

## CURRENT LITERATURE

*It is intended that the current literature of leprosy shall be dealt with fully 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.*

REISS, F. Civilization, medicine, leprosy. *Leper Quart.* 14 (1940) 142-147.

The writer points out that at the dawn of history disease was met with faith healing, hygienic therapy and drug cures. When the contagiousness of leprosy was first recognized, in the Babylonian culture, exile was regarded as the only means to combat it. The Old Testament goes into detail regarding isolation. This measure is traced by the author throughout the ages, and he suggests that science of the present time is seeking to rid the treatment of leprosy from "the enslavement of the mind, bigotry and obscurantism."

—L. S. HUIZENGA

WONG, K. C. Some famous lepers in Chinese literature. *Leper Quart.* 15 (1941) 5-10.

The lives of nine Chinese personalities who were known to have been lepers are briefly reviewed. Yen-Pai-Niu was Confucius' student and hence lived around 500 B.C. The others were sufficiently famous to have been mentioned in history. It is remarkable that no great man suffering from leprosy is mentioned in Chinese history since 1088 A.D.

—L. S. HUIZENGA

HUIZENGA, L. S. Leprosy known among the ancient Aztecs. *Leper Quart.* 15 (1941) 3-4 (editorial).

Comment on a manuscript, called the Badianus manuscript, an Aztec herbal dating back to 1552, published by the John Hopkins Press of Baltimore. Although no Indian tribes are known to have had leprosy previous to the advent of the white man, mention is made of it in this herbal. It is suggested, however, that its writers were under the influence of the early Catholic missionaries who, coming from Europe, were acquainted with the disease, then common on the continent.

—AUTHOR'S ABSTRACT

DHARMENDRA. Leprosy in ancient Hindu medicine. *Lep. in India* 12 (1940) 19-21.

The *Sushruta Samita* of 400 B.C. refers to leprosy under the name of "kushtha," which is divided into seven major and eleven minor forms. One of the former, called *arunakushtha*, is characterized by loss of sensibility to touch. The disease was supposed to be hereditary and also highly contagious, and it might come as a divine retribution for killing a Brahman, a woman or a relative.—[From abstract in *Lep. Rev.* 11 (1940) 147.]

MARHIC, Y. M. [Leprosy in Brittany.] *Thèse de Paris*, 1940, No. 229.

The author states that leprosy disappeared from Brittany at the end of the 17th century. No further mention was made of its occurrence there

until 1892, when Zambaco Pasha, during a visit to the province, rediscovered the disease. Since then it has been the custom to describe Brittany as a leper country like the Mediterranean coast. Zambaco Pasha, however, found only two cases of leprosy in Brittany which were indigenous, and since then only five cases in all have been described in Brittany in the course of forty-seven years, namely, one by Jeanselme (probably indigenous), one by Loussot-Netter, indigenous, three by Gouin, two of which were probably examples of leprosy without bacilli. Marhic therefore comes to the conclusion that leprosy does not appear to be more frequent in Brittany than in the other French provinces.—[Abstract from *Nature* (London) Nov. 23, 1940.]

BRIERCLIFFE, R. Leprosy in Nigeria. *Lep. Rev.* 11 (1940) 84-89.

This is an instructive account of the magnitude and difficulties of the leprosy campaign in Nigeria. The number of cases, some 200,000, at least 10 per 1000, is probably only exceeded in India and China. A leprosy ordinance, of 1916, is practically a dead letter. Progress in tackling the problem began about 1926 with the work of MacDonald, at Itu. There are now 14 settlements in the 23 provinces, mostly under the administration of medical missionaries. Valuable surveys are being carried out, with propaganda and treatment. Admission to the settlements is on a voluntary basis, and the number of inmates has increased in ten years from 2,500 to nearly 7,000; it would be much larger if money were available. The annual expense per patient in a settlement varies from about £3 to £5, depending on its size and the extent to which it has become self-supporting through agricultural and other work. The annual tax per head of population amounts only to 5s. 10d., and nearly 4% of the medical and health expenditure is on leprosy; the total expenditure by the government and by the Native Administration has risen from less than £8,000 in 1928 to nearly £20,000 in 1938, but even this is only about 2s. per head of cases. The fight will be a long one, but good progress is being made.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 624-625.]

LANGAUER, L. Leprosy in Benin and Warri provinces of Nigeria. *Lep. Rev.* 11 (1940) 96-99.

This discursive article deals with the peculiar difficulties met with in starting outside work in the region of the Ossiomo leper settlement, based primarily on free dispensary treatment of patients who would not enter the settlement. The local chiefs were more interested in having other diseases treated, and when some lepers were finally sent in they were strangers from afar who had come to be admitted as inpatients but, failing in that, had settled in the neighborhood. For some five miles the settlement is surrounded chiefly by camps of such people from other parts of the province, and even from other provinces, and there are no real native villages nearby. For this reason the registration of 82 cases for dispensary treatment promised no benefit with respect to the local situation. Furthermore, treatment of these people did little good, for most of them needed food primarily; the conditions under which they lived were appalling. The dispensary was then transferred to a normal village where, out of a supposed population of 600, no less than 60 lepers appeared, and the chiefs declared that there were many more. The difficulties that had attended the establishment of the settlement itself, seven years previously, are related; the natives had been very suspicious of it, and

noncooperative. The situation is improving slowly with respect to the educational work, which is carried on through inmates of the settlement themselves. Of the population of Ossiomo (number not given, though it is said that 500 could be provided for), 62 are paying patients, each contributing £2. 6s. per year.

—H. W. W.

[GOLD COAST] (Leprosy in the Gold Coast.) Report of the Medical Department for 1938.

Settlements accommodating 300 lepers are situated at Ho (largest, with 236 inmates), Kumasi, Accra, Yendi and Sekondi. In Accra, Kumasi and Sekondi the lepers are housed in portions of the local contagious diseases hospitals, a not wholly satisfactory arrangement. The question of the rehousing of the lepers at Accra, where 78 were maintained, had become urgent because of the condition of their huts. Because of staff shortage, knowledge of the incidence of leprosy in the country has not been increased materially during recent years. The incidence increases progressively toward the north. On the supposition that there are about 2 per 1000, the total number would be between 7-8,000, but that is probably on the low side. Lepers seeking admission are mostly those who have become a burden on their friends. Others are removed as homeless wanderers from the streets. For those discovered during routine house-to-house inspections who are unwilling to enter a settlement, nothing much can be done except to advise them to seek treatment as outpatients, which usually they do not do. As a rule the people exhibit little fear of infection. Apparently, unlike Nigeria, the Gold Coast has done little or nothing to control the disease in recent years.—[From abstract in *Lep. Rev.* 11 (1940) 157.]

BERNAL LONDOÑO, M. Anotaciones alrededor de la campaña de profilaxis antileprosa. [Notes concerning the antileprosy prophylaxis campaign.] *Rev. Colombiana Leprol.* 1 (1939-40) 257-260.

This statistical study of the antileprosy campaign in Colombia shows its efficacy to be constantly increasing. In the four years of work since the stationary and mobile antileprosy commissions began to function, the number of examinations carried out increased from 9,798 in 1936 to 48,979 in 1939. The incidence in the population examined decreased in the same period from 1.27 to 0.41 per 1000 inhabitants. In the dispensaries the cases treated up to October, 1939, totalled 1,729, a figure that speaks well for the work done by these entities. Relapses show a marked tendency to decrease.

—AUTHOR'S ABSTRACT

MALDONADO ROMERO, D. Interpretación de las estadísticas. [Interpretation of statistics.] *Rev. Colombiana Leprol.* 2 (1940) 48-60.

The author shows (a) that the index of infectious cases has progressively decreased in Colombia in the last few years; (b) that this is not because work in infected areas has been done on a smaller scale, for in those elements of the population without leprosy antecedents the index maintained the same level, while it is less in groups of relatives and house contacts; (c) that the figures for incidence during 170 years have shown a marked decrease of the rapidity of increase of the endemic in the last 30 years. Of the 1,627 cases discharged from the leprosaria as cured, 15% have been readmitted in relapse, and 11% because of difficulties of maintenance outside. Deducting

deaths and those who have evaded control leaves 57% as permanently cured.  
—M. BERNAL LONDOÑO

DE SOUZA-ARAÚJO, H. C. A lepra infantil na Colômbia. Sêde e typos das lesões iniciais. [Infantile leprosy in Colombia. Site and types of initial lesions.] *Brasil-med.* 54 (1940) 145.

During his recent study of leprosy in Colombia, the author examined, in the Agua de Dios colony, 852 supposedly healthy children of leprous parents, finding 114 (14%) with definite or suspicious signs of the disease. Among 25 who were clinically leprous, 24 had dyschromic spots or anesthetic areas, which indicate some degree of immunity. Only one was lepromatous, with a single leproma on the left buttock, of sarcoid aspect; smear positive. Among the 89 suspicious children there were some who might perhaps have been diagnosed positively had it been possible to repeat the examinations later. The article is illustrated by 11 photographs and many small graphs representing the sites and types of lesions, and 20 clinical records. —AUTHOR'S ABSTRACT

DE SOUZA-ARAÚJO, H. C. Os preventorios anti-leprosos da Colômbia. [Anti-leprosy preventoria in Colombia.] *Brasil-med.* 54 (1940) 173.

The author has studied the situation of about 2,500 healthy children of leprous parents in the three leper colonies of Colombia, where more than 300 births occur each year. The total number corresponds to about 30% of all the isolated lepers. The various decrees and regulations designed to ameliorate the situation do not suffice to solve this problem. The "preventoria" now in function are described. In Santander, in connection with the Contratación colony: (1) the Guadalupe Home for Girls, inaugurated in 1914, with more than 250 inmates (expense about nine dollars per capita per month); (2) the San Bernardo Home for Boys, inaugurated in 1936, with beds for 400; (3) a nursery (Sala Cuna). In Cundinamarca, in connection with the Agua de Dios colony: (1) the Nazaret Home for Boys, inaugurated in 1935, now with about 200 beds; (2) the Santa Elena Home for Girls, with about 100 inmates, founded by the Catholic order of Hermanas de los Sagrados Corazones de Jesus y Maria (an order organized in Agua de Dios in 1905 and now comprising 95 Sisters of Charity, 35 of whom are leprous; the healthy sisters take care of the healthy children while the others take care of leprous boys); (3) the Ibagué farm, for 20 boys above 12 years of age released from the Nazaret home; (4) a nursery, with 43 babies in March 1939 (another nursery for about 200 babies was in project); (5) the "Escuela Hogar," a farm-school in Manizales for about a dozen boys. Altogether about 1,000 such children are separated and being educated by the state. The author suggests intensification of this measure, birth control among lepers and discouragement of marriage. Modern leprosaria being hospitals in which lepers should be treated as intensively as possible in order to permit returning them to their homes, the inmates should not be encouraged to give up their outside obligations and organize new families inside the institutions.

—AUTHOR'S ABSTRACT

LLERAS RESTREPO, E. Preventorios infantiles. [Preventoria for children.] *Rev. Colombiana Leprol.* 1 (1939-40) 149-150.

A brief article pleading for the establishment of an adequate number of preventoria for children of lepers, of which there are 2,000 in the leprosaria

of Colombia. In such an institution for 150 children, in the environs of Bogotá, there are to be three age-groups: (a) those under 7 years, who will be educated on a kindergarten system; (b) those between 7 and 14, who will be instructed on primary school lines; and (c) those from 14 to 18, who will be trained for industrial or office work. If the 2,000 are to be dealt with, many such institutions like this first, experimental one will be needed.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 344.]

ACHARD, CH. Mission en Guyane. [Leprosy in French Guiana.] *Rev. Palud. et Méd. trop.* (1940) 51-54.

Describing his observations in this territory the author gives considerable attention to leprosy. There are rules for the notification and detention of lepers, but they are not carried out. (For contrast there is cited the experience of a physician in neighboring Surinam, who was sentenced to prison for nine months for failing to report a case.) In Cayenne there are about 200 leprosy children; they are excluded from ordinary schools, and should therefore be provided with a special school. Lacking a thorough census, it is difficult to say how many lepers there are in the colony, the total population of which is about 47,000. Tisseuil says there are 770 known cases. There exist several village settlements for lepers. The Acarouany leprosarium, founded in 1828, is in the charge of three Cluny sisters, one of whom is leprosy. It was suppressed by decree in 1935, but there are still 36 inmates, of both sexes. On the island of St. Louis there is another leprosarium under the administration of the penal authorities, with 136 patients, 74 free and 62 prisoners. In Cayenne, the chief town, a part of the hospital, poorly equipped, is occupied by lepers, the isolation of whom is "assez illusoire." There should be established an adequate institution, attractive to the patients, with space for gardens and agriculture. The cost of construction is estimated at about seven million francs.—[In part from abstract in *Lep. Rev.* 11 (1940) 155-156.]

BÜNGELER, W. Lepraphylaxe und Leprabekämpfung in São Paulo. [Leprosy prophylaxis and the antileprosy campaign in São Paulo.] *Deutsch. med. Wschr.* 64 (1938) 686-688; 721-723.

This is a review, obviously for the information of German readers not familiar with leprosy literature, of the work that is being done in this part of Brazil. Several of the outstanding workers are noted by name, mention is made of the movement by private enterprise to care for children of lepers, and the several leprosaria are described. —H. W. W.

DE CAMPOS SAMPAIO, J. Epidemiologia da lepra na zona de Itapetininga. [Epidemiology of leprosy in the Itapetininga region.] *Rev. Brasileira Leprol.* 8 (1940) 5-43.

The author has made a remarkable study of the epidemiology of leprosy in the region of São Paulo mentioned, dealing in detail with the conditions under which transmission occurs and the factors which favor infection.—[From abstract in *An. Brasileiros Dermat. e Sifilog.* 15 (1940) 141.]

[ANONYMOUS] El leproario de San Cosme (Corrientes) debe desaparecer; su existencia es una afrenta a la civilización. [The San Cosme leprosarium (Corrientes) should be abolished; its existence is an affront to civilization.] *Rev. Argentina Dermatosis.* 24 (1941) 588-589.

This is a reprinting of an article from *La Voz del Cerrito*, a small leaflet published by the patients of the Sanatorio Aberastury, on Cerrito island, in the province of Corrientes. Reference is made to the lamentable situation of the patients in the San Cosme leprosarium, which was improvised for the purpose of evading the establishment of the national sanatorium mentioned [see *THE JOURNAL* 4 (1936) 522]. A short time after the appearance of this publication, the San Cosme place was closed. —G. BASOMBRI

[HAWAII] (Leprosy in Hawaii.) Annual report of Board of Hospitals and Settlement for the year ending June 30th, 1938.

The Hawaiian Islands, area 6,406 square miles, had a population of 191,909 in 1910 and 255,912 in 1920; it is now 412,000. There were 649 lepers in segregation in June 1938, making about 1.5 per 1000; 45 were admitted during the year. The Board, organized in 1931 to carry out the leprosy program in the Territory, reports that there is a "continued decrease to a new low record in the total number of active leprosy patients at Kalihi Hospital and Kalaupapa Settlement..." The total per capita cost per day for all purposes was \$2.09. The Board had available for expenses for the year no less than \$1,206,361.—[From abstract in *Lep. Rev.* 11 (1940) 156.]

AUSTIN, C. J. Report on Central Leper Hospital, Makogai. *Fiji Ann. Med. & Health Rep.* for year 1938, pp. 32-37.

This report shows that even under a compulsory system the cooperation of the patients can be obtained without any sense of grievance in a leprosy institution of the agricultural type. During the year the inmates increased from 577 to 619, the Cook and Gilbert Islands supplying 81 out of 135 new admissions. Indians form the majority, and show the most lepromatous cases. A spot map shows the distribution in the Fijis, and a genealogical tree traces 58 cases in one family group. Distribution depends essentially on density of the population, and has shown no material change since 1911. The importance of examining family contacts is stressed. The diet is good and much food is grown by the inmates. Warmed hydnocarpus oil with 0.5% iodine is used in treatment. During the year 53 patients were discharged as arrested after being negative for two years; 11 had been L1 and L2 cases. In addition, 63% of the cases improved, including 70% and 51% of L1 and L2 cases, respectively, but only 10% of L3.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 626.]

MAEDA, T. Leprosy survey in Tanegashima. *La Lepro* 11 (1940) suppl. 1 (abstract).

Tanegashima is a small island south of Kagoshima, 60 km. long and 20 km. wide, with 39,467 inhabitants. Of 51 lepers found there, the average age was 47, older than in any other part of Japan; the sex ratio was 2.3:1. The disease is prevalent in the northern and southern parts of the island, but as the people in the north have some understanding of it, and send their cases to the leprosarium, it tends to decline there, whereas the opposite conditions exist in the south and it is spreading.—[From abstract.]

BOENJAMIN, R. Enkele gegevens over het voorkomen van lepra in de Gemeente Batavia. [Data on the occurrence of leprosy in the community of Batavia.] *Geneesk. Tijdschr. Nederlandsch-Indië* 80 (1940) 322-333.

From January 1936, to June 1939, 465 lepers were registered in the Queen Wilhelmina Institute for Leprosy Research at Batavia, 415 of whom were residents of the municipality. Most of them were volunteers for treatment, systematic survey of native quarters having only begun. The number of manifest cases in the city is believed to be at least 1,000 (2%). In general, the condition of health of the patients seems to be as good as that of the native population in the same age-groups, but 154 of them are so affected by the disease that a normal place in society is denied them. The number includes 26 leprous children, forbidden to attend the schools. Out of 196 adult male lepers, 109 carry on some trade. The sex-ratio and the age-distribution need no discussion; the same is true of the clinical differentiation in types and the results of the bacteriological examinations.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 627.]

MALAIHOLLO, J. F. Lepra in de Desa Wates (Res. Batavia) en het resultaat van een bloedgroeponderzoek onder leprozen en gezonden in Wates en Blora. [Leprosy in the village of Wates, and the results of a study of blood grouping among lepers and healthy persons in Wates and Blora.] *Geneesk. Tijdschr. Nederlandsch-Indië* 80 (1940) 2296-2312.

Reporting surveys of this village of 1,661 population in West Java. In 1937 the incidence rate was found to be 30 per 1000, and in 1939, 38. This very high incidence is ascribed to abundant contact, resulting from indifference to the presence of the disease. The cases are predominantly benign (70% N1 and 14% N2), probably due to the good general physical condition of the people. The fact that the infection is not recent, the disease having existed here for about 30 years, is regarded as significant in connection with the low proportion of C [*sic*] cases (11%). However, the rates cited suggest that the disease is still spreading. The household infection rate is high (52%). Chaulmoogra treatment during the past two years has resulted in disappearance of lesions in 7 cases and improvement in 8 others. A few of the patients have voluntarily isolated themselves at home, and it is believed that propaganda would lead others to do so. The results of blood-group tests of lepers and nonlepers in Wates and Blora show no differences between the two groups of people, and no relation between the blood type and the form of leprosy is to be seen.—[From author's summary.]

DAVEY, T. F. Problems for research work in leprosy institutions. *Lep. Rev.* 11 (1940) 90-95.

The author urges further clinical studies and laboratory investigations to decide which cases are dangerously infective, especially those with diffuse bacillary invasion of the skin. The lepromin test may also be of use, but it has not yet been applied in Nigeria. Periodic, seasonal variations in resistance might be investigated by means of the sedimentation test.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 625.]

REENSTIERNA, J. Du rôle possible de la lèpre dans l'étiologie des sarcoides de Besnier-Boeck et dans l'étiologie de la maladie de Schaumann. [The possible rôle of leprosy in the etiology of the sarcoid of Besnier and Boeck and of Schaumann's disease.] *Acta Med. Scandinavica* 103 (1940) 118-122.

The author concludes from a short discussion of this subject that the cutaneous lesions of leprosy may resemble histologically lupus pernio of Besnier, the cutaneous sarcoids of Boeck and erythroderma of Schaumann. It has not been demonstrated that the microorganism of leprosy is able to produce the reactions of the reticulo-endothelial system that constitute Schaumann's disease.—[Abstract from *Trop. Dis. Bull.* 37 (1940) 629.]

GRECO, N. V. Clasificación de la lepra. [Classification of leprosy.] *Semana Méd.* 47 (1940) 1381-1386.

A reprinting of an article which appeared in the *Revista Brasileira de Leprologia* [8 (1940) 301-311] expressing the views of the author on this subject.  
—G. BASOMBRI

TAJIRI, I. One case, which changed to the nodular-type after relative short course. *La Lepro* 11 (1940) suppl. 11 (abstract).

A case report of the course of the disease in a child who had been under medical observation in an institution from an early age. A macule appeared when he was 5 years and 10 months old, at which time the Mitsuda reaction was found to be positive. Four months later there were many macules, and the reaction was then negative. After two more years (about 2½ years after the first sign of the disease) the first nodule appeared on the jaw. At the time of the report he was 9 years of age, the disease of the "nodular" type.—[From abstract.]

MITSDA, K. Ein beginnender Fall von Lepra tuberosa, bei dem in der Haut und in anderen Organen tuberkuloide Veränderungen nachzuweisen waren. [A case of beginning nodular leprosy in which tubercloid changes were demonstrated in the skin and other organs.] *Trans. 12th Meet., Japanese Lep. Assoc., 1938. La Lepro* 10 (1939) suppl. 48 (abstract).

The patient was a man aged 78 years who for 6 years had lived with a daughter-in-law who had nodular leprosy. Two years previously a leprous spot had appeared on the chest. Later there was a pinhead-sized nodule on the neck that contained innumerable bacilli. The Mitsuda reaction was negative. [On these two points, apparently, the classification of beginning nodular leprosy was made.] On the body and extremities were macules with sharply-outlined, elevated margins. The patient died of acute encephalitis. Tubercloid changes were found in the skin macules and the right testis, and in the spermatic, median, ulnar and radial nerves; lepra cells were absent. Isolated bacilli were found only in the skin, testis, nerves and lymph nodes; they were relatively numerous in the thick fibers of the nerves and in larger numbers in the interstitial tissue of the testis.—[From abstract.]

TELLO, E. E. Lepra: un caso para su clasificación. [Leprosy; a case for classification.] *Rev. Argentina Dermatosis.* 25 (1941) 105-106.

The author presented to a dermatological meeting at Córdoba, a patient 53 years old with double atrophy of the cubital type and erythematous, definitely anesthetic patches. Examinations for bacilli and the Mitsuda test were negative. The case was classified clinically as N2.

—G. BASOMBRI

- MEDINA, M. Observaciones sobre tratamiento de la lepra incipiente en los niños. [Observations on the treatment of incipient leprosy in children.] *Rev. Colombiana Leprol.* 2 (1940) 218-223.

The author presents a series of 13 clinical cases studied in the Agua de Dios leprosarium, pointing out the notable differences between those who reside permanently in asylums and those who continue to live with leprosy persons. The former improve notably under treatment, while the latter show no marked benefit.

—M. BERNAL LONDOÑO

- DENECKE, K. Ergebnisse bei der Untersuchung Leprakranker. [Results of an investigation of leprosy patients.] *Arch. f. Hyg. u. Bakt.* 124 (1940) 33-45.

The author reports his observations on 49 leprosy cases in Negroes of Spanish West Africa. They include a clinical analysis, blood counts, the formol-gel and Rubino reactions and the histamine test, but they reveal nothing novel.—[Abstract from *Trop. Dis. Bull.* 37 (1940) 632.]

- MOISER, B. The potassium iodide test in leprosy. *Lep. Rev.* 11 (1940) 99-101.

The author tested the reactions of arrested cases, before their discharge, to large doses of potassium iodide. Contrary to an earlier experience, he met with no dangerously severe reactions in 40 cases, which have all been discharged apparently cured. During ten years' experience in the favorable climate of Southern Rhodesia, 54% of the cases admitted have been discharged and have not returned.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 633.]

- QUIROGA MARCIAL, I. Consideraciones sobre dos enfermos de lepra. [On two cases of leprosy.] *Rev. Argentina Dermatosis.* 24 (1941) 627-628.

A report of two cases, one tuberculoid and the other lepromatous, with bacilli. In neither of them had the diagnosis been made, though they were under the observation of skin specialists; both were treated as cases of syphilis. The author points out the necessity of bacteriological and histological examinations.

—G. BASOMBRIO

- DHARMENDRA AND CHATTERJI, S. N. Leprosy and dermal leishmaniasis. *Lep. in India* 12 (1940) 4-10.

The resemblance of the lesions of these two diseases is commented on and illustrated. Cases of dermal leishmaniasis are often sent to the leprosy department of the Calcutta School of Tropical Medicine by mistake. Differential diagnosis depends on the history, such as a previous record of suffering from kala-azar; on clinical manifestations, such as the site and number of lesions, absence of anesthesia or nerve thickening; and on laboratory findings, examination showing *Leishmania donovani* instead of *Mycobacterium leprae*. Dermal leishmaniasis appears as hypochromic spots, thick erythematous lesions and nodules. It tends to concentrate around the nose and lips, avoiding the ears. Many serious mistakes have been made in diagnosing it as leprosy. Occasionally the two diseases appear in a patient at the same time.—[From abstract in *Lep. Rev.* 11 (1940) 146.]

SOUZA-ARAUJO, H. C. DE. Mollusum contagiosum. Um caso de triplice infecção: lepra, lymphogranuloma venéreo e mollusum contagiosum. [A case of triple infection: leprosy, lymphogranuloma inguinale and mollusum contagiosum.] *Acta Med.* 7 (1941) 87-100.

The author reports a case of this triple infection in a white man 29 years of age, and reviews the knowledge of the last-named condition. After some treatment the leprosy lesions were disappearing, but the inguino-crural lymph nodes remained enlarged and painful. Lymphogranuloma inguinale was suspected and a Frei test was found positive (2+). Treatment of that disease with sulfathiazole (Squibb) caused great amelioration. Later, a reexamination led to the discovery of about 40 elements of mollusum contagiosum in the genital region. Histological examination of a biopsy specimen confirmed that diagnosis. This third disease was treated by extirpation of the mass of the mollusca and application of silver nitrate (10%). Two months later there was a relapse, five new small tumors appearing.

—AUTHOR'S ABSTRACT

FUERTES, F. AND PERUCHENA, J. G. Neuritis leprosa del cubital. [Leprous neuritis of the cubital nerve.] *Prensa Méd. Argentina* 26 (1939) 1995-2000.

An Argentine farmer, aged 40, first lesions in 1927, some five years or so after he had been living with a leprosy fellow-workman, came under the authors' observation in 1938 with very extensive lesions and died in 1939. The histological changes found in the ulnar nerves, described in detail, involved all of the elements (perineural and interfascicular tissues nerve-fibers and vessels), in all of which the bacilli were present in large numbers, with little or no evidence of defensive reaction.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 334.]

BASOMBRIO, G. AND MALBRÁN, C. Neuritis pseudo-hanseniana del cubital por osteoartritis de los codos. [Pseudo-leprosy neuritis of the cubital nerve with osteo-arthritis of the elbows.] *Rev. Argentina Dermatosis.* 25 (1941) 87-92.

Two patients were presented with double neuritis of the cubital nerve, with thickening of its trunk and trophic disturbances in its region of distribution which simulated leprosy neuritis. In one of them acid-fast bacilli were obtained from the chin, but that finding is not proof of the diagnosis of leprosy, as shown by Baliña at the Cairo conference. Clinical and radiographic examinations in both cases show deforming osteoarthritis which the authors believe to be the cause of the affection. —AUTHOR'S ABSTRACT

OTA, M. Handmuskeltrophie, die von der Lepra zu differenzieren ist. [An atrophy of the hand muscles, to be differentiated from that of leprosy.] *Japanese Jour. Dermat. & Urol.* 47 (1940) 61 (abstract).

In leprosy countries the differential diagnosis of acrogenous disturbances of sensibility and atrophy of muscles of the hand is important, but often difficult. Two illustrative cases are described. One, a 33-year-old merchant with salvarsan dermatitis, showed striking atrophy of the muscles and bones of the right hand, with uncertain slight disturbance of sensibility in the ulnar region. That nerve was somewhat hard, but not thickened. When five years old the patient had a dislocation of the right elbow, still

evidenced by X-ray. No acid-fast bacilli found, from ear or nasal mucosa. An X-ray picture of the ulnar after thorotrast injection (1 cc. of thorotrast emulsion diluted twice, injected into the interior of the nerve, X-ray after 24 hours) revealed no swelling. Histologic examination of pieces of the auricular nerve and of the perineurium of the ulnar was negative. The atrophy is ascribed to the old dislocation. The other patient, a 20-year-old man, had a fracture of the left upper arm 7 years previously. For the past 3 weeks he had complained of slight disturbance of sensibility of the 4th and 5th fingers of the left hand. They and the thumb were slightly curved, without anesthesia, with slight atrophy of the small muscles in the regions of the ulnar and median. Bacteriological findings negative.—[From abstract.]

HUIZENGA, L. S. Ulcers in leprosy. *Morning Light Quart.* 1 (1940) 159.

The author divides the ulcers of leprosy into (a) those of lazarine leprosy, (b) those due to loss of protective function of sensation, (c) those due to superficial trophic skin lesions, and (d) those due to deep trophic lesions. He describes each variety, then discusses these lesions in general and indicates generally recognized treatments of this stubborn manifestation of leprosy.

—AUTHOR'S ABSTRACT

SEKIGUCHI, Y. A historical research in the recipe for cure of leprosy.

Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 79 (abstract).

Among the medical writings regarding leprosy, the *Shin-iho* (God-given recipe) is the oldest, it is stated. In the Age of Gods in Japan leprosy, called *miari-kasa* and *ashike-kasa*, was treated with ashes of oyster shells, lime and adders. Physicians settled in Japan in the 5th and 6th centuries but no record of leprosy dates back so far. Lepers were cared for in Hiden-in, in Nara, early in the 8th century. There were many wanderers with this disease in the Kamakura period, from the 12th to the 14th centuries. Treatments used and descriptions written by physicians in the 16th century are mentioned; at that time the Portuguese brought chaulmoogra to Japan, and all treatments used subsequently can be classified as those that included its use and those that did not. The author feels that at this time, when something better than that drug is being sought, it is worth while studying the forgotten old recipes of the latter group.

—H. W. W.

TIANT, F. R. Tratamiento moderno de la lepra. [Modern treatment of leprosy.] *Vida Nueva* 45 (1940) 165-177.

The author reviews, with apparently nothing new, the principles of treatment, giving first place to attention to deficiency diseases, focal infections, food, exercise and personal hygiene. Chaulmoogra oil and its derivatives, while not specific, are the best medicaments available; the intradermal route is especially recommended. For lepra reaction, the new chaulmoogra-cholesterol complex is said to be of manifest value in many cases. The special care of certain particular manifestations of the disease (air-passage lesions, neuritis, ulcers, etc.) is discussed.

—H. W. W.

MONTEL, M. L. R. Dispositif pour le traitement de la lèpre par le bleu de méthylène-chaulmoogra et l'oxygène ozonisé. Bases de la

méthode. [Treatment by methylene blue, chaulmoogra and ozonized oxygen; basis of the method.] *Rev. Méd. français d'Extrême-Orient* (1939) 827-832.

Led by the use of methylene blue combined with oxygen under pressure by de Almeida and de Moura Costa, the author has tried, in place of the latter substance, ozonized oxygen given by the rectum every other day in quantities of 800 cc. This was combined with doses of 25 to 40 cc. of 1% methylene blue on alternate days. The ozonized oxygen can also be injected under leprosy lesions. This report merely records the method, because the author's experience is too short to allow drawing any conclusions regarding its value.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 634.]

MORIYA, M. Acridinfarbstoffexanthen bei Leprösen. [Acridin dye exanthem in lepers.] *Japanese Jour. Dermat. & Urol.* 47 (1940) 29 (abstract).

A 34 years old patient with nodular leprosy suffered an acute reaction. After 8 injections of Panseptinin an itching erythema appeared on the breast, abdomen and both legs. The eruption was flatly elevated, pomphyloid or wheal-like, of different sizes. It was found on healthy skin as well as on the hyposthetic portions.—[From abstract.]

ZANETTI, V. Les sels d'or dans le traitement de la lèpre: le Neosolganal. [Gold salts in treatment; Neosolganal.] *Ann. Soc. belge Méd. trop.* 20 (1940) 139-148.

This preparation, a "keratinate" of gold and calcium (Schering), has been tried at Pawa, Belgian Congo, in 12 cases—2 lepromatous, 6 tuberculoid neural, 3 macular neural with flat macules, and 1 intermediate between lepromatous and simple neural (with numerous bacilli and negative Mitsuda reaction before and after treatment). The dosage, beginning with 1 cgm. in a 14% solution given intravenously, was increased from week to week to 0.2 gm. With this dose, which was rarely exceeded, the injections were made every two weeks because of signs of fatigue. The average total amount given in six months was 3 gm., the extremes being 1.76 and 4.25 gm. Positive Kahn reactions in 4 cases remained unchanged; a fifth patient developed lesions of yaws, with a positive reaction. The treatment was well supported, without subjective symptoms; the weights remained normal except with excessive dosage; the sedimentation rate improved in all; three cases developed slight, temporary albuminuria. Results: the lepromatous cases remained unchanged; the intermediate case showed diminution of bacilli and some clinical improvement; the tuberculoid cases all improved clinically; so did the 2 of the simple Ns cases, the other one having gotten worse because of yaws. The impression gained is favorable, at least with respect to the macular neural form of the disease. —A. DUBOIS

HAYASHI, Y. Ueber den Erfolg der Leprabehandlung mit Diol. [On the results of treatment with Diol.] *La Lepre* 11 (1940) suppl. pp. 9-10 (abstract).

Diol is an electric colloidal solution of platinum and palladium. When injected, the particles of the metals penetrate and remain in the tissue, increasing oxidation (peroxidase action) to the point of cure of morbid processes. Yamanouchi had some success with this material in tuberculosis.

The author has treated 26 cases of leprosy, each for four months or more. They included 6 macular ones, all relatively recent, with numerous fresh lesions, and 20 nodular ones in different stages of the disease, slight and marked, recent and old. The injections, made subcutaneously or intravenously every two days, were at first 1 cc. for adults and 0.5 cc. for children, later increased to 2 and 1 cc., respectively. Macular cases react so favorably that in a short time the lesions are resorbed, and neural symptoms are also much improved. Such results cannot be attributed solely to the action of the medicament, since macules frequently regress and disappear spontaneously, but the improvement observed was much more rapid and favorable than the author has seen in such cases without treatment or in those given hydnocarpus oil. In the nodular group the effectiveness was variable; 8 of the 20 cases improved, 8 showed no change and 4 became more or less worse. This investigation is being continued. —[From abstract.]

IRVINE, C. M AND B 693 in leprosy. *East African Med. Jour.* 16 (1939) 213-232 (correspondence).

In a letter the author records a trial of M and B 693 in twelve patients with negative results. All but one suffered from giddiness and headache after 3 gms. daily, and although the dosage was reduced to one-half all but two refused to continue the drug.—[Abstract from *Trop. Dis. Bull.* 37 (1940) 342.]

KAMIKAWA, Y. On the clinical effect of snake-oil against leprosy. *Trans. 12th Meet., Japanese Lep. Assoc., 1938. La Lepro* 10 (1939) suppl. 78 (abstract).

The snake oils used in this experiment were extracted from the fat of venomous and nonvenomous snakes caught in South China and Formosa. They were given intramuscularly to 40 volunteer patients in the government leprosarium of Formosa for a period of 22 months. Improvement occurred in 13 (32%). No remarkable secondary reactions were experienced, except some complaints of severe pain in the region injected. —[From abstract.]

SMYLY, H. J. Occupational therapy. *Leper Quart.* 14 (1940) 154-157.

In speaking of the necessity of occupational therapy, Smyly tells how in the leprosarium of the Cheeloo University, Shantung, basket ball and other ball games, agriculture, goat raising for the production of milk (which is consumed by the lepers) all play an important part. This leprosarium has become well known for chrysanthemum cultivation by the inmates.

—L. S. HUIZENGA

DUBOIS, A. AND RESSELER, R. Emulsion d'huile de chaulmoogra. Préparation. Tolérance par voie veineuse chez les animaux. [Emulsion of chaulmoogra oil; preparation; tolerance by the intravenous route in animals.] *Ann. Soc. belge Méd. trop.* 19 (1939) 355-360.

The authors report experiments on the use of an emulsion of chaulmoogra oil given intravenously in animals, a method recommended for the treatment of leprosy by Radna and certain other authors. Preparation: water 10 cc., the oil 10 cc., glycerine 10 drops, 2 percent KOH 20 drops;

shake for two or three hours. Ordinarily the oil droplets do not exceed 10-15 microns, but they may reach 25-50 microns on prolonged standing, so brief shaking is necessary before use. With mice, 8 out of 13 died, but this experience is not significant because of the technical difficulties of administering this material to such small animals. In the others, the limit of dosage was fixed at 1 cc. per kgm. for the rat, and 0.8 cc. for the rabbit. There were 5 deaths among 7 rabbits, none among 2 guinea-pigs, and 3 among 10 rats. The deaths were due either to nervous phenomena (rabbits) or pulmonary edema (rats). The emulsion would seem to be, therefore, only three times less toxic by this route than the oil, taking for the latter the data given by Schlossberger. The authors counsel caution in the use of such preparations; the doses used by Radna, however, are five times less than the dose limit indicated. —AUTHORS' ABSTRACT

BEAUDIMENT, R. AND RIVOALEN, P. La neutralisation des huiles de chaulmoogra. [Neutralization of chaulmoogra oils.] Ann. Méd. Pharm. Colon. 37 (1939) 750-763.

Such oils should show less than 6% acidity for oral use, under 3% for intramuscular or hypodermic use, and less than 0.8% for intravenous injection. Neutralization does not diminish activity. A simple way to obtain a neutral oil suitable for any method of administration is: Add a small handful of desiccated sodium sulphate, shake and allow to stand for half a day before filtering; the oil is thus nearly freed from water. Add a large excess of sodium carbonate and shake frequently during several days. After about twelve hours of rest, decant and filter through ordinary filter paper. Acidity is thus reduced to between 0.1 and 0.5%, and the oil keeps well.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 340.]

CARDOSO, H. T. La fabricación de los medicamentos del chaulmoogra por el procedimiento Cole-Cardoso. [The preparation of chaulmoogra drugs by the Cole-Cardoso method.] Rev. Colombiana Leprol. 2 (1940-41) 102-111.

The methods used in the preparation of these derivatives are described. The operations are: esterification and removal of by-products and residues, distillation, neutralization, drying, and the addition of iodine or other substances. The physical, chemical and intradermal tests necessary for the control of the products are also considered. —M. BERNAL LONDOÑO

BARRIGA, V. A. M. Noticia sobre los ésteres etílicos de los ácidos grasos del aceite de chaulmoogra, preparados en el Instituto Nacional de Higiene Samper y Martínez, 1922-1940. [The ethyl esters of the fatty acids of the chaulmoogra oil prepared in the Samper-Martínez National Institute of Hygiene, 1922-1940.] Rev. Colombiana Leprol. 2 (1940) 125-132.

For the past 20 years this drug has been prepared in this institution in considerable amounts. From 1935 to 1937 the amount reached a total of 1,932,600 cc. The author describes the method and equipment used in its preparation. —M. BERNAL LONDOÑO

DAIRI, T. Ueber die Phytosterin-Reaktion von Chaulmoograöl. [The phytosterin reaction of chaulmoogra oil.] Trans. 12th Meet., Japanese Lep. Assoc., 1938. La Lepro 10 (1939) suppl. 50 (abstract).

This reaction, a colorimetric one, depends upon the lipochrome in oils. The author has applied it to several preparations of chaulmoogra oil made over a number of years. It was found that there was no constant color tone, but various shades which varied with the preparation. With fresh ones it was negative, tending to develop only later. It is concluded that new and old oils, and the difference between good and bad ones, can be judged only by this reaction.—[From abstract.]

MIYAZAKI, M. AND YOSHINAGA, Y. On the effect of hydnocarpus oil and other kinds of oil upon acid-fast bacilli. Trans. 12th Meet., Japanese Lep. Assoc., 1938. La Lepro 10 (1939) suppl. 70 (abstract).

When hydnocarpus oil is added to a culture medium in a concentration of 5%, it has little preventive effect upon the growth of acid-fast bacilli, but in 10% concentration it has a rather marked effect. Since similar inhibitory effects are shown by other kinds of oils (olive, castor, apricot-stone, and cod-liver), no exceptional action on the part of hydnocarpus oil is evident. Similarly, when acid-fast bacilli are mixed with one of these oils and seeded upon a usual culture medium, hydnocarpus oil shows no special action in preventing growth.—[From abstract.]

DUBOIS, A. Notes pharmacologiques sur le beurre de Caloncoba. [Pharmacological notes on caloncoba butter.] Ann. Soc. belge Méd. trop. 20 (1940) 249.

Experiments have been made on animals with the butter of *Caloncoba welwitschii*, obtained in the Congo (Radna). It has the rotary power of the chaulmoogra oils and very slight acidity. Doses tolerated by the subcutaneous route were: mouse, 0.3 cc./20 gm. (15 cc./kgm.); rat, 5-6 cc./kgm.; guinea-pig, 4 cc./kgm. By the intravenous route (employed in man by Radna and Limbos) deaths were frequent. Of 4 guinea-pigs given 0.5 to 0.8 cc./kgm., one died with pulmonary hepatization; and of 2 rabbits receiving 0.5 cc./kgm., one died with the same condition, fatty globules being found in the alveolar exudate. Local tolerance is excellent, justifying use of the subcutaneous and intradermal routes. The oil exercises a bacteriostatic action on acid-fast cultures (tubercle, Kedrowsky and saprophytic bacilli). The study of this native vegetable product is regarded as of economic interest.

—AUTHOR'S ABSTRACT

RADNA, R. AND LIMBOS, P. Contribution à la question du traitement de la lèpre. L'huile de *Caloncoba welwitschii* (Gilg). [Contribution to the question of the treatment of leprosy; the oil of *Caloncoba welwitschii* (Gilg).] Ann. Soc. belge Méd. trop. 20 (1940) 335.

The authors call attention to the abundance of *Caloncoba welwitschii* in different regions of the Congo, and the economic interest which consequently attaches to the study of its use. The procedure of extraction used by them is: boiling water, alcohol-acetone-chloroform or petroleum ether. The oil has been injected into the muscles after addition of 4% creosote, or at times into or under the skin, in doses of from 2 to 5 cc. It is well tolerated. Intravenously they have administered it after mixture of 2 or 3 cc. of the liquefied oil with blood in the syringe. Only slight disturbances have been caused by this method of administration—ephemeral fever, cough, conjunctival injection. In total, 14 cases, only one of them of the lepromatous type, have

been treated, the total dosage being from 200 to 300 cc. Most of them have shown clinical amelioration. Without drawing any definite conclusions from so limited a number of cases the authors believe that, in view of the good tolerance and the favorable results obtained, more extended trials are in order.

—A. DUBOIS

KOZUKA, T. AND YOSHINAGA, T. On metallic salts in the leper's blood (continued). Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 61 (abstract).

The authors, having previously dealt with the calcium content of the blood in leprosy, here report their findings regarding potassium. In treatment, chaulmoogra oil in its natural form is usually used, but it is more effective in the form of salts with potassium, sodium, calcium, iron or magnesium; hence the importance of quantitative analyses of those elements in the blood. Employing the Kramer-Tisdall method of determining potassium, they obtained average figures of 345 in 23 nodular cases, 385 in 11 neural cases and 395 in 11 macular cases, the last being practically identical with that of 6 normal controls (393). Regarding calcium, more was found in nodular and macular cases than in the neural ones.—[From abstract.]

HASEGAWA, K. Ueber die Nebenniere bei Lepra. II. Mitteilung. Experimentelle Untersuchungen ueber den Adrenalinegehalt der Nebenniere bei der Impfung der Leprabazillen. [The adrenals in leprosy. II. Experimental investigations on the adrenalin content of the adrenals after the inoculation of leprosy bacilli.] *La Lepro* 11 (1940) suppl. 23-24 (abstract).

It was previously reported that the adrenalin content of the suprarenals of lepers is distinctly decreased, probably dependent upon the leprosy bacilli and their toxins. In the work here presented the adrenalin content of the glands of rabbits inoculated with leprosy bacilli was determined. Leprous nodules were treated with 10% sulphuric acid for 5 minutes and washed repeatedly in distilled water. Three preparations for inoculation were then made, as follows: (a) nodules boiled with 10 parts of distilled water and ground in a mortar; (b) unboiled nodules, ground similarly; (c) the unboiled suspension [(b)] centrifuged, the supernatant fluid being used. These preparations were inoculated into the abdominal cavity, the rabbits being killed after 4 days. In a fourth experiment an emulsion (second method) was inoculated subcutaneously on the back; these animals were killed after 3 months. The adrenalin concentration was determined immediately after death, by the Sudo-Inoue colorimetric method. Results: (a) in 21 rabbits inoculated with the first preparation the determinations averaged 0.134 mg.; (b) in 18 animals given the second preparation, 0.115 mg.; (c) in 21 injected with the centrifuged material, 0.140 mg.; and (d) in 20 animals used in the fourth experiment, 0.161 mg. This last figure is practically normal, since normal rabbits give values of 0.16-0.23 mg. In the other three experiments, the averages represent a more or less distinct decrease, most marked in the second one. It follows, therefore, that the decrease of the adrenalin content of the suprarenal is caused by the inoculated lepra bacilli and their toxins.—[From abstract.]

NISHIMURA, I., YANO, M. AND HIROSE, T. Ueber die quantitative Bestimmung des Vitamin B<sub>1</sub> im Harne Lepröser. [The quantitative deter-

mination of vitamin B<sub>1</sub> in the urine of lepers.] *La Lepro* 11 (1940) suppl. 27 (abstract).

By Ashidaka's improvement of Otto and Rühmekorb's method of determining vitamin B<sub>1</sub> in body fluids by luminiscence measured with a Stufen photometer, the authors have measured the concentration of this vitamin in the urine of lepers during the morning fast. Of the 73 cases tested, 18 were nodular, 14 macular and 41 neural. These groups gave average values of 0.0073 mg./%, 0.0086 mg./%, and of 0.0097 mg./%, respectively. (General average, from these figures, 0.0088 mg./%.) In more than one-half of the cases (i.e., in 61% of the nodular ones, 64% of the macular ones, and 66% of the neurals) the readings were below 0.01 mg./%; indeed, in 4, 3 and 5 cases, respectively, they were zero. Control determinations on 15 healthy persons averaged 0.0183 mg./%. It follows that the vitamin B<sub>1</sub> content of the urine of lepers, in general, is lower than in normal persons.—[From abstract.]

BÜNGELER, W. AND FERNANDEZ, J. M. Untersuchungen über den klinischen Verlauf und die histologischen Veränderungen allergischer Reaktionen bei der Lepra. III. Mitteilung. Klinische und histologische Untersuchungen über die künstlichen Aktivierung der tuberkuliden Lepra. [Studies on the clinical course and the histologic changes of allergic reactions in leprosy. III. Clinical and histologic studies on the artificial activation of tuberculoid leprosy.] *Virch. Arch. f. path. Anat.* 305 (1940) 593-608.

In extension of a study involving the Mitsuda reaction and the "spontaneous allergic reaction" (tuberculoid lepra reaction), the authors have included artificially induced reaction of the latter kind. Subcutaneous injection of 1.5 cc. of standard lepromin causes a three-phase reaction: (a) general, intense, with high fever (up to 40°C.), chills, lassitude and articular pain, appearing within 6 hours and subsiding after 24 hours; (b) focal in the pre-existing lesions—and also the sites of Mitsuda tests—which show marked swelling, reddening and subjective signs, beginning equally promptly, reaching the peak as late as 24 hours, subsiding slowly to clear up by from 48 to 72 hours; and (c) focal at the site of the injection, with swelling and induration fully evolved within 24 hours, slowly to be converted to a deep nodule, usually ulcerating in the third or fourth week. [See Fernandez, abstracts, *THE JOURNAL* 6 (1938) 461 and 8 (1940) 398.] Histologically the changes that occur in this condition are the same as those seen in the Mitsuda test and in spontaneous tuberculoid reaction, i.e., typical connective tissue degeneration—mucofibrinoid swelling, fibrinoid necroses—and secondary nodule formation. Bacilli have not been found, which suggests that the changes mentioned need not be the expression of the destruction of bacilli under the influence of specific antibodies, but instead may be looked upon as allergic reaction to bacterial toxins. [Whether by authors' intent or not, the term "tuberculiden" leprosy appears in the original title of this article.] —H. W. W.

BÜNGELER, W. AND MARTINS DE CASTRO, A. F. Untersuchungen über den klinischen Verlauf und die histologischen Veränderungen allergischer Reaktionen bei der Lepra. IV. Mitteilung. Klinische und histologische Untersuchungen über die spontane Reaktion beim lepromatösen Aus-

satz. [Investigations of the clinical course and the histologic changes of allergic reactions in leprosy. IV. Clinical and histological studies on spontaneous reaction in lepromatous leprosy.] *Virch. Arch.* 306 (1940) 404-426.

The voluminous literature on this reaction is reviewed, including the histologic and clinical observations. It is stated that, in São Paulo, lepra reaction is not treated because it is regarded as an entirely favorable condition. The writers describe 14 of their own cases, the stages in which may be summarized as follows: The fresh eruptions are characterized histologically by acute inflammatory changes of nonspecific character, which show a fresh intrafocal and perifocal infiltration which can be regarded as a focus of reaction. (Lepromatous leprosy is termed a chronic, inflammatory and hyperplastic reticulo-endotheliosis.) These fresh lesions seem to be in clinically healthy skin, but in reality they occur in small leprous granulomata which, because of their slight degree, escape clinical observation until they become visible in the reaction. The bacillema present in this condition, at least in the beginning, is therefore not the cause of the apparently new development of lepromatous lesions. Histologically there are, at first, edema, hyperemia and leucocytic infiltration of the leprous granuloma and of the collateral connective tissue, with fibrinous exudation. Later, eosinophile cells become more frequent, the exudation becomes thicker and suppurative, and finally an abscess develops. About the 8th or 9th day involution occurs. There is a sort of purification of the granuloma, which frequently disappears entirely; or it cicatrizes, or there remains only a small round cell infiltration of nonspecific character. The cause of the reaction must be related with the bacillema, and it occurs through the intravascular decomposition of a leprous granuloma. The lepromin reaction of Mitsuda is always negative in this condition, a fact which contributes essentially to the differentiation of tuberculoid leprosy, which always reacts positively.—KLINGMÜLLER

BABA, S. Ueber Veränderungen der sympathischen Ganglien bei Lepra. [Changes of the sympathetic ganglia in leprosy.] *Trans. 12th. Meet., Japanese Lep. Assoc., 1938. La Lepro* 10 (1939) suppl. 47 (abstract).

In nodular leprosy, bacilli are not infrequently to be found in the cells of the sympathetic ganglia. For the most part they lie in the peripheral parts of the cells, well stained both where the pigment is abundant and where it is slight, but largely of granular appearance. Neither zygoid nor nuclei are directly changed by the invasion, though the bacilli are able to multiply within the cells; the most noticeable changes are vacuolar degeneration, thickening of the capsule, and then increase of the nuclei. Usually bacilli are not demonstrable in the nerve fibers, though the latter often show fatty change and Wallerian secondary degeneration. Increase of the interstitial substance and honeycomb degeneration are frequently met with. In the honeycombed tissue of the cortical substance bacilli are discoverable only in traces. Vascular changes are relatively infrequent. Infiltration of round cells is to be seen in the ganglia in places. As a result of acute aggravation of symptoms, high-grade inflammatory manifestations appear in the cortical substance around the vessels and in the nerve fibers; and lepra cells, foamy cells and numerous bacilli are to be found. The last are relatively few in the ganglia cells, where however there are very many pigment

granules. In four cases of neural leprosy studied no bacilli were found in the ganglion cells, and vacuolar degeneration was not definite. On the other hand increase of the cortical substance and fatty degeneration of the nerve fibers were well shown, though the amount of honeycomb tissue was only slight.—[From abstract.]

MITSUDA, K. Histologische Veränderungen des Hodens und Nebenhodens bei einem Falle von Lepra nervosa, bei dem vor 24 Jahren Vasektomie ausgeführt worden war. [Histological changes of the testis and epididymis in a case of neural leprosy in which vasectomy had been performed 24 years previously.] Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 48 (abstract).

The left testis was removed surgically from a patient 51 years of age, leprosy for 40 years, who had been vasectomized 24 years previously, without any effect upon his psychic condition or sexual function. The specimen measured  $5.5 \times 2.2 \times 2.2$  cm. and weighed 22 gm. Color on cross section, grayish; convoluted tubules somewhat prominent, easily drawn out with forceps; epididymis apparently unchanged. After the tissue was hardened in formalin some of the fixing fluid was centrifuged; smears showed only a few bacilli but very numerous young and fully matured spermatocytes. Histologically the vasa deferentia of the globus major of the epididymis showed fatty degeneration of the epithelium and at times filling of the lumina with spermatozoa heads and albuminous matter. Spermatoclasts were found in the caput epididymis, and in the connective tissue between the canals a few bacilli; in the corpus and cauda, spermatozoan heads and here and there also spermatoclasts. Vessels of the tunica albuginea were in general thickened. Interstitial tissue of the testis showed mucoid degeneration. Bacilli found only in the vasa deferentes of the epididymis, and only in small numbers. In spite of the long time elapsed since the vasectomy, the faculty of producing spermatozoa was in no way impaired.—[From abstract.]

X HASEGAWA, K. Studies on the weight of internal organs of lepers. (Part 2. Heart) *La Lepro* 11 (1940) suppl. 13 (abstract).

2400 — Idem. (Part 3. Spleen.) Ibid. 11 (1940) suppl. 15 (abstract).

— Idem. (Part 4. Liver.) Ibid. 11 (1940) suppl. 17 (abstract).

— Idem. (Part 5. Kidney.) Ibid. 11 (1940) suppl. 19 (abstract).

— Idem. (Part 6. Suprarenal.) Ibid. 11 (1940) suppl. 21 (abstract).

(1) Data on heart weights of 1,045 autopsy cases [excluding, as in the other studies to follow, those with apparent disease] were examined. Those of males averaged  $238.5 \pm 2.1$  gm., those of females  $214.7 \pm 3.9$  gm., the former about 30 gm. and the latter 11 gm. less than in nonleprosy persons. Those of nodular cases were generally smaller than those of the neural forms. Correlations were found with both the duration of the disease and the age at onset; the earlier the onset and the longer the duration the lighter the weight.

(2) Spleen weights (1,076 specimens) gave an average of 209.5 gm. for males and 180.8 gm. for females, these being for both sexes about 71 gm. more than in nonleprosy. A marked type difference was found: nodular, 213.9 in males and 198.2 in females; neural, 157.9 in males and 109.7 in females. [From the preceding statement, the last figure would seem to be normal.]

A correlation was found with the duration of the disease; the later the disease began the lighter is the weight. There was greater variation in the weights of this organ than in those of others.

(3) Liver weights (1,033 specimens): 1,232.8 gm. in males and 1,137.0 in females, in both sexes greater by 18.5 gm. than normal. Here, again, there was a type difference: nodular, 1,249.8 in males and 1,166.0 in females; neural, 1,150.7 in males and 1,009.6 in females. There was a close positive correlation with the height or the weight of the body.

(4) Of 2,256 kidneys, the average for males was 138.8 gm. and that for females 127.4 gm., about 4.0 gm. more than normal. There was no correlation difference in cases of the different types.

(5) Of 420 suprarenals, the average for males was 4.54 gm. and that for females 4.13 gm., these being about two-thirds of normal. There was close correlation with body length or weight, but a prominent difference between nodular and neural cases, the gland in the former being considerably lighter than in the latter.—[From abstracts.]

SUWO, M. AND KIN, S. Ueber die Züchtung von Leprabazillen auf Gewebeskulturen. I. Mitteilung. Versuche mit menschlichen Leprabazillen. [Cultivation of the leprosy bacillus in tissue cultures. I. Work with the human bacillus.] Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 69 (abstract).

[This article, with a slightly different title, was published in *THE JOURNAL* 7 (1939) 57-66.]

SUWO, M. AND KIN, S. Ueber die Züchtung von Leprabazillen auf Gewebeskulturen. II. Mitteilung. Versuche mit Rattenleprabazillen. [Cultivation of the leprosy bacillus in tissue cultures. II. Work with the rat leprosy bacillus.] Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 69 (abstract).

Whereas the young nodule tissue of rat leprosy definitely grows outside of the body, the old tissue is not transplantable. The newly-formed tissue consists of lymphocytes, epithelioid cells and fibroblasts. The lymphocytes undergo regressive changes first, and then the epithelioid cells; the fibroblasts remain alive the longest. In the cytoplasm of the epithelioid cells and fibroblasts numerous bacilli are found regularly, not in the lymphocytes. The epithelioid cells take up vital stains better than the fibroblasts. As a result of the increase of the bacilli, fibroblasts in the mother tissue and also in the newly grown tissue change into epithelioid cells, in which the bacilli increase. Increase seems to occur both in the cells and in the culture medium, but the growth is not visible to the naked eye.—[From abstract.]

AOYAMA, N. Experimentelles Studium über den Einfluss der Kälte auf die Wucherung von Leprabazillen. [Experimental study of the influence of cold on the proliferation of leprosy bacilli.] *Japanese Jour. Dermat. & Urol.* 47 (1940) 29 (abstract).

After small pieces of a leprous nodule had been kept at  $-3^{\circ}\text{C}$ . for different intervals of time, they were cultivated for three weeks by means of Nojima's method. After cooling for 24 or 48 hours the bacilli multiplied

moderately; after 96-120 hours of cooling only a portion of them multiplied.  
—[From abstract.]

YATSUSHIRO, G. Ueber die Wirkungen von Desinfektionsmitteln auf die sog. saprophytischen säurefesten Bazillen. [The effect of disinfectants on the so-called saprophytic acid-fast bacilli.] Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 71 (abstract).

The materials used were Baysol, Disinfectol, Mikesol, Ermil, Halomin tablets, Lysoform and formalin. The organisms used were from the nasal secretion of lepers and from nodules of rat and human leprosy. Of these various disinfectants, Baysol (3%) and Mikesol (5%) had the strongest action against these organisms, which are much more resistant than the germs of acute infectious diseases.—[From abstract.]

GOMES, J. M. Contribution to the bacteriology of *Myco. leprae hominis*. (Its possible consequences in prophylaxis.) An English translation from Rev. Méd. Brasileira (1940), No. 8, August; 19 pp., with five colored plates.

The author claims to have studied for almost a year the morphology of *M. leprae* in relation to the clinical condition of some hundreds of cases undergoing treatment with a carotinoid, and traces a life cycle of the micro-organism in evolutionary and involutionary phases. In its evolutionary phase, in human parasitism, its course is given as: virus, homogeneous acid-fast bacillus, granular acid-fast bacillus, acid-fast granulation, acid-fast "dust." The involutionary phase: homogeneous acid-fast bacillus, fragmented acid-fast bacillus, acid-sensitive bacillus, acid-sensitive granulation, destruction. There is urgent necessity, he says, for much more study of the regressive phase of the germ; its noninfectiousness proved, there is no more need for prolonged segregation of the patient.  
—H. W. W.

SATO, M. AND NAKANO, I. Versuche mit Ueberimpfung von menschlicher und Rattenlepra auf Vögel. [Inoculation of birds with human and rat leprosy.] Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 67 (abstract).

In this work domestic fowls, pigeons, quails and sparrow-parrots were employed, but in all but the first, it is stated, the results were negative. The results obtained in the hen have been dealt with repeatedly in other reports; the main point of interest here is that in hens brought to a condition of vitamin deficiency, lesions occurred in the peritoneum and mesentery which consisted histologically of lymphocytes, polymorphonuclear leucocytes, macrophages and eosinophil leucocytes. These lesions showed a marked tendency to necrosis, but bacilli were not to be found in them.  
—H. W. W.

WATANABE, Y. AND NONAKA, N. Experimental studies concerning leprosy with chicken. Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 66 (abstract).

(a) The authors have previously reported that repeated inoculations of suspensions of rat leprosy tissue into the chest muscles of chickens produced a leprous granuloma at the sites of injection. Macroscopically no change was found in the viscera, but histologically there were occasionally found nodules which resembled very closely those produced by inoculation of hu-

man leprous tissue. No acid-fast organisms were found in them. By transfers, a mild leprous change with a few acid-fast organisms was produced at the site of inoculation in the second generation. In order to determine the infectivity of the organisms in these chicken lesions, lesions produced by inoculation six weeks previously were inoculated into white rats. Three months later, when the animals were autopsied, there was no macroscopic change at the site of inoculation. Smears taken from the axillary glands of the same side showed acid-fast organisms, but the changes found were not leprous but had the pseudotuberculous picture produced by dead acid-fast organisms. (b) Inoculation of human leprous nodular material into the chicken was followed not only by the production of a leprous granuloma at the site, but also by the formation of comparatively marked tuberculoid leprous lesions in the liver, occasionally with a few acid-fast organisms. In the second generation the leprous granuloma at the inoculation site was milder than in the first generation, but acid-fast organisms were found. The liver showed small leprous nodules, with no organisms. In the third generation the only change produced was a mild granuloma at the site. Thus repeated subtransplantations in chicken with human and rat leprosy tissues were unsuccessful, but the change in the liver resulting from the inoculation of human leprous tissue is interesting.—[From abstract.]

- ✓ NONAKA, N. On the attitudes of chicken toward human and rat lepra bacilli and non-pathogenic acid-fast organisms. Trans. 12th Meet., Japanese Lep. Assoc., 1938. *La Lepro* 10 (1939) suppl. 66 (abstract).

Inoculation of human leprosy material into the chest muscles of the chicken produced at the site a leprous granuloma and epitheloidal cellular nodules, with many acid-fast organisms. Occasionally millet-sized nodules may be found in the liver. Heated material produced very localized leprous changes with distinct margins, and epitheloidal nodules with the organisms were less marked. Lesions produced locally with rat leprosy tissue were more diffuse than with human material, but the changes found in the viscera were exceedingly mild. Inoculation of heated emulsion produced, as with the human material, very mild leprous changes with very distinct margins. To control these experiments certain nonpathogenic acid-fast organisms (Uchida F and Hyogo 1977 strains, isolated from natural rat leprosy) were used similarly. They produced at the site an apparently leprous granuloma, but histologically the lesion consisted of round cells and epitheloidal growth, in contrast to the typical nodule of human and rat leprosy. The cells at the center of the lesion were degenerated and broken down. The viscera showed no leprous change at all.—[From abstract.]

- ✓ NONAKA, N. Studies on the infection of chicken with leprosy. *Kitasato Arch. Exper. Med.* 17 (1940) 175-201.

This report, in English, repeats the material given in the preceding two items, of which only abstracts are available, with little further in the way of results except for more details regarding the findings in transfers of the lesions induced in chickens with rat leprosy material back to the rat. Such tissue taken within one week after inoculation was still pathogenic, but after ten days there was hardly any pathogenicity in the first generation, though when it was retransplanted marked leprous granulation was produced. Lesions more than 15 days old gave entirely negative results.

The lesions produced in chickens by nonpathogenic acid-fast organisms, when any, are spoken of as of "pseudotuberculous type." —H. W. W.

NOJIMA, T. Weitere Versuche der Ueberimpfung von Leprabazillen auf Tiere und Zusammenfassung der Resultate auf Grund der bisherigen Experimente. [Further work on the inoculation of animals with the leprosy bacillus, and summary of the results obtained in previous experiments.] Trans. 12th Meet., Japanese Lep. Assoc., 1938. La Lepro 10 (1939) suppl. 67 (abstract).

Mice were given three subcutaneous injections of an extract of human placenta and then injected three times with a bacillary suspension which had been markedly enriched as regards its bacillary content by the author's method. Other animals were injected similarly with material not so enriched. After 11 months, definite leprosy changes were found at the injection sites and in the liver, spleen and adrenal, and to a lesser degree in the testis, epididymis and kidney. In previous work with other animals, especially the rabbit, guinea-pig, rat and mouse, injections of human leprosy bacillus enriched by the method mentioned gave rise to definite leprosy granulomata in various organs, including the skin, nasal mucosa, lymph nodes, ovary, endocardium, etc. The opinion is expressed that the incubation time of leprosy in animals is very short; leprosy changes in the various organs can be found after one or two months.—[From abstract.]

URABE, K. On the susceptibility of *Eutamia asiaticus orientalis* against *Myc. leprae muris*. Trans. 12th Meet., Japanese Lep. Assoc., 1938. La Lepro 10 (1939) suppl. 68 (abstract).

In *Eutamia asiaticus orientalis*, when inoculated subcutaneously with *M. leprae muris*, the local response was more prompt and more intensive than that in white rats. About five weeks after inoculation remarkable nodules and the histological changes of rat leprosy were found in some of the lymph nodes and organs.—[From abstract.]

URABE, K. Influence of non-acid-fast *Myc. leprae muris* against the development of rat-leprosy. Trans. 12th Meet., Japanese Lep. Assoc., 1938. La Lepro 10 (1939) suppl. 68 (abstract).

A vaccine containing nonacid-fast *M. leprae muris*, prepared by applying bromine gas to leprosy nodules for 6 to 24 hours, was found not only to have a certain protective effect against the infection of rat leprosy, but also to restrain its progress more or less.—[From abstract.]

ESSEVELD, H. Huidreacties met lepra-entstof. [Skin reactions with leprosy material.] Geneesk. Tijdschr. v. Nederlandsch-Indië 77 (1937) 865-871.

Esseveld has studied skin reactions with leprosy material in a country where leprosy is very rare—the Netherlands, at the Institute of Tropical Medicine in Amsterdam. The material, sent from Netherlands India, consisted of dried and powdered lepromatous tissue with abundant bacilli, sterilized for 60 minutes at 120°C. This powder was rubbed into skin sacrifices, with control tests—always found negative—made with powdered skin of healthy persons. Positive reactions, usually perceptible from the second or the third week, consisted of slightly red, thickened macules or real papules, which sometimes lasted for several months. A strongly positive lesion

excised three weeks after the inoculation showed a necrotic focus surrounded by proliferating connective tissue with lymphocytes and a few giant cells. Results: (a) all of 7 florid [lepromatous?] cases negative, but both of 2 burnt-out cases positive; (b) positive in 8 out of 15 known contacts; (c) positive in 8 out of 15 individuals who had been in Netherlands India for a long time; (d) positive in 5 out of 10 individuals without any possible contact with leprosy. Thus Mitsuda's findings with nonlepers was confirmed. The reaction is without value for the elimination of the diagnosis of leprosy; its "specific" nature is disputed. [The use of the long-since abandoned scarification method prevents statistical comparison of these findings with those of other recent workers, but makes the positive results in nonlepers the more significant.] —P. H. J. LAMPE

BABA, S. Ueber ein der sog. Schwartzmannschen Reaktion nahe verwandtes Phänomen mit Leprabacillus. [On a phenomenon closely related to the so-called Schwartzmann's reaction, produced with leprosy bacilli.] Japanese Jour. Dermat. & Urol. 47 (1940) 30 (abstract).

When the Schwartzmann reaction is produced with the leprosy bacillus, it appears some 20-24 hours after the test, which is not the case with paratyphoid, colon or dysentery bacilli or with pneumococci.—[From abstract.]

SARDJITO. Immunisatie van schapen met zuurvaste bacillen, stam Sidik, geïsoleerd uit een lepra-patiënt. [Immunization of sheep with an acid-fast bacillus strain Sidik, isolated from a leprosy patient.] Geneesk. Tijdschr. Nederlandsch-Indië 80 (1940) 2717-2722.

The author describes the method employed to immunize sheep against an acid-fast bacillus, strain Sidik, isolated from a leprosy patient of that name. The best results were obtained by subcutaneous injections, made at intervals of about two weeks, with increasing doses of a glycerine broth culture. The serum so produced has a higher titer of complement-fixation power against an alcoholic extract of the organism used than had the antileprosy serum of Reenstierna. This complement-fixation reaction is to be used for testing antileprosy serum for its therapeutic qualities.—[From author's summary.]

SARDJITO. Complementbindingsproeven met alcohol-, aether-, aceton-extract van zuurvaste bacillen en sera van leprapatiënten. [Complement-fixation tests with alcohol, ether, and acetone extracts of acid-fast bacilli and sera of leprosy patients.] Acta Leidensia, Schol. Med. Trop. 14 (1939) 200-210.

Previous tests with the culture obtained from a gluteal abscess [Sidik strain; see preceding abstract] had indicated a closer relationship of this organism to the leprosy than to the tubercle bacillus. Further tests have now been applied to determine how far extracts of the leprosy, Sidik and tubercle bacilli show relationship to one another. The sera of 18 lepromatous, 28 neural and 5 mixed cases were used. As controls 10 tuberculous sera were employed, and also normal sera. When the extracts appeared to give positive reactions, the alcoholic extract was superior to the other two, but the author concludes that the tests had not served to provide quantitative differences between the three organisms studied.—[From abstract in *Trop. Dis. Bull.* 37 (1940) 332.]

- MALTANER, E. A study of the sera of lepers in quantitative complement-fixation tests for syphilis and tuberculosis. *American Jour. Trop. Med.* 20 (1940) 843-848.

Sera of 47 patients of the Carville leprosarium were examined by quantitative complement-fixation tests for syphilis and tuberculosis. In the test for syphilis, high titers were obtained in only 3 instances; 5 specimens gave reactions of moderate degree, and 2 mere traces; 2 others gave distinctly atypical slight reactions. Of the 8 patients (17%) whose sera reacted to an appreciable degree (4 neural and 4 mixed cases), one had a definite history of syphilis and 6 others admitted exposure or promiscuity; several had suggestive signs, though the lesions present might have been due to leprosy. In the tuberculosis test, very high titers were obtained in 36 cases (77%), less marked in neural than in lepromatous or mixed cases. The linear relationships characteristic of the reactions between tuberculous serum and antigen, and of those between syphilitic serum and cholesterolized tissue extract, were demonstrated in these tests, except in the two with slight, atypical reactions occurring with the tissue-extract antigen. The results confirm reports of previous observers that the sera of lepers react with tubercle antigen, and the quantitative test demonstrates a high degree of reactivity. In the test for syphilis, however, the findings fail to confirm the numerous reports of fairly high percentages of reactions in leprosy. For the most part, reactivity was practically absent even when there was a high degree of reaction with the tubercle antigen, and in the comparatively few cases with definite reactions syphilis cannot be excluded. This, with purified and accurately standardized antigens and the quantitative methods of testing, it is possible to evaluate more accurately than hitherto the activity of sera from lepers with the antigens used in the test for tuberculosis and syphilis.

—AUTHOR'S ABSTRACT

- MALTANER, E. Reaction of sera from patients with yaws in quantitative complement-fixation tests for syphilis and tuberculosis. *American Jour. Trop. Med.* 21 (1941) 145-150.

In this article the author states that the marked reactions of the leprosy sera with the tubercle antigen "are undoubtedly associated with common antigenic constituents in the acid-fast incitants of leprosy and tuberculosis. . . ." and the positive reactions to the test for syphilis obtained in cases of yaws are similarly explained. On the other hand, the relatively small number of positive tests for syphilis given by leprosy sera, and also of positive reactions of yaws sera to the tubercle antigen, suggest that these occasional reactions may be due to mixed infection. Among the problems that suggest themselves for similar comparative study, she points out, is that of reactions obtained with acid-fast strains isolated from the lesions of leprosy, such tests to be made in various stages of the disease and during treatment.

—H. W. W.

- SIGEMATU, S. AND SATO, T. Ueber die Nomura'sche Reaktion bei Lepra. [On Nomura's reaction in leprosy.] *La Lepro* 11 (1940) suppl. 3 (abstract).

This reaction, previously used in the diagnosis of tuberculosis, consists of adding hydrochloric acid to the patient's serum and heating the mixture

in a water bath at 38°C. Figures are given for the positive results obtained in leprosy cases of various types (more than 75% in nodular cases, around 50% in the others), but with no mention of controls. —H. W. W.

GOMES, J. M. *Lepra murina*. Pesquisas com os pigmentos carotenoides. [Rat leprosy; investigations with carotinoid pigments.] Brasil-méd. 54 (1940) 140-143.

Of the 15 rats used, five served as controls, receiving only injections of a suspension of Stefansky bacilli. The other ten were given a mixture of the suspension with carotene, and one-half of them were subjected to subsequent treatment by repeated injections of the latter substance. Individuals were sacrificed for examination after 30, 34, 60, 74 and 95 days. In the controls and those given the mixture without further treatment, the infection followed its usual course of development, a little more actively in the controls than in the others. In the treated animals the bacilli were less numerous; in the one killed after 95 days they were found only in the liver and spleen, and they were mostly granulated and nearly all fragmented. The author believes that this carotinoid stimulates the evolution of the bacillus, but that it also enables the animal organism to destroy it in its acid-fast homogeneous phase.—[From author's summary.]

KAMIKAWA, Y., MAHIMA, S. AND HAYASHI, E. On the tumor of the cattle, those found in Formosa. Trans. 12th Meet., Japanese Lep. Assoc., 1938. La Lepro 10 (1939) suppl. 65 (abstract).

Stimulated by Lobel's reports of "lepra bubalorum" in Netherlands India, the authors have investigated the occurrence of a benign nodular disease in Formosa that occurs not only in the water buffalo (*Bubalus bubalis*) but also in the so-called "yellow cattle" (*Bos zebu indicus*). The tumors found in them were in many respects, clinically, histologically and bacteriologically, similar to those described by Lobel, though there are differences which will be reported later. With regard to the incidence of these lesions in the buffalo, of a total of 1,586 examined in ten districts, 53 (3.3%) were found to be affected; in the individual districts the rates varied from 0 to 10%. Of 122 yellow cattle examined, 5 were affected.—[From abstract.]

KAMIKAWA, Y. On the tumour of the cattle in Formosa. Report of the second investigation. Japanese Jour. Dermat. & Urol. 47 (1940) 63 (abstract).

In this second report, it is again stated that the tumors found in the water-buffalo and the yellow-cattle of Formosa are in many respects very similar to those described by Lobel, with differences which, again, are to be discussed at a later time. In a total of 1,463 buffaloes examined, 39 were found with nodules, and six others with ulcers (total 3.1%); while among 114 yellow cattle examined 13 had nodules and 3 had ulcers (total 16.7%). The incidence of these conditions in all animals varied from nil in one district to 10.6% in another, the average being 3.9%.—H. W. W.

## JAPANESE LEPROSY ASSOCIATION, 12TH MEETING

(TITLES NOT ABSTRACTED)

This following list is of titles of papers presented at the 12th meeting of the Japanese Leprosy Association, held on November 19th and 20th, 1938, of which abstracts have not been used in this department. These are taken from the transactions as they appeared in the foreign-language supplement of *La Lepro* 10 (1939), to which the page numbers refer. Titles that appeared without abstracts are indicated.

- AOYAMA, N. Experimentelle Untersuchungen über die Wachstumsfähigkeit der Leprabazillen in der Kälte (p. 70).
- HARADA, M. Efiko de "Zellatmin" al lepra erythemo nodula kaj neuralgio (p. 38).
- HARADA, M. La studado pro la obstrukco de sento ca la lepro. Kvara reporto. Hautotemperaturo kaj sentobstrukco (p. 36).
- HASEGAWA, K. Histologische Untersuchungen der Nebennieren bei Leprösen (title only; p. 47).
- HASEGAWA, K. Histologische Veränderungen der Nervenendigungen der Nebennieren bei Leprösen (Vorläufige Mitteilung) (title only; p. 47).
- HAYATA, H. Lepra in der Präfektur Mié (title only; p. 32).
- ICHIHARA, T. AND IWAKIRI, N. Untersuchungen über die Agglutinationsprobe und die Komplementbindungsreaktion bei der Lepra (p. 63).
- IDA, K. Ueber die Reduktionsfähigkeit der säurefesten Bazillen (p. 74).
- IMATANI, T. Ueber die Beziehungen zwischen Lepra und religiösem Denken in den ältesten Zeiten (p. 80).
- INABA, T. Ein Sektionsfall von Clonorchiasis sinensis hepatis als Komplikation und Todesursache bei Leprösen (p. 45).
- KAWAZOME, Y. Ueber den Einfluss von Seewasser, dem chemische Substanzen zugesetzt wurden, auf die Wachstumsfähigkeit der Leprabazillen (p. 71).
- KAWAZOME, Y. Ueber pulverisierte Kohle, die aus dem Blut Lepröser hergestellt werden konnte (p. 62).
- KOIWA, S. Ueber das Ransigwerden von Hydnocarpusöl (p. 50).
- KOYANAGI, J. Organlipoide bei der Injektion von Chaulmoograöl (p. 61).
- KUSABA, M. Serological studies on the classification of acid-fast bacteria (p. 73).
- MAJIMA, S. Untersuchungen über die Toxizität des Lepraserums (p. 61).
- MORIYA, M. Die Yoshida'sche Reaktion bei Leprakranken (p. 46).
- NAKAJO, S. Ueber die Anwendung von Vitaminen bei der Behandlung der Lepra (p. 78).
- NOJIMA, T. Wichtige Momente für die Entstehung der Lepra (p. 33).
- OGASAWARA, N. Die säurefesten Bazillen in ihrer Abhängigkeit von äußeren Bedingungen. III. Mitteilung. Ueber die Kultur von Rattenleprabazillen auf eiweisafreiem Glycerin-Agar-Nährboden (p. 71).
- OSADA, K. Lepra und Disposition (title only; p. 32).
- OTAWARA, T., ICHIHARA, S. AND SHIMIZU, K. Ueber die Lebensdauer von Rattenleprabazillen auf verschiedenen Nährböden (title only; p. 72).
- OTAWARA, T., ICHIHARA, S. AND SUZUKI, K. Verhalten der Rattenleprabazillen im Körper von Tieren, die für diese Bazillen unempfindlich sind (p. 72).

- OTAWARA, T., TADA, K., SUZUKI, K. AND ICHIHARA, T., Die praktische Bedeutung unserer Komplementbindungsreaktion bei der Lepra (p. 64).
- RAI, S. On Formosa native remedies for leprosy. Report II (pp. 78-79).
- SATO, S. AND IDA, K. Differenzierung verschiedener säurefester Bazillen. I. Ueber die säurebildende Kraft verschiedener säurefester Bazillen durch Zuckerkzusatz (p. 74).
- SATO, S. AND IDA, K. Differenzierung verschiedener säurefester Bazillen. II. Resistenz der säurefesten Bazillen gegen Wärme und Kälte (p. 76).
- SATO, S. AND IDA, K. Differenzierung verschiedener säurefester Bazillen. III. Unsere Anschauungen über die Differenzierung der verschiedenen säurefesten Bazillen (p. 77).
- SUEZAWA, M. Ueber notwendige, ausserplanmässige Ausgaben im Kostenveranschlag für die Leprösen im Oshima-Lepraheim (title only; p. 80).
- SUWO, M. AND ICHIHARA, T. Ueber die Komplementbindungsreaktion bei gesunden Kindern von leprösen Müttern (p. 63).
- TAJIRI, I. One case of bronchial foreign body (tracheal canula) in a leprous patient (p. 93).
- TAJIRI, T. Kehlkopftuberkulose als Komplikation der Lepra. I. Mitteilung (p. 42).
- TAKAHASHI, T. Beziehungen zwischen Sonnenlicht und der Entwicklung der Leprabazillen (p. 69.)
- TAKAHASHI, T. Eine neue diagnostische Methode der Lepra durch Aufkochen von Blut (p. 62.)
- TAKAHASHI, T. Histologische Untersuchungen des Augapfels (Fortsetzung) (p. 42).
- TAKASHIMA, S. Statistische Beobachtungen der Lepra (title only; p. 32).
- TAKEDA, M. Ueber jahreszeitlich bedingte Schwankungen der Leprösen Symptome. II. Leprose Augenerkrankungen und Jahresschwenkungen (p. 39).
- TAMAMURA, K. Lungen tuberkulose bei Lepra (p. 46).
- TANIMURA, T., GAMO, I. AND YANO, M. Ueber den Vitamin C-Gehalt in der Zerobrospinalflüssigkeit Lepröser (title only; p. 62).
- UCHIDA, M. Andere als lepröse Augenerkrankungen bei Leprösen (p. 40).
- YOSHIÉ, Y. Ueber die Kehlkopflepra (p. 43).