville and sent to Norway in 1945, turned lunatic (paranoia), was operated upon (lobotomy), and died because of the operation. He was born in 1916 in a place in Norway where scattered cases of leprosy have previously occurred, although not so recently that he could be supposed to have had contact with any of them. Since 1930 we have observed in Norway 3 sailors infected abroad, 2 of them probably in eastern Asia, and 1 in Central America. In view of the considerable over-seas traffic common to all the northern countries, it must be borne in mind, in obscure cases of dermatoses, that instances of leprosy may occasionally turn up among sailors. —AUTHOR'S ABSTRACT

- 6 HARBITZ, F. Lepraforskning i Norge gjennom hundre aar. [Leprolgy in Norway during a century.] *Nordisk Med.* **38** (1948) 677-679.

This centenary address gives a very short survey of Norwegian contributions to leprology: the great descriptive treatise by Danielssen and Boeck published in 1847, the discovery of the lepra bacillus by Armauer Hansen probably made in 1873 and reported in 1874, and finally the extensive studies of the pathology and epidemiology of the disease made by H. P. Lie. To the work of these men is largely due the fact that leprosy has been practically eradicated in Norway, the number of cases having decreased from nearly 3,000 in 1856 to 23 in 1943. [In 1948 the number was 16.]

—R. MELSOM

- 6 MADSEN, A. Nyopdaget lepratiffelle i Oslo. [Newly discovered case of leprosy in Oslo.] *Nordisk Med.* **40** (1948) 2176.

Report of a case of leprosy from Oslo. For 35 years there has been no patient with the disease in that town, and it has never been endemic in that part of Norway.

—R. MELSOM

- 6 [FIJI] Medical Department, Annual report of the Director of Medical Services for 1948; Council Paper No. 25, 1949, Appendix III.

This appendix, by C. J. Austin, medical superintendent of the Fiji Leprosy Hospital, Makogai, as usual [see *THE JOURNAL* **17** (1949) 156 and 399-409] tabulates the patients—of whom there were 684 at the end of the year—by race or island group of origin and by sex; Indians predominated

over Fijians in the proportion of 271 to 132, and males over females in the ratio of 2.26:1. Of the 78 new admissions, 54.8 per cent were of neural type, which is regarded as a disappointingly low proportion. Of the 52 discharges, 94.2 per cent were classified as neural; only 3 L cases were discharged, all of them Indians. There were 40 deaths, 32 of which were more or less advanced lepromatous cases. The Mantoux test was positive in 41.5 per cent of 229 Indians tested, in 56.6 per cent of 120 Fijians and 54.5 per cent of 76 Gilbert Islanders. Acquisition of sulphetrone for treatment had been greatly delayed, but at the end of October 62 patients were started on 1 tablet (0.5 gm.) per day and, where warranted by the conditions, increased to 6 tablets within a fortnight. Within a month treatment had to be interrupted with 31 of them because of sudden onset of anemia, severe reaction, or general weakness. Nevertheless, improvement was noted in many cases in the two months before the end of the year with respect to chronic, persistent ulcerations; 27 of the 62 had become completely free from them, and another 20 were much improved. —H. W. W.

[QUEENSLAND] Annual Report on the Health and Medical Services of the State of Queensland for the Year 1947-48, Brisbane, 1948. Leprosy, by E. J. Reye, medical officer in charge, and F. Mahony, superintendent.

The fiscal year, 1947-48, began with 55 white patients at Peel Island (the institution for white patients) and ended with 52, of which 27 were first admissions, 22 second admissions, and 3 third admissions. Regarding ages, 32 were over 40 and 6 over 70, 2 of them over 80; the average age was 47.3 years. All cooperative patients—a great majority—were receiving sulfone treatment, although on something of an emergency basis due to shortage of medical staff. Because of the time required for its administration, promin had been abandoned after a year's use in favor of diasone. Information regarding the situation with the aboriginal patients is limited to the statement that it had not been possible to do any surveys during the year but that there had been a number of admissions to their leprosarium on Fantome Island, all of them cases which had been regarded as suspects in the last survey. It is stated that both contact and incubation periods are shorter in natives than in whites.—[From material supplied by J. A. Doull.]

[QUEENSLAND] Annual Report on the Health and Medical Services of the State of Queensland for the Year 1948-49, Brisbane, 1949. Leprosy, by E. J. Reye, medical officer in charge, and F. Mahony, superintendent.

At Peel Island there were 59 patients at the end of the year as against 55 for 1946-47 and 52 for 1947-48. There were 13 admissions during the year, but only 5 were new cases. Leprosy is endemic in some parts of the state, but there is no evidence that it is increasing among the white population, for the averages of annual new admissions per million of population during the last five five-year periods has remained "substantially unchanged" although the facilities for recognition and diagnosis have improved. Staff difficulties have increased, because of continued failure to procure an additional medical officer, a shortage of nurses, and the resignation of technicians which brought laboratory work to a halt. Diasone continues to give gratifying results, and sulphetrone is being introduced. At the Fantome Island institution for aboriginals, where the

patients are cared for by Sisters of the Franciscan Order, the number remained unchanged at 73 although 10 new cases were admitted during the year. The average age of cases found in the last survey is 28 years. There are seven married couples, and five births occurred during the year. Sulphetrone treatment has been started here. All of these patients have been found to be Rh positive.—[In part from material supplied by J. A. Doull.]

[EDITORIAL] Leprosy in the United States. *J. American Med. Assoc.* **142** (1950) 1365.

This editorial points out that leprosy has never been an important problem in Continental United States, the number of known cases never exceeding about 500 at any one time. There are 6 leprosaria maintained by the United States and the territories, with about 950 patients of which some 390 are at Carville. It also explains the difficulties met with by local physicians and health officers of the states because of the exaggerated fear of the local population, which prevents the patients being treated unless they are sent to the federal leprosarium at Carville, which is done often against the better judgment of the local authorities. These attitudes are in process of change. The changes in the public health point of view are to some extent due to the development of a more hopeful outlook because of the sulfone therapy—chaulmoogra oil and its derivatives having been discarded as useless while the results obtained with the sulfones, it is stated, put treatment in the hands of the practicing physician—and by the epidemiology of the disease. The geographic distribution of leprosy is discussed as well as the attitude of the various states toward the disease. Endemic areas are confined mainly to parts of Florida, Louisiana and Texas; California comes nearest to being an exception to this generalization, but of 600 cases reported from that state only 23 probably have been infected there. In New York and Vermont the lack of danger has long been recognized; Massachusetts—where only one case has originated—does not impose restrictions; and 10 other states have no leprosy regulations except for notification. It is becoming recognized that only cases discharging the causative organism are sources of new infection, and that “with some exceptions infection is likely to occur only in the early years of life.” The situation can now be viewed with more optimism than formerly was possible. “In these days, when so much emphasis is being placed on the organization of research and the necessity of large funds to carry it on, it is significant to recall that the advances in control of leprosy have been made by careful clinical observation and epidemiological facts judiciously appraised without special organization or special financial support.”

—F. A. JOHANSEN

481
p.v.
MONTESTRUC, E., CAUBET, P. & BLACHÉ, R. L'endémicité lépreuse à la Martinique en 1948-1949. Considérations générales sur la lèpre à la Martinique. Résultats généraux de deux ans de traitement de la lèpre par les sulfones. [Leprosy in Martinique, 1948-1949; general considerations; results of two years of treatment with the sulfones.] *Arch. Inst. Pasteur Martinique* **3** (1950) (No. 1-2).

In 1948, 84 new cases of leprosy were discovered in Martinique, and 93 in 1949. The figures for the preceding 10 years are as follows: 1938, 58; 1939, 62; 1940, 69; 1941, 64; 1942, 60; 1943, 53; 1944, 48; 1945,

51; 1946, 53; 1947, 58—varying between 48 and 69, and averaging 57.6. The total number of existing cases is difficult to determine, but according to the results of surveys since 1939 it is estimated that the total index of morbidity is 3.4 per thousand—a rate well below the truth. By the South American classification, the 177 recent cases are: 80 lepromatous (29 less than 15 years of age), 46 tuberculoid (15 less than 15 years), and 51 indeterminate (10 less than 15 years). Of these new cases, 54 (30.5%) were less than 15 years of age, and 56 were attending school—30 lepromatous, 14 tuberculoid and 12 indeterminate. The authors record the usual favorable results in lepromatous cases treated with promin, diasone, and cimédone (the French equivalent of sulphetrone). —H. FLOCH

GEHR, E. Die Lepra in Ostasien. [Leprosy in East Asia.] *Ztschr. f. Tropenmen. u. Parasit.* 1 (1949) 303-327.

This highly documented work, accompanied by a list of 146 references, contains numerous statistical and other features of interest but is so condensed as to make any summary of it impossible. The territories covered are: China, Japan, Formosa, Korea, Indochina and Siam; the Philippines, Malaya and Indonesia are not dealt with. The author, at one time [during the last war?] at the leprosarium at Chiangmai, Siam, is apparently now located in Bangkok. —H. W. W.

[INDIA, CALCUTTA] Report of the Leprosy Research Department, School of Tropical Medicine, Calcutta for 1948. *Lep. India* 21 (1949) 165-170.

(1) Therapeutic studies have been concentrated on diasone and sulphetrone in advanced lepromatous cases. The former has been given to 12 such cases for 2 to 3 years, the latter to 28 cases for 1 to 2 years. All of them have shown marked improvement, with no severe toxic effects. Treatment for 2 months followed by a rest period of 1 month was found advantageous in overcoming a condition observed, namely, a fall in the blood concentration of the drugs resulting from prolonged administration. (2) Histological studies in relation to classification and in correlation with immunological findings have been continued. The findings strongly support the view that histological findings cannot be made the primary basis of classification. For example, the simple or "uncharacteristic" histology is seen in some flat patches of the "neural" type, in unclassified flat patches, and in the stage of subsidence of thick patches of all kinds. Similarly, the "tuberculoid" histology is found in a considerable proportion of the "simple" patches and in a number of unclassified or intermediate thick patches. Moreover, the histological picture in the same type and in the same lesion shows considerable variations with variations in the clinical activity of the lesions. It is, therefore, concluded that histological terms cannot properly be used to designate the various clinical varieties of the disease. Regarding the significance of variations from typical histology seen in some tuberculoid and lepromatous lesions, the long-term study of selected cases has shown that no special significance need be attached to these variations which are caused by differences in stages of activity. Thus, in an otherwise typical tuberculoid lesion one may find atypical features, such as marked vacuolation of epithelioid cells, noninfiltration of nerves in the midst of granulomatous foci, and a comparatively free subepidermal zone, all reminiscent of lepromatous histology. These atypical features are not infre-

quently found in the stage of reaction of cases which later subside to the typical tuberculoid form and remain lepromin positive. Similarly, in an otherwise lepromatous histology one often finds tuberculoid arrangement of cells, with or without the presence of giant cells. These findings are of no special significance, for the cases remain and progress as lepromatous and are lepromin negative. (3) Study of nose and throat lesions in lepromatous cases showed that, while involvement of the nasal mucosa is very common, that of the nasopharynx, pharynx and larynx is much less frequent. Bacilli were found in the nasopharynx in only 11 of 33 cases. (4) In the routine work, 2,403 new patients attended the outpatient department for diagnosis, and 2,088 of them were diagnosed as leprosy, 1,689 neural and 399 lepromatous. The number attending for treatment was about 400 per week.

—DHARMENDRA

- INNES, J. R. Leprosy in Tanganyika; results of sample surveys in a wide range of places. *East African Med. J.* **26** (1949) 202-203.

This report deals with leprosy surveys in many parts of the territory, involving 25 population samples varying from 92 to 980 people. Among the 8,572 persons examined 123 cases were found, 14.3 per thousand; the different local rates vary between none and 5.3 to 35.7. The data on ages, given in a full table, show that the groups examined were very largely made up of youths, from which it is thought that the true incidence in the whole population would be much higher.—[From abstract in *Trop. Dis. Bull.* **47** (1950) 366.]

- INNES, J. R. Leprosy in Tanganyika; a survey of the Lake Province. *East African Med. J.* **26** (1949) 199-201.

This is a report on a survey of a little studied leprosy area with a population of 1,600,000 people, of whom were examined samples ranging from 50 to over 15,000, averaging over 1,700, in 36 localities and totalling 61,607 people. The number of cases found was 979, or 15.8 per thousand, which indicates an estimated total for the province of 25,000. The rates for the different localities varied between 0.7 and 60.9 per thousand of those examined. Males slightly exceeded females. Two of the localities were islands in which all of the inhabitants (1,173 and 15,506) were examined, and in the larger of these groups 22 per cent of the cases found occurred in children. Lepromatous cases were only 21.4 per cent of the whole, while there were many early and easily curable cases with elevated tuberculoid lesions. The living conditions in small dark huts, often with multiple wives, resulted in a total of 691 leprosy persons living in home contact with a total of 1,663 children, while only 81 lived alone. Other conditions favoring high leprosy rates include high humidity and proximity to the highly leprosy area of Eastern Congo.—[From abstract in *Trop. Dis. Bull.* **47** (1950) 365.]

- INNES, J. R. Leprosy in Tanganyika; a survey in the Southern Highlands Province. *East African Med. J.* **26** (1949) 212-215.

In this further survey, 529 cases of leprosy were found among 43,846 persons examined in 27 localities, or 12.0 per thousand, indicating an estimated total of 10,330 cases for the total population of 861,000 people. The rates in the different areas varied from 2.5 to 31.0 per thousand. The percentage of children up to 14 years of age was 18.8. Only 19.8 per cent of the cases were lepromatous, as is usual in East Africa, and no less than

66.7 per cent were of the tuberculoid type. Only 4.7 per cent of the patients lived alone, while 81 per cent lived in contact with children. Moreover, 81 per cent lived in humid areas and only 19 per cent in dry areas. High altitudes with low temperatures did not influence the number or type of the cases, but scattering of the populations in the mountainous areas tended to low incidence. The Rungwe district has the highest incidence of 20.5 per thousand, but has a leprosarium for 600 cases. The total surveys carried out in Tanganyika between 1947 and 1949 show an incidence of 14.3 per thousand among 114,025 people examined, which indicates a grand total of 80,000 cases in the territory.—[From abstract in *Trop. Dis. Bull.* 47 (1950) 366.]

LLANO, R. Estado actual de la lucha antileprosa en el país. [Present status of the antileprosy campaign in Argentina.] Leaflet, 2pp.

This leaflet, by the director of the Dirección Dermatología (leprosy service) of the Ministry of Public Health was distributed as a part of the material preparatory for the Pan-American meeting to be held in Buenos Aires, before it was postponed. He suggests that there seems to be developing an immunity against the disease in Argentina, for most of the cases now found are tuberculoid or incharacteristic whereas some years ago the majority were lepromatous, 85 per cent of those found in the northern part of the country being of that kind. The problem of supplying accommodations for the patients who should be hospitalized has been pretty well taken care of, and the main problem now is the establishment of dispensaries for the treatment of others. The total capacity of the five "sanatorio colonias" has been increased from 1,270 in 1946 to 2,160 at present, distributed as follows: at Posadas, in Misiones, 350; "Baldomero Sommer," near Buenos Aires, 1,100; in Diamante, 300; "Maximiliano Aberastury," on Cerrito Island (Corrientes), 250; and "J. J. Puente," at San Francisco del Chanar, 160. Adding 150 for a place in Formosa under construction, and 350 for the "Pueblo Esther" of the Patronato de Rosario, makes a total of 2,660. Of the 7,000 reported cases over 50 per cent are of the noninfectious forms. —H. W. W.

VAN BREUSEGHEM, R. Présentation d'un cas de lèpre. Possibilité d'inoculation directe. [Presentation of a case of leprosy. Possibility of direct inoculation.] *Arch. belges Derm. Syph.* 5 (1949) 41-42.

A 47-year-old man who had been living in the Congo for 20 years had often been in contact with leprosy patients. In March 1948 he was stung in the neck by an insect. The sting was rapidly followed by a swelling and itching and afterwards by a red and infiltrated spot in which Hansen bacilli were found in July. In the discussion that followed, L. DeKeyser stated that he did not admit direct contagion in this case.—[Abstract from *Exc. Med.* 3 (1949) 489.]

DE KEYSER, L. Un cas de lèpre, possibilité d'inoculation direct. [A case; possibility of direct inoculation.] *Arch. belges Dermat. et Syphil.* 5 (1949) 125.

The entire statement concerning this presentation of a case is essentially as follows: There are two species of cockroaches, *Blattella germanica* and *Oxykaloa muraya*, which bite savagely and produce small lesions of the skin, and in which leprosy bacilli have often been found. These species are abundant in Southern Rhodesia. —H. W. W.

- 6 SIMONS, R. D. G. PH. *Über die sog. Prodrome der Lepra.* [On the so-called prodromata of leprosy.] *Dermatologica* **99** (1949) 164-172.

A critical survey of the literature shows that the usual statements regarding the prodromata of leprosy are based on case histories, which for many reasons appears to be of extremely doubtful value. To get a more objective idea of this matter the author has compared the statements of leprosy patients with those of 200 normal persons. It was found that the so-called prodromal symptoms of leprosy were related with almost the same frequency by leprosy-free persons as by leprosy-patients, and were the more frequent the more closely one inquired about them. Furthermore, fever is frequent in the tropics, often due to malaria or filariasis. One can, therefore, offer no real proof of the existence of prodromal symptoms in leprosy. Statistically their existence is even improbable. This conclusion is an agreement with the low toxicity of the leprosy bacillus, which produces only very weak or no toxic symptoms even when they are present in enormous numbers.—[From the author's summary.]

- 6 ARNOLD, H. L., JR. *Diffuse lepromatous leprosy of Mexico (spotted leprosy of Lucio).* *Arch. Dermat. & Syph.* **61** (1950) 663-666.

The author gives a brief history of the spotted leprosy of Lucio as it occurs in Mexico. One of the most remarkable features of this form of leprosy is its extraordinarily limited geographic distribution. It comprises 15-20 per cent of the cases in Mexico City, and about 30 per cent of those in Costa Rica; only occasional cases have been seen in other parts of Central America and the West Indies. One Mexican-born boy was reported in Los Angeles, and one case has been identified in Hawaii. The author feels that, up to 1947, no detailed description of diffuse lepromatous leprosy had been published in the English language. He gives a description of it, including its serology and the results of the lepromin test. The author says that bullous leprosy lesions described by some workers were not this diffuse leprosy, but reactive lepromatous nodules. The term "lazarine," from an early Mexican colloquialism applied to this variant of leprosy and to leprosy generally, and more recently to any sort of leprosy with vesicles or bullae, has acquired highly confusing connotations and should be abandoned altogether. —J. A. JOHANSEN.

- 6 SOTO, M. C. *A reação leprótica do ponto de vista ocular.* [Lepra reaction from the ocular point of view.] *Rev. brasileira Leprol.* **17** (1949) 75-80.

As a rule, lepra reaction appears during the course of treatment. Usually it may be interpreted as a favorable indication of the defensive reaction of the organism. Lepra reaction of the eye produces distressing results, causing disturbances of vision, and should be controlled as quickly as possible.—[Translation of author's summary.]

- 6 GHOSH, L. M. *Diseases simulating leprosy.* *Lep. India* **21** (1949) 131-135.

At the All-India Leprosy Workers' Conference, Calcutta, the author dealt with some of the common skin diseases in India that are likely to be confused with leprosy. Among these he mentioned the leishmania infections of the skin (*L. tropica* and *L. donovani*), tuberculosis of the skin (lypus vulgaris and the tuberculides including Bazin's disease and lupus perniosis), sarcoid, the syphilids, leucoderma, seborrhoeic dermatitis,

acne rosacea, the naevi (spider naevi, capillary and cavernous naevi). The main differentiating points are considered to be absence of the cardinal signs of leprosy. —DHARMENDRA

- BARNES, J. A case of filarial elephantiasis of the face resembling nodular leprosy. *Lep. Rev.* **20** (1950) 35-36.

A report of a case, with photograph, of elephantiasic nodulation of the face. —G. O. TEICHMANN

- LEIDER, M. & COHEN, T. M. Leukoderma acquisitum centrifugum. *Arch. Derm. & Syph.* **57** (1948) 380-386.

This "leukopigmentary anomaly," which Sutton named in 1916, is not excessively rare nor is it new; in fact, the condition is exactly depicted on one of the demoniac figures in a painting, "Temptation of St. Anthony," of 16th century origin. The lesion has been described as "vitiligo with a central mole," or "vitiligo formed around a preexisting nevus"; and in one of the two cases here reported each of 5 of the 12 round or oval, coin-sized white spots on the back had a hyperpigmented macule or papule in the exact center. The authors maintain that the condition is nothing more than banal vitiligo which starts accidentally, or for some particular but unknown reason that causes all depigmentation, around preexisting moles. They discuss especially the theories of pigmentary anomalies, and concluded that probably the inhibition of pigment formation in various conditions including syphilis, burns and the like, have a common physicochemical mechanism; and the same in reverse for hyperpigmentation. Such lesions "accent the extreme liability of pigment formation and distribution." [This report is of interest because in appearance the lesions suggest some of those of leprosy, and because of the comments on anomalies of pigmentation.] —H. W. W. *ade*

- DAVEY, T. F. The treatment of leprosy with sulphetrone. *Lep. Rev.* **19** (1948) 55-61.

Detailed case reports are given of 17 lepromatous cases at the Uzuakoli Settlement which had received sulphetrone for more than five months. The dosage employed was 0.5 gm. weekly increased up to 3 gm. daily on 6 days per week, the drug being given in courses of 6 weeks at this maximum dosage, with rest period of 2 weeks. Every patient showed improvement in general condition, with weight increased in 6, and none become worse. The improvement was particularly striking in the advanced and degenerating cases, in all of which the outlook was entirely transformed. In most cases improvement was apparent within three months of the first dose. The bacteriological findings did not follow the clinical improvement, but 2 cases became negative and in 9 others the bacilli diminished in numbers. —[From abstract supplied by Burroughs Wellcome & Co.]

- 548
p. 10
RODRIGUEZ, J. N. Latest results with sulphone drugs at the Central Luzon Leprosarium, Novaliches, Rizal. *J. Philippine Med. Assoc.* **25** (1949) 435-440.

Promin, diasone and diamidin were used in 30, 87 and 15 cases respectively, the first two groups for a year, the third group for 6 months. The results recorded are in line with those reported by other workers elsewhere, except that dosages as high as are current in some places were not tolerated by these patients. It is concluded that the optimal daily

doses for Filipino patients are 2-3 gm. of promin, and three tablets (0.9 gm.) of diasone. Mixed sulfone treatment, injecting one or two doses of promin each week and giving diasone or diamidin on the other days, has been tried on 12 patients for a few months with somewhat disappointing results; no synergistic effect was noted. The cost per year of treating one patient with 2 to 3 gm. of promin per dose is about US\$75, while with diasone and diamidin the cost is about \$25. —J. O. NOLASCO

HAMERS, A. L. T. M. & HERMANS, E. H. Lepratherapie met sulfonamides. [Treatment of leprosy with sulfonamides.] *Nederlandsche Tijdschr. Geneesk.* **93** (1949) 2345-2350 (English summary).

Diasone and promin were used in treating a series of leprosy patients at Stichting Centrale Organisatie ter Bestrijding van Huid-en-Geslachts-Ziekten, Rotterdam. The series included 35 patients, 12 tuberculoid and 23 lepromatous or atypical. Of the tuberculoid cases, in 7 the disease was arrested, in 4 there was some improvement, and in only 1 did the disease appear to be aggravated. In view of the naturally benign course of this form of the disease, there must be some doubt whether even a slight risk of aggravation should be taken. It did, however, appear that in most of these cases arrest and healing were accelerated. The results in the lepromatous cases were less satisfactory. However, only 17 of the 23 had been treated for 8 months or more, and of them 13 had improved, 1 had remained stationary, and 3 had become worse on account of lepra reactions. There was a high incidence of anemia and severe depression, and 4 of the original 35 had to discontinue because of intolerance. It is concluded that, because of the bad prognosis of these cases, it is justifiable to give sulfones, but the patients must be closely watched for reactions, treatment of which is unsatisfactory. Iron and liver treatment is necessary according to the type of anemia.—[From abstract in *Trop. Dis. Bull.* **47** (1950) 139.]

[The term "sulfonamides" in the title is not in keeping with general usage, "sulfones" being meant.—EDITOR.]

JOHANSEN, F. A., ERICKSON, P. T., WOLCOTT, R. R., MEYER, W. H., GRAY, H. H., PREJEAN, B. M. & ROSS, H. Promacetin in the treatment of leprosy: progress report. *Pub. Hlth. Rep.* **65** (1950) 195-207.

Promacetin (sodium 4,4'-diaminodisulfone-2-acetylsulfonamide), a sulfone closely related chemically to promin, diasone and sulphetrone, soluble up to 3 per cent in water at room temperature, is of relatively low toxicity because it does not break down into diaminodiphenyl sulfone, the highly toxic parent substance. Furthermore, even with massive doses by mouth the blood level of promacetin will seldom attain dangerous proportions. These features, together with the evidence that it has antileprosy properties on oral administration, led to this further investigation of its possibilities in the treatment of leprosy. The cases treated were 26 lepromatous ones and 1 with the tuberculoid form. The dosage was gradually increased from 0.3 to 4 gm. daily, given at mealtime, and was well tolerated. The improvement of skin and mucous membrane lesions was uniform, universal and sustained. Diminution of the bacilli followed, skin smears beginning to show a noticeable reduction of bacilli at the end of a year, at which time many patients had no bacilli in the nasal mucous membrane. Slight depression of the erythrocyte count may occur during the first few weeks of treatment, but in the absence of other complications the counts usually returned to the original level spontaneously. Renewed clearing of ap-

parently stationary residual lesions during promacotin therapy in patients previously treated with other sulfones suggests that a wider application should be made of alternating or combined treatments.—[From abstract in *J. American Med. Assoc.* **143** (1950) 846.]

- 6 FLOCH, H. & DESTOMBES, P. Supériorité pratique de la diamino-diphenyl-sulfone (1358 F) sur les sulfones disubstitués dans le traitement de la lèpre. [The practical superiority of diaminodiphenyl sulfone (1358F) over the disubstituted sulfones in the treatment of leprosy.] *Ann. Inst. Pasteur* **78** (1950) 559-571.

This article is for the most part identical, except for editorial changes, with the one by these authors which appeared under another title in *THE JOURNAL* **17** (1949) 367-377, and which had previously appeared in a different and abbreviated form in the *Bulletin de la Société de Pathologie exotique* **42** (1949) 434-439. The main difference from the former publication is the inclusion of three more tables and of summary reports of five of the cases treated. —H. W. W.

- X BEINHAEUER, S. G. & JACOB, F. M. Promin in the treatment of certain dermatoses. *Arch. Derm. & Syph.* **60** (1949) 338-340.

Promin was used in the treatment of 81 cases of common dermatoses, 7 listed as chronic and 8 as acute, with disappointing results, only 10 showing improvement. Toxic reactions were common, and no advantage over recognized treatment regimens was seen. It was given by mouth except in the 3 cases of scleroderma, which received it intravenously; local applications of the jelly (in a tragacanth base) was also used in all instances. The group included 3 cases of sarcoidosis, none of which improved. —H. W. W.

- X HOHENNER, K. Ein Behandlungsversuch der Lepre mit dem Thiosemicarbazone TB 1/698. [Treatment of leprosy with thiosemicarbazone, TB 1/698.] *Med. Klin.* **44** (1949) 1378-1381.

A case of lepromatous leprosy was beneficially influenced by a six-month treatment of TB 1/698 (thiosemicarbazone Domagk). Dosage 100 mg. daily. Nausea caused the patient to interrupt the course of treatment. Eventually artificial fever (10X) was given.—[Abstract from *Exc. Med.* **4** (1950) Sect. XIII, p. 98.]

- X TUCKER, W. B. *et al.* Current status of drug therapy in tuberculosis. *American Rev. Tuberc.* **61** (1950) 436-440.

This report of the clinical subcommittee of the committee on medical research and therapy of the American Trudeau Society (which is the medical section of the National Tuberculosis Association) deals with the various drugs currently in use in this disease. Regarding the thiosemicarbazones, the use of which in Germany had been reported on by Hinshaw and McDermott [*THE JOURNAL* **18** (1950) 181], the following statement is made:

The Subcommittee proposes to encourage additional studies of this substance, especially more extensive research in the bacteriological, pharmacological, physiological, chemical, toxicological, and clinical aspects of the uses of this compound in the treatment of tuberculosis. It would seem best to utilize the facilities of organized groups of investigators functioning well in allied research, namely, the United States Food and Drug Administration, the Public Health Service, the medical departments of the Veterans Administration, the Army, and the Navy, and public and private institutions and workers supported by various grants and aids.

It is the judgment of the Subcommittee that further research along

the lines indicated will determine whether the thiosemicarbazones will be used best in the treatment of tuberculosis as primary drug therapy, or as adjuncts to other drugs. It is not believed that TB1 should be employed generally in the treatment of tuberculosis until more definite information is available concerning its limitations and potentialities. —H. W. W.

- X KARLSON, A. G., GAINER, J. H. & FELDMAN, W. H. The therapeutic effect on experimental tuberculosis in guinea-pigs of 4-acetylaminobenzaldehyde thiosemicarbazone (TB1) alone and in combination with streptomycin. *Proc. Staff Meet. Mayo Clinic* **25** (1950) 160-167.

This report is of an experiment to determine the effects of TB1 alone and with streptomycin in tuberculosis in guinea-pigs, the treatments begun on the thirtieth day after infection and continued for 60 days thereafter, when all of the animals were killed and the amount of tuberculosis present was evaluated. The 42 animals were divided into 5 groups for treatment. Two were given streptomycin alone, one receiving 6 mgm. and the other 2 mgm. daily; the larger dose has been shown to effect marked regression and healing of the infection, whereas the smaller one is only partially effective. A third group received TB1 alone, given in the diet, at first—the supply being limited and toxicity not established—in only 0.1 per cent concentration, later 0.2 per cent; the average amounts taken were 50 and 100 mgm./kgm. daily, respectively. The fourth group received this drug plus the 2 mgm. dose of streptomycin, while the fifth group was not treated. The "average indices of infection" of these groups at the end of the experiment were as follows:

Untreated controls	78.3
Streptomycin alone, 2 mgm.	39.0
Streptomycin alone, 6 mgm.	9.2
TB1 in diet, alone	25.3
TB1 plus streptomycin 2 mgm.	19.1

The animals receiving TB1 alone had distinctly less tuberculosis than did those which received the smaller dose of streptomycin alone; the results, with one exception, "more closely resembled the necropsy observations recorded for the animals treated with 6 mgm. of streptomycin." The combination of TB1 and streptomycin (small dose) effected "a beneficial change comparable to that seen in those treated with 6 mgm. of streptomycin alone," slightly greater than that of the TB1 alone. —H. W. W.

- X KERHARO, J. & BOUQUET, A. La notion de lèpre et les conceptions indigènes du traitement en Côte d'Ivoire et Haute-Volta. [Notions regarding leprosy and the native treatment of leprosy in the Ivory Coast and the Upper Volta.] *Bull Soc. Path. exot.* **43** (1950) 56-64.

Leprosy is one of the plagues of this region, especially in the Upper Volta, with an estimated total of probably more than 30,000; and it is perhaps the disease best known and the most feared by the Negroes. In the course of their investigation of the native pharmacopoea, the authors have collected folklore regarding leprosy and its origin and information regarding the drugs used by the people—which are many and of several classes. This material is not susceptible to summarization. —H. W. W.

- X TEICHMAN, G. O. Prevention of deformities in leprosy. *Lep. India* **21** (1949) 135-139.

To prevent deformities, all patients with anesthesia of the extremities should be urged to make and use some kind of protective gloves when they are doing any cooking or handling anything hot, and to use strong, well-

made leather sandals to protect the feet. Their hands and feet should be kept scrupulously clean, and be massaged with oil. Outdoor labor under the sun is advocated. The author has noticed that those who take larger doses of *hydnocarpus* oil suffer less from deformities than others. The importance is stressed of a well-balanced diet with adequate caloric content and vitamins A and D. To prevent deformity due to pressure of nodules on the fingers and toes, daily massage with oil is advocated. The absorption of bones of the fingers and toes in lepromatous cases may be prevented by means of the sulfones. For the correction of existing deformities and wasting of muscles, remedial exercises are advocated. In tuberculoid leprosy with considerable thickening and abscess formation of the nerve tissues, decapsulation is suggested; after some days of postoperative rest finger-exercises should be started. In lepromatous neuritis rest, local application of heat and counter irritants, and antimony injections are advised; capsulotomy should be reserved as a last resort. —DHARMENDRA

HATCH, V. R. The use of physical and occupational therapy in peripheral nerve lesions of leprosy. *Mil. Surg.* **106** (1950) 197.

As a result of the improved status of leprosy patients under sulfone therapy, the problem of rehabilitation was considered. A survey of the physical therapy and occupational therapy facilities at the national leprosarium, at Carville was made (by Dr. Reggio, U. S. P. H. S.) to determine what could be done by such means for the peripheral nerve lesions and other manifestations of leprosy. It was suggested that a careful selection of patients be made, the number limited so that adequate treatment could be given to determine beneficial or harmful results, and this project was worked out by the medical staff with consultants on orthopedic surgery, hand surgery, physical medicine and a prothesis and brace maker. Tendon transplants to overcome drop feet, as well as corrections for lesser foot deformities, have been made; and also tendon transplants to the intrinsic hand muscles paralyzed by the disease. These operations of the hands are supplemented with craft work requiring finger manipulation. From the results being obtained, the author feels that the program is contributing to the rehabilitation of the patients. Three case histories are presented illustrating treatment given in the past with present operations followed with physical and occupational therapy and results obtained.

—F. A. JOHANSEN

SCHMIDT, F. R. Favorable effect of high altitude on American cutaneous leishmaniasis and leprosy. *Arch. Dermat. & Syph.* **61** (1950) 984-995.

The author's observations in Bolivia and Peru suggest that leishmaniasis and leprosy are favorably influenced, at least at first, by the climate of localities situated 10,000 feet or more above the sea. A contrast is drawn between the benign cutaneous leishmaniasis of the Andean regions and the more serious mucocutaneous form of the low tropical forest regions; and, saying that cases of the latter form tend to retrogress in the higher regions, the author states categorically and without elaboration that the leprosy bacillus also causes less severe changes at high elevations, and that patients with lepromatous leprosy transported from the lowlands to La Paz exhibit a similar though slower retrogression. This difference is attributed to the altered biochemical status of the invading parasite rather than to a change of reaction of the tissues of the patient. He derives this

theory from the CO₂ and O₂ culture work done by Soule and McKinley, from which he speculates that the leprosy bacillus is one of the bacteria that are deficient in certain oxidase enzymes, and which therefore carry on the process of respiration precariously (in other words, that it is a strict aerobe requiring a constant supply of free oxygen), and that at the lowered oxygen tension of high altitudes it loses vitality and its ability to reproduce in the tissues. The freedom of the genitocrural folds from involvement in leprosy (or in pinta) is ascribed to a deficiency of the oxygen supply there. From all this the author suggests a type of treatment which would lower the oxygen tension of the blood, thereby perhaps getting artificially the favorable effect of high altitude. Some experimental work is being carried out by giving cobalt to produce polycythemia in simulation of the increased red blood cell count occurring at high altitudes. Vitamins possessing reducing ability such as vitamin C and folic acid combined with a catalyzing mineral like copper, are suggested.

—F. A. JOHANSEN

6/14
p. 8.
UYGUANCO, M. L. G., RODRIGUEZ, J. N. & CONCEPCION, I. Studies on the biochemistry of leprosy: 1. Blood chemistry in different stages of the disease; 2. Effect of promin, diamidin and diasone on the blood chemistry. *J. Philippine Med. Assoc.* **26** (1950) 65-73.

Blood protein determinations made on 117 leprosy patients, as compared with 17 normal male controls, revealed increases in total protein and total globulin (most in the euglobulin), and a decrease in albumin; so there was reversal of the albumin-globulin ratio, from 1.1 in the controls to 0.59 in the male patients and 0.52 in the females. There was also a distinct decrease in nonprotein nitrogen (controls 33.0, male patients 24.6, female patients 21.7 mgm. per cent). The changes in the proteins seemed to vary directly with the progress of the disease, being most marked in the more advanced cases. No correlation was found with the red-cell counts, in either the patients or the controls, but there was a definite relationship with the hemoglobin content of the blood in both groups. The principal data, for the males, are reproduced here (RBC = red blood cells, Hb = hemoglobin, TP = total proteins, Alb. = albumin, TG = total globulin, PG = pseudoglobulin, EG = euglobulin).

Group	RBC or Hb	TP	Alb.	TG	PG	EG	A/G
<i>Total findings</i>							
Controls	.....	7.42	3.91	3.52	0.81	2.77	1.1
Patients	.....	8.32	3.07	5.22	1.25	4.05	0.59
<i>Red blood cells (millions per cmm.)</i>							
Controls	4.0—4.49	7.35	3.86	3.49	0.78	2.90	....
	4.5 up	7.47	3.94	3.52	0.82	2.77	....
Patients	below 3.5	8.41	2.86	5.55	1.37	4.49	....
	3.5—3.9	8.78	2.78	5.94	1.32	4.43	....
	4.0—4.4	8.19	3.19	4.98	1.27	3.82	....
	4.5 up	8.23	2.75	5.31	1.21	4.47	....
<i>Hemoglobin (gm. per 100 cc.)</i>							
Controls	14 gm. up	7.43	4.00	3.44	0.75	2.62	1.16
	12—14	7.41	3.81	3.67	0.87	2.94	1.04
Patients	12—14	8.10	2.71	5.35	1.22	4.08	0.51
	below 12	8.81	2.04	6.77	1.50	5.27	0.30

Tests of patients made before and after six months of sulfone treatment (promin, diamidin or diasone) showed that, in general, clinical improvement is accompanied by a reduction of most of the increased protein fractions, especially the euglobulin. —H. W. W.

MARIE-SUZANNE, SOEUR & RABILLOU, B. Technique de coloration combinée du bacille de Hansen sur les coupes histologiques. [Technique of combined staining of the Hansen bacillus in histological sections.] Bull. Histol. appl. et Tech. micro. 27 (1950) 39.

The classical Ziehl-Neelsen method applied to sections does not permit study of the tissue, only the nuclei are more or less stained, and, in particular, the connective-tissue structures are not revealed. The authors' technique is as follows: (1) fix in Holland fluid (formalin, picric acid, copper acetate); (2) wash sections after deparaffinizing until the yellow color is removed; (3) stain with carbol-fuchsin, with heat; (4) differentiate in 25 per cent sulfuric acid; (5) wash to remove the acid completely; (6) stain the nuclei in hematoxylin (Geigy hemalum 5 per cent specified, avoiding overstaining which would necessitate decolorization); (7) wash; (8) stain with ponceaufuchsin, Masson (acid fuchsin 1 per cent, 1 part; ponceau 1 per cent, 2 parts); (9) differentiate in 2 per cent phosphomolybdic acid; (10) stain the background with 1 per cent light green; (11) wash in 0.5 per cent acetic water; and (12) dehydrate with absolute alcohol and mount with *baume salicylé*. Bacilli bright red, cytoplasm rosy, nuclei and connective tissue as usual with these dyes. —H. W. W.

CHAUSSINAND, R. Prémunition relative antilépreuse par la vaccination au B. C. G. [Relative protection against leprosy induced by BCG vaccination.] Rev. colon. Méd. Chir. 21 (1949) 170.

This paper, read before the First International BCG Congress (Paris, June 1948) was intended (according to a personal communication) to incite leprologists to experiment with BCG protection in children living in leprosy environments. It is based on his tests of 1,500 leprosy patients in Indo-China, and no new data are presented (see other publications, including one in the *Havana Memoria*, published in more detail in *Acta Tropica* 5 (1948) 160-177). The findings in the different types and phases are stated succinctly, to the usual effect. Numerous studies of allergy have shown him, he says, that the organism affected by the tubercle bacillus usually reacts to lepromin, while the organism free from tuberculosis does not. In Saigon, among 231 children aged 4 to 8 years who were tested, 142 were sensitive to crude tuberculin and 95 per cent of them gave clearly positive Mitsuda reactions; while of those who were not tuberculin sensitive, 81 per cent did not respond to lepromin. In Paris, control tests were made in 41 children 10 to 17 years old who assuredly had had no contact with leprosy, and similar results were obtained; the 17 tuberculin positives were also Mitsuda positive, 20 of the 21 tuberculin negatives were also Mitsuda negative, and of the 3 with doubtful tuberculin reactions only one reacted to lepromin. Finally, 30 who were negative to both tuberculin and lepromin were vaccinated by BCG, after which they were lepromin sensitive. Animals (40 guinea-pigs, 10 rabbits, 6 monkeys, 2 dogs) which were negative to tuberculin were also negative to lepromin, while those (40 guinea-pigs, 6 rabbits, 3 monkeys and 2 dogs) which had been given a preliminary BCG vaccination were positive. Hence antileprosy immunity is

an acquired one, and relative, due to infection by the Hansen bacillus (specific bacterial allergy) or by the Koch bacillus (bacterial parallergy). BCG vaccination, it is concluded, induces a state of allergy to the Hansen bacillus "which manifests itself by a marked resistance of the organism to the leprosy infection," and should be widely employed in the prophylaxis of leprosy. [No indication is given of any observations pointing to this conclusion.] —H. W. W.

CAMPOS, R. DE C., J. Lepromina "ex-cadavere." [Lepromin from autopsy viscera.] *Rev. brasileira Leprol.* **17** (1949) 91-96.

The author prepared a lepromin from the spleen and liver of a lepromatous case autopsied a few hours after death, boiling thin slices of the tissue in saline for 10 minutes and extracting the bacilli by Dharmendra's method; he obtained 1.5 gm. of dry bacillary powder, with great numbers of acid-fast bacilli free from tissue particles. The morphologic and staining characteristics of these bacilli were entirely similar to those obtained from skin nodules by the same method. A 2:1000 suspension in saline was made and sterilized in an autoclave. This "ex-cadaver lepromin," tested in lepromatous, tuberculoid and undifferentiated leprosy patients, has given early and late results coincident with those produced by lepromin made from skin nodules according to the classical technique. This new source of bacilli enables us to prepare larger amounts of lepromin in accord of the requirements of a nation-wide antileprosy campaign.—[In part from the author's summary.]

[This is an article of which a brief summary was sent to the Havana Congress and which appeared in the Congress issue of *THE JOURNAL* (**16** (1948) 302) and in the Congress transactions (p. 1147).]

GAY & ALONSO. Resultado anormal en dos enfermos de la reacción de Fernandez. [Abnormal results of Fernandez reaction in two patients.] *Actas Dermo-sif.* **40** (1949) 416-417.

A brief note on two lepromatous cases which, having been treated with sulfones gave positive early (Fernandez) reactions to lepromin. One of them had (apparently) been so treated for only one month; the other (time of treatment 11 months?) had previously been tested and found nonreactive. The results of the late reaction are not stated. The question discussed by the authors and by others is whether or not the sulfones have the capability of changing the organic defense so that negative reactors become positive as the lesions subside, as is held by some workers as Fiol of Argentina, but denied by others as de Souza Lima of Brazil. No conclusion was reached. —H. W. W.

PIÑEYRO RODRIGUEZ, R. Reacción de Mitsuda: estudio histopatológico. [The Mitsuda reaction; histopathological study.] *Bol. Soc. cubana Dermat. Sifilog.* **7** (1950) 1-16.

The author has studied 19 biopsy specimens removed at different stages of the evolution of the Mitsuda reaction in different forms of leprosy. In the tuberculoid type (8 biopsies), the picture after 24 and 48 hours was one of subacute inflammation with deposit of the injected substance, and in several sites small foci of lympho-histiocytic infiltration of pretuberculoid type. Later, in lesions 10, 21 and 30 days and also 4 months old, the subacute phenomena had disappeared and the picture greatly resembled that of tuberculoid leprosy itself. In the lepromatous type (5 biopsies),

the condition after 24 and 72 hours was like that in the tuberculoid cases except that the pretuberculoid infiltrations were not seen. After 21 days the picture was that of cicatricial fibrosis. The search for bacilli in the 24-hour specimens was negative in all cases, but a few were found in the 48-hour material from the tuberculoid cases and very many in the 72-hour material of lepromatous origin. The remaining biopsies were negative. A patient with lazarine leprosy gave strong positive reactions (of the ordinary kind, not of the Medina type which occurs in the Lucio Leprosy of Mexico) to both standard ("integral") lepromin and to a lepromin prepared from his own tissue. Examined at their height, both reactions showed the histological picture of the usual positive lepromin reaction. The lepromin prepared from the tissue of the lazarine case, injected into 3 tuberculoid cases, caused reactions which were biopsied after 21, 30 and 50 days; the findings here were those of the ordinary positive lepromin reaction. A single biopsied reaction lesion from a case of the indeterminate type, taken on the 28th day, showed the same picture as in cases of the tuberculoid type.—[From the author's summary.]

DE FARIA, J. L. Valor da reação de Mitsuda para revelar resistência adquirida a lepra. Caso de lepra lepromatosa em transformação para a forma tuberculóide. [The Mitsuda reaction as an indicator of acquired resistance. Report of a lepromatous case with tuberculoid transformation.] *Rev. brasileira Leprol.* **17** (1949) 97-105.

The case here reported was a subsided lepromatous one changing to tuberculoid, the transformation verified by a positive Mitsuda reaction and the histopathological picture of tuberculoid granulomas in a leproma with fibrous tissue proliferation. Of interest was the early change of the Mitsuda reaction, disclosing the acquired resistance while the patient still harbored many bacilli. This patient also presented a late reaction to a normal skin extract prepared according to the same technique used in the preparation of the classical Mitsuda antigen, the reaction being similar to but weaker than the Mitsuda reaction (a 4.8 mm. nodule of tuberculoid structure in the third week). The late reaction to normal skin extract, the author believes, has the same significance as the lepromin reaction, showing a resistance of the organism, and it supports the view that this resistance or immunity is nonspecific and independent of antibodies.—[From the author's summary.]

TISSEUIL, J. Réaction d'accélération négative dans la lèpre cutanée, positive dans la lèpre tuberculoïde. [Negative reaction of acceleration in cutaneous leprosy, positive in tuberculoid leprosy.] *Bull. Soc. Path. exot.* **43** (1950) 138-140.

Cutaneous [lepromatous] cases injected repeatedly with lepromin do not show acceleration and exaggeration of the reaction as do normal individuals repeatedly injected with acid-fast microorganisms, whereas tuberculoid cases do show the "reaction of acceleration." [The former assertion is made without reference to any report on the matter; the latter one is based on the following observation, made in New Caledonia in 1930.] In a tuberculoid case injected into or beneath healthy skin the nodular reaction begins about the 15th day after injection, but an injection made subcutaneously under the intermediate zone of a tuberculoid patch causes within 48 hours a nodular reaction which increases for a week and regresses while the injection into healthy skin is still latent. The later

reaction is one of first injection, while the accelerated one of the tuberculoid skin is due to sensitization of the tissue. [If the response described is general or common in tuberculoid cases, the reactivity of the subcutis beneath the lesions would seem to be more marked than that of the affected cutis itself, which many observers have tested with more equivocal results.]

—H. W. W.

WEEKS, K. D. & SMITH, D. T. Lepromin skin tests in Boeck's sarcoid. *American J. Trop. Med.* **25** (1945) 519-521.

Pardo-Castelló having suggested that Boeck's sarcoid seen in Cuba might be atypical leprosy, the authors were led to investigate that possibility in the United States. The tests were made, with tuberculin controls (OT, 1:1000), in 10 cases of sarcoid, 2 cases of pulmonary tuberculosis, and 1 normal individual. There was usually a 24-48-hour erythematous reaction, but nothing more is said of that. The final results, after 14-30 days, were negative in 7 of the sarcoid cases; of the 3 positive ones, 2 were also positive to tuberculin. Both of the tuberculosis cases were positive, whereas the single normal was negative to both lepromin and tuberculin. It is suggested that tuberculin-positive cases give "false positive tests" with lepromin. The delayed appearance of the [late] lepromin reaction could be explained, they think, by the time required for the tissue fluids to dissolve the particulate antigens. The findings afford no evidence that Boeck's sarcoid is an attenuated or modified form of leprosy.

—H. W. W.

BJØRNSTAD, R. Intracutaneous tests with killed tubercle bacilli in patients with sarcoid of Boeck. *Acta Dermat.-venereol.* **28** (1948) 174-184.

In connection with the diagnosis of sarcoid, for which the Kveim reaction is supposed to be specific, Warfvinge has claimed that the histology of the slowly-developing papular lesions induced by intradermal injection of tubercle bacilli is diagnostic. It is of sarcoid structure in sarcoid cases, but is nonspecific inflammatory or tuberculoid with necrosis in tuberculin-positive control cases. Skeptical that diagnostically characteristic lesions could be so produced, the author has made such injections in 40 cases, using 2 kinds of antigens, and has had 40 papules from 27 of those cases studied histologically (by Kreyberg). The antigens were: (1) BCG, made up 0.1 mgm. per cc., killed by heating at 60°C., dose 0.1 cc. (0.01 mgm. of bacilli); and (2) a mixture of human and bovine strains, killed by autoclaving, dosage of bacilli varying from 0.0001 mgm. in some tuberculin sensitive patients to as high as 0.1 mgm. The results as regards the intensity of the reaction, size of the reaction papule, and the liability to ulceration depended "to a certain degree" on tuberculin sensitivity; in general the reaction papule did not attain maximum size until one or two weeks (or even more) after injection, and it persisted for considerable periods thereafter. Of the 13 cases tested, 11 were tuberculin negative; and in them the papules were 2-5 mm. and did not break down. In the 4 tuberculin-positive cases the lesions were larger (up to 12 mm.), and in 2 instances they underwent necrosis. The control groups were: (a) 10 tuberculin-negative persons with other diseases, 7 of whom developed reaction lesions like those of the sarcoid cases; (b) 8 nontuberculoid persons, slightly tuberculin positive, all of whom reacted more strongly but not otherwise differently; and (c) 9 patients with cutaneous tuberculosis, all

highly tuberculin sensitive, who regularly gave conspicuous but not ulcerating reactions with 0.001 mgm. of the tubercle bacilli—without appreciable difference in appearance, size or development from those produced by 0.1 or 0.01 mgm. in the Boeck cases—and ulcerated lesions after larger doses. The histological study revealed the sarcoid picture more frequently in the specimens from the tuberculin-negative controls than in the Boeck cases, and it is therefore concluded that this skin reaction is not a practicable diagnostic test for sarcoid. —H. W. W.

X ROSENTHAL, S. R. Pathological experimental studies of Boeck's sarcoid. 1. Report of a case with panarteritis, periarteritis, terminal-hypertension and uremia, and the reproduction of a sarcoid-like lesion in guinea-pigs. *American Rev. Tuberc.* **60** (1949) 236-247.

This is a report of a case of Boeck's sarcoid with the unusual features of generalized specific arteritis and periarteritis as well as nonspecific necrotizing arteritis, and associated hypertension and uremia. Mantoux tests with PPD were repeatedly negative. The autopsy and histological findings are described in detail. In the bacteriological study a banal group of organisms was isolated. A suspension of hilus lymph node material was injected intradermally, in 8 sites, in 2 guinea-pigs and intraperitoneally in 2 others. There resulted a hyperergy to old tuberculin and lesions of the lung, liver, spleen, and lymph nodes which closely resembled sarcoidosis. Numerous acid-fast bacilli were found in the lesions, but cultures of the organs were negative for tubercle bacilli. With respect to the findings in the intradermally inoculated animals, the lymph nodes draining the skin near the site of inoculation were enlarged and contained gray-yellow nodules that were firm but not caseous, and there was gross enlargement of the liver and spleen with occasional yellow-gray nodules. Nothing is said of any local reaction of the skin to the injected material or of any histological examination of the injected sites. —H. W. W.

X BERGSTRAND, H. Is erythema nodosum a hypersensitivity reaction of anaphylactic type? *Acta Dermat.-venereol.* **29** (1949) 539-543.

Hamburger (1915) described erythema nodosum as a form of subcutaneous tuberculide [i.e., tuberculoma] but Ernberg (1921) disagreed, holding it to be an "autogenous tuberculin reaction," a manifestation of hypersensitivity of the bacterial type. It is now known that the condition may arise in various diseases and may be provoked by sulfonamide therapy. It is regarded as allergic, by most writers as of the bacterial type, but certain facts suggest that it is of the anaphylactic type. In the former kind the tissue reaction differs little from ordinary inflammation; the latter is characterized by peculiar changes in the blood vessels and in the connective tissue. In the vessels of erythema nodosum lesions there is endothelial proliferation, fibrinoid degeneration and necrosis of the wall, with intra- and perivascular inflammatory cellular infiltration, to which the fibrinoid degeneration, proliferation of fibroblasts and other changes in the connective tissue may be secondary. Such findings by Löfgren and Wahlgreen are cited, and the author shows (in a color photomicrograph) an example of fibrinoid degeneration and necrosis in the wall of a vein. The conspicuous subcutaneous granulomas which occur, often with giant cells, were interpreted by Gellerstedt as lipogranulomas secondary to the vascular changes; and in one specimen, of which the author examined

frozen sections, he found agglomerations of lipophages around necrotic fat cells (a color photomicrograph shown). If the condition is of anaphylactic type—and the author concludes that it is—it cannot, in tuberculous cases, be a tuberculin reaction but must be due either to the tuberculoprotein as an antiphylactic antigen or to another antigen of the bacillary body. That, presumably, would be its carbohydrate component, which has the properties of a haptene only but can produce anaphylaxis on injection into a tuberculous animal. Patients with erythema nodosum should be subjected to skin tests with partial antigens of the bacteria concerned, to determine whether both immediate (anaphylactic) and delayed (tuberculin-type) reactions occur.

—H. W. W.

6 DELPERDANGE, G. R. Lèpre murine en Africa Centrale. [Murine leprosy in Central Africa.] *Rev. Palud. Med. trop.* **6** (1948) 285-287.

The author has compared a bacillus found in rats in the Belgian Congo in 1942 with the vole bacillus described by Wells, and lists the characteristics by which the former differs from the latter: (1) It is not cultivable in media in which the vole bacillus developed; (2) it does not infect guinea-pigs, in contrast to the vole bacillus; and (3) lesions produced in rats resemble those produced by the Stefansky bacillus. The author has also made protection tests in guinea-pigs against the Koch bacillus (human strain) with the bacillus he found, and sensitization experiments in animals infected with the Stefansky bacillus. He concludes that the bacillus found in rats in the Belgian Congo is identical with that described by Stefansky.—[From abstract in *Rev. brasileira Leprol.* **17** (1949) 117.]