

CURRENT LITERATURE

One of the most important objectives of the JOURNAL is to take due notice of the current literature of leprosy, especially for the benefit of readers to whom medical libraries are not readily accessible. The Contributing Editors (see inside front cover) are depended on primarily to provide this material; but when necessary, abstracts are drawn from other sources, though this involves unavoidable delay.

DUBOIS, A. AND DEGOTTE, J. Séroflocculation syphilitique chez les lépreux. (Spécialement antigène-Bruxelles-flocculation). [Seroflocculation reaction in leprosy.] Ann. Soc. belge Méd. trop. 15 (1935) 201-207.

In the Belgian Congo the authors compared the Kahn, Meinicke and "anti-gen-Bruxelles-flocculation" (A.B.F.) tests with the sera of lepers and nonlepers, both groups including persons with and without histories of infection by syphilis or yaws. They found that with sera from patients with the latter infections the Kahn test was the most sensitive. From their results, tabulated below, they conclude that this test is reliable in lepers and that a positive reaction is indicative of yaws or syphilis.

Cases	Number Tested	Percent Positive
Yaws or syphilis, I and II, without leprosy	30	100
Yaws or syphilis, III, without leprosy	32	68
Miscellaneous, without leprosy	27	50
Leprosy, N and C1; positive history for syphilis or yaws	54	70
Leprosy, N and C1; negative history for syphilis or yaws	35	26
Leprosy, C3; positive history for syphilis or yaws	13	69
Leprosy, C3; negative history for syphilis or yaws	26	23
All patients with leprosy	123	50

—A. DUBOIS

VAN BREUSECHEM, R. Étude de la réaction déterminée par la léprine de Loewenstein chez le lépreux et chez l'homme sain. [Reaction to Loewenstein's leprine in lepers and nonlepers.] Ann. Soc. belge Méd. trop. 16 (1936) 109-113.

The author experimented with Loewenstein's leprine, supposed to be a filtrate of a leprosy bacillus culture. It was used both by the cuti-reaction method and by intradermal injection on a total of more than 200 persons. By the latter method healthy people gave 20% more reactions than did the lepers. The positive reaction is erythema and papule formation. (In discussion Dubois stated that of 12 insane people tested in Belgium, none of whom had been in contact with a leper, 10 had given positive reactions to leprine, 4 of them rather strongly. He believes that the effects of this substance are due to local irritative action, without any relation to allergy.)

—A. DUBOIS

VAN BREUSECHEM, R. Essai du 4828A dans le traitement de la lèpre. [Trial of 4828A in treatment.] *Ann. Soc. belge Méd. trop.* 16 (1936) 115-119.

Eight patients in the Belgian Congo were treated for nine months with the drug 4828A, a Bayer derivative of chaulmoogra oil. Injections of 1 to 2 cc. were given twice a week, the total amounts given the adults being from 114 to 219 cc. Local tolerance was good. Therapeutic effect was rather poor, but, as the author remarks, the treatment was not intensive and the period was short.

—A. DUBOIS

GAVRILOV, W. AND DUBOIS, A. Culture du bacille de Stefansky. [Cultivation of the Stefansky bacillus.] *Compt. rend. Soc. biol.* 121 (1936) 1384.

From rat leprosy material received from Marchoux, the authors obtained development of acid-fast rods in three successive cultures, by using media of types used for growing the tubercle bacillus plus broth or filtrate of rat skin. Besides microscopic evidence of growth there appeared colonies at about the limit of naked-eye visibility. These cultures were not pathogenic for rats, but the same is to be said for the original material from which they were grown. It is quite usual in Belgium to find the Stefansky bacillus of very low pathogenicity for laboratory rats.

—A. DUBOIS

LEDENTU, R. Les maladies transmissibles observées dans les colonies françaises et territoires sous mandat pendant l'année 1933. [Transmissible diseases in the French colonies and mandated territories in 1933.] *Ann. Méd. Pharm. colon.* 33 (1935) 552.

The period dealt with, 1933, was only the beginning of the new administration, which is applying the modern ideas of leprosy prophylaxis inspired by the leprosy commission of the ministry of colonies. The 28-page section that deals with this disease records interesting geographic, epidemiological and medical observations. From it are taken the following statistics. *French West Africa* (A. O. F.): Senegal (pop. 1,300,000), 1,961 cases; Sudan, 6,705; Niger, 213; Guinea (beginning of census), 140; Ivory Coast, 4,883; Dahomey (census beginning), 820; Togoland mandate (pop. 751,000) 2,868, or 3.8 per mille; Cameroons mandate (pop. 897,000) 10,377, or 9.8 per mille, of which 1,604 are in leprosaria; total 27,967. *French Equatorial Africa* (A.E.F.): Gabon, 1,110; Middle Congo, 279; Oubangui-Chari, 4,416; Tchad, 2,261; the total of 8,066 among 3,476,000 inhabitants makes a rate of 2.3 per mille, but the cases enumerated are only those so far segregated in the villages which have been examined. *Indian Ocean group*: Madagascar (enumeration under way) 1,650 cases isolated; Reunion, 20; establishments in India, 674. *Indo-China*: Cochinchine, 172 hospitalized at Choquan and 191 at Cularong; Annam, 502 in the leprosaria; Laos, 36 hospitalized and 77 in "leper villages"; Tonkin, 2,602 in institutions. *Atlantic group*: Guadeloupe (pop. 267,000), 250; Martinique, 180; French Guiana, 190, of which 55 are hospitalized. *Pacific group*: New Caledonia, 1,639, of which 123 are among 15,000 Europeans (8.8 per mille) and 1,516 among the 30,000 natives (50 per mille); Oceania, 220 cases isolated, including 116 at Orofara, Tahiti, and 17 at Tehuta, Marquesas. The total thus enumerated at the time of this report was about 45,000.

—ET. BURNET

ROBINEAU. Le service de prophylaxie et l'Institut central de la Lèpre de l'Afrique Occidentale française. (Bamako). [The service of prophylaxis and the

Central Leprosy Institute of French West Africa, Bamako.] *Presse méd.* 62 (1935) 1245-1246.

Early in 1935 there was inaugurated, at Bamako, A.O.F., the Central Leprosy Institute, a scientific institution charged with the organization and direction of the antileprosy activities of the region. The author describes the institution, which will ultimately have a capacity of 1,500 cases, and the proposed antileprosy campaign. The basis of the latter is: (a) investigation and diagnosis of cases, (b) leprosy census and classification of children, (c) treatment of cases, (d) adoption of a terminology and a clinical and therapeutic classification, and (e) propaganda. [From abstract in *Med. País. Cald.* 9 (1936) 133.]

CARTON. Étude sur la lèpre, dans la circonscription de Dschang (Cameroun), Bamoums et Bamillékés. [Leprosy in the Cameroons.] *Ann. Méd. Pharm. colon.* 33 (1935) 5.

The author estimates that there are 4,000 cases of leprosy in Dschang, about 1% of the 450,000 inhabitants; 1,079 have been enumerated. The two leprosaria of Koutaba (in Faumbam) and Baleng (in Bofausam) have 600 cases from these two subdivisions. There should be three other institutions for the other areas. The Grassfield subdivision has 3,000 cases, of which 1,500 should be segregated.

—ET. BURNET

ROLLIN, L. La lèpre dans les établissements français de l'Océanie. [Leprosy in French Oceania.] *Arch. Inst. Prophyl.* 7 (1935) 63.

The Maoris recognize the contagious character of leprosy, and isolate their cases and burn their bodies after death. An account is given of past efforts to control the disease and of its present status. In 1934 the number of known cases in Tahiti and dependencies was 207, and in the Marquesas 20. This total of 227 cases in a population of about 4,000 gives the very high rate of 57 per thousand, and it may be assumed that there is an equal number of cases not known. Figures for the different leprosaria are given, and the condition of these institutions, and measures that should be instituted are discussed. [From abstract *Bull. Off. Internat. Hyg. Publ.* 27 (1935) 1398.]

MASSAL, E. La lèpre dans les isles Tuamotu rattachées aux Gambier (Isles Reao et Puka-Ruha). [Leprosy in the Tuamotu islands of Gambier: Reao and Puka-Ruha.] *Ann. Méd. Pharm. colon.* 33 (1935) 1023.

Leprosy was introduced into Reao by an immigrant leper around whom a focus formed, children being the first to be attacked. A collection tour was made in 1927, and the islands were cleared of all known cases. Seven years later, in 1934, there were 56 cases among the 340 inhabitants of Reao (165 per mille), and 23 among the 180 people on Puka-Ruha (128 per mille). Of the 56 lepers on Reao, 40 were under 14 years, and of the 23 on Puka-Ruha, 20 were of that age group; numbers of them were between the ages of 4 and 6. In most of the children the disease became evident before the age of 10. The infection seemed to be localized on a slightly permeable, limy soil mixed with humus, in contrast with regions of lighter-colored, more permeable soil with less lime. The situation is not very favorable for the establishment of a center of isolation and treatment.

—ET. BURNET

LEFROU, G. A propos des réactions de gélification dans les affections tropicales.

[Gel reactions in tropical diseases.] Bull. Soc. Path. exot. 29 (1936) 394-396.

Applying to the formol coagulation phenomenon the author's findings with regard to protein disequilibrium, Gillier believes that the gel reaction may serve as a simple test of that condition and will distinguish between the sera of lepers and nonlepers. But the author, with Auffret, has shown that there is no correlation between disequilibrium and the lactogelification test. He now reports on unpublished work done five years previously with the formol-gel test, from which he concludes that that test is also without practical value in the diagnosis of leprosy. The phenomenon of gelification seems singularly complex, with factors that have as yet escaped analysis.

—H. W. W.

LEFROU, G. La valeur de l'examen du mucus nasal et des biopsies cutanées comme procédés de diagnostic bactérioscopique de la lèpre. [Examination of nasal mucus and skin biopsies in the bacteriological diagnosis of leprosy.] Bull. Soc. Path. exot. 28 (1935) 889.

The findings in 210 patients examined in Guadeloupe are classed in three categories, according to the form of the disease, its duration, and the age of the patient. Diagnostic procedures were used in the following order: examination of the nasal mucus, examination of skin material, serology and histology. Biopsies were made when the nasal mucus was found negative. The nasal mucus was rarely found positive in the macular form (1.5%), or in the first year of the infection (3.6%), and never in young children; in these groups of patients it is necessary to depend upon the biopsy. Coryza provoked by potassium iodide did not make the nasal mucus positive in the cases in which it had originally been negative.

—ET. BURNET

LEFROU, G. AND DES ESSARTS, J. O. Biopsies cutanées et histo-diagnostic de la lèpre. [Skin biopsies and histo-diagnosis of leprosy.] Bull. Soc. Path. exot. 29 (1936) 186-193.

The authors have sought to determine whether it is possible to increase the proportion of positive findings of bacilli in cases of leprosy by histological methods. Smears from 175 biopsy specimens were positive in 44 instances. Bacilli in very small numbers were found in sections of 6 other specimens, 5 of them simple achromic macules and 1 a papular lesion. Since so many specimens were negative, attention was turned to the question of whether the diagnosis could be made on the histological picture, and it is concluded that it can.

—H. W. W.

TISSEUL, J. Essai de classification des tuberculoïdes de la lèpre. [Classification of tuberculoid lesions.] Bull. Soc. Path. exot. 29 (1936) 238-242.

The provisional classification presented is double. For one part it is based on the manner of evolution: (a) primary tuberculoids, which are fixed forms; (b) secondary tuberculoids, which occur when cases that previously had bacillus-rich nodules approach the stage of cure, and (c) an intermediate form, with lesions rich in bacilli. On grounds of clinical morphology Tisseul distinguishes nine varieties of lesions: tuberculoids "en médaillon, en aires, rose-jaunâtres, parakératosiques, granitées, rosées, en plateau, rouges, et brillantes." In this way he emphasizes particularly the great variety of these lesions, at different phases of the development of the disease, and the difference in their susceptibility to

the various medicaments (chaulmoogra, bismuth, gold salts and hyrganol) used in the treatment. The author has observed about 150 tuberculoid cases in New Caledonia and 77 in French Guiana; in general they have constituted about 20% of all cases. He states that, in keeping with the generally recognized fact that leprosy shows differences in form in different countries, the tuberculoid variety differs greatly in the two regions mentioned. In Caledonia he saw little but primary tuberculoids, and those chiefly in adults; in Guiana the forms are very varied and, though they are found in all ages, they occur chiefly in children, so that he has even come to think that leprosy may sometimes commence with this form of lesion. In Caledonia the form seemed quite fixed; in Guiana, to the contrary, the varied forms are intimately allied to the evolution of the disease.

—ET. BURNET

GAFFIERO, E., VALLE, J. AND ANDRÉ, Z. Essais de tolerance des huiles en injections intraveineuses sur les chiens. [Tolerance of dogs to intravenous injections of oils.] *Rev. Méd. et Hyg. trop.* 27 (1935) 276-278.

The authors find that coconut oil is only very slightly toxic, and, apparently because of its high fluidity, intravenous injections are tolerated in large doses. Hydnocarpus oils, either neutralized or of acidity between 3 and 4%, in doses of 5 cc., kill by intoxication dogs of an average weight of 5 to 6 kgm., but are well tolerated in 2 cc. doses.

—H. W. W.

GAFFIERO, E. AND ANDRÉ, Z. Les injections intraveineuses d'huiles. [Intravenous injections of oils.] *Rev. Méd. et Hyg. trop.* 27 (1935) 276.

At the leprosarium of Pondichéry the author has given chaulmoogra and coconut oils intravenously to 41 patients with leprosy, 12 tuberculous persons, and 10 with other maladies. Of the hydnocarpus oil (neutralized with sodium carbonate) a total of 2,391 injections of 1 to 2 cc. were given, 2 injections per week; in the course of one year the patients received from 60 to 120 injections, totalling 120 to 240 cc., without showing any sign of intolerance. The coconut oil, which the author believes he is the first to use in this manner, was given in 2 cc. doses every 2 days. It gave very satisfactory results in sprue, in avitaminoses generally, and in generalized edema of the cachectic.

—H. W. W.

MELLO AND LOYOLA PEREIRA. Les injections intraveineuses d'huile de chaulmoogra. [Intravenous injections of chaulmoogra.] *Bull. Soc. Path. exot.* 28 (1935) 700.

From their experience with 1,000 intravenous injections of chaulmoogra oil, made in a series of 45 cases without any inconvenience, the authors confirm the results of the method of Labernadie, the therapeutic efficacy of which seems to them superior to that of other methods of administering chaulmoogra products. [From abstract *Bull. Off. Internat. Hyg. Publ.* 28 (1936) 339.]

GOLOVINE, S. Contribution à l'étude du traitement de la lèpre. [Contribution to treatment.] *Bull. Soc. Path. exot.* 28 (1935) 784.

The author has treated 139 cases of leprosy with the remedies listed below, none of which can be called specific but all of which have given some results. In case of lack of success with one remedy, a change to another is advised, or combinations of more than one. (a) Methylene blue is efficacious in cases with ulcerations (called "open cases"). (b) Gonocrine, given intravenously three times a week, a total of 20 to 25 doses of 5 cc. of 1% or 2% solution, is re-

commended for macular cases. (c) Gold, in the form of crysalbine or myochrisine, is stated summarily to cause the leprosy lesions to disappear regularly. (d) Copper sulphate, given in doses of 10 cc. of a 0.1% solution in distilled water intravenously three times a week, gives results similar to methylene blue and gonacrine. (e) Balsam of Peru, in doses of 0.5 to 1.5 cc. in series of 5 to 10 injections, into the gluteal muscle, causes the patches to disappear and ulcers to cicatrize. (f) Vegetable charcoal, in 2% suspension in saline, 5 to 10 cc. intravenously, is "disintoxicating" and causes improvement of the general condition. (g) Fuchsin, in doses of 5 cc. of 0.1% solution, in series of 10 injections three times a week, gives results "much more rapid and constant than methylene blue." (h) Gentian violet, used in the same way as fuchsin, gives the same results.

—ET. BURNET

DOROLLE, P., NGO-QUANG-LY, HUYNH-VAN-HUY AND TRAN-VAN-TAM. Bleu de méthylène et bleu de méthylène-éosine dans le traitement de la lèpre. Étude de la toxicité expérimentale et résultats obtenus. [Methylene blue and methylene blue-eosin in treatment; experimental study of toxicity.] Bull. Soc. Path. exot. 28 (1935) 839.

A methylene blue-eosin preparation (an eosinate of the blue in an excess of eosin), is less toxic than the blue alone, and neutralized and isotonic solutions are less toxic than simple aqueous ones. The blue-eosin formula used (Peirier) is: (a) Eosin 1.5 gm., methylene blue (R. A. L.) 0.5 gm., distilled water 40 cc.; (b) hydrochloric acid, N/10, 1 cc., distilled water to 50 cc.; (c) saccharose 10 gm., distilled water to 50 cc. Mix, filter twice, sterilize fractionally two times at 70 to 80° C. with one aseptic filtration between the two heatings. Of 30 cases treated, 23 were improved, 7 markedly, 7 moderately, and 9 slightly. The authors report five instances of surprising success with the blue and blue-eosin, and one with blue-eosin given with chaulmoogra tablets. But in a certain number of cases the improvement ceased with the injections. The effect on the bacilli was almost nil. The authors conclude that these dyes should have a place in leprosy therapy. [This is the same conclusion as that advanced by Montel.]

—ET. BURNET

BERNY, P. Action du bleu de méthylène administré par voie buccale sur les douleurs des lépreux. [Effect of methylene blue by mouth on pains in leprosy.] Bull. Soc. Path. exot. 29 (1936) 30.

Methylene blue by mouth, in 0.05 gm. pills, 6 pills a day, was tried out on five cases of leprosy with headache and neuralgias and gave permanent relief.

—ET. BURNET

LEPINE, P. AND MARKIANOS, J. Résultats obtenus dans le traitement de la lèpre par le bleu de méthylène. Bull. Soc. Path. exot. 19 (1936) 28-30.

This is a preliminary report on the treatment of 30 cases over a period of several months. Montel's technique was followed, and no other treatment was used. Some of the cases, treated for 14 months, received in total more than 3½ liters of the solution. Aside from a beneficial effect on febrile conditions, and a definite but limited effect on some of the nodular lesions, the results were not very satisfactory. There was no actual clearing up of lesions, no indisputable amelioration of the general condition, and no great modification of the course of the disease. (Lalung-Bonnaire, in discussion, wondered whether the

favorable results of Montel might be due to a special evolution of the bacillus in the yellow race.) —ET. BURNET

MONTEL, R. Résultats obtenus dans le traitement de la lèpre par le bleu de méthylène. A propos de la communication de P. Lépine et J. Markianos. [Results with methylene blue, with reference to the communication of Lépine and Markianos.] Bull. Soc. Path. exot. 29 (1936) 243-244.

Montel protests that he has not proposed a "curative treatment" of leprosy, but a method of treatment that should take an important place in the therapy of that disease. Holding that a maximum dose of 20 cc. is really minimal, and that much larger doses should be given, he restates his technic. His own experience with the effects of large doses is contrary to that of Lépine and Markianos in several respects. —H. W. W.

LÉPINE, P. Réponse à la note de L. R. Montel. Bull. Soc. Path. exot. 29 (1936) 385-359.

Lépine replies that, since the work he and Markianos reported was done in 1934, they could only use the technique that was recommended by Montel at that time, and that in some instances their dosage reached 30 cc. They used the blue alone, with no other medicament, because otherwise it would have been impossible to judge the effect of the blue. As for the results, they have simply reported their observations. —H. W. W.

MONTEL, R. AND LE-VAN-PHUNG. Un cas de lèpre tuberculeuse généralisée, blanchi cliniquement et bactériologiquement en 10 mois. Traitement mixte par le bleu de méthylène et le chaulmoogra. [Generalized nodular case arrested by mixed methylene blue-chaulmoogra treatment.] Bull. Soc. Path. exot. 29 (1936) 23.

The title gives the essential features of the observation. A case of three years' duration was given 2,245 cc. of a 1% solution of the dye in ten months; chaulmoogra (collobiase) was given after the third month. Intravenous injections of Lugol's solution and of "carbone porphyrisé" were also made. The patient became bacteriologically negative, first in the nasal mucus and then in the skin, and has remained so for four months. Nevertheless, the authors declare that he is not cured, in spite of the striking improvement, because there is still anesthesia of a large cubital nerve. —ET. BURNET

MARCHOUX, E., CHORINE, V. AND KOEHLIN, D. Infection lépreuse des rats par la voie oculaire. [Infection of rats by the ocular route.] Ann. Inst. Pasteur 55 (1935) 632.

The rat can be infected by depositing a drop of a suspension of the Steffensky bacillus in the eye. The infection does not involve the eye itself, but the bacilli are transported to the small lymphatic follicle which in the rat is found in the internal angle of the eye, thence to the submaxillary glands, and from there to the reticulo-endothelial system of the organism. It is very probable that in man the leprosy bacilli that come into contact with the eye get, by way of the lacrimal canal, to the abundant lymphoid tissue (absent in the rat) of the nasal mucosa, and to the superciliary region. Infection of the eyeball itself, however, is believed to be a late effect of a generalization of the disease. —ET. BURNET

8 VAUDREMER, A. AND BRUN, C. La culture du bacille de Hansen. [Cultivation of the leprosy bacillus.] Bull. Acad. Méd. 113 (1935) June 25.

——— Culture et cycle évolutive de B. de Hansen. [Cultivation and life cycle of the leprosy bacillus.] Presse méd. (1935) 1812-1814, Nov. 16.

Cultures (in aspergillus filtrate, in glycerinated potato bouillon, and even in ordinary bouillon with inert support) show regularly a succession of acid-fast bacilli, meningococciform elements, short blue-staining bacilli, long blue bacilli, and acid-fast bacilli. Acid-fastness is seen only in the glycerinated potato bouillon with inert support. Endospores, at first central or terminal and later free, which are ovoid, acid-fast and evidently conservation forms, show a progressive diminution of transverse diameter and become short, strongly acid-fast bacilli. Inoculations of the culture into white rabbits were negative. In the rat there were found in the blood, and in the monkey in the spleen and mesenteric nodes, bacterial forms that at first were blue-staining, Gram-positive granules and later were replaced by bacilli which changed from blue-staining to acid-fast, paralleling the changes seen in the cultures. In the monkey there were observed local scars, alopecia, hypopigmented spots, thickening of the radial nerve, and radial paralysis. The sera of patients with active leprosy agglutinate the cultures, but those of normal and tuberculous individuals do not. One cc. of the serum of an active case of leprosy causes lysis of a 24-hour bouillon culture in 48 hours at 38° C. [The second article referred to above is illustrated by several photographs and 19 figures in color.]

—ET. BURNET

SÉZARY, A. AND LÉVY, G. Essai de vaccinothérapie anti-lépreuse. [Trial of vaccine therapy.] Presse méd. (1935) 1818-1819, Nov. 16.

The results obtained with a vaccine of Vaudremer's culture in six cases, which have already been published, and a new one, are discussed in an excellent critical spirit. The vaccine has definite effect on painful and edematous eruptions, on the inflammatory elements of certain cutaneous infiltrations, on iritis and on the general condition. As a rule, the action ceases after a variable period of time. Effect on fever is doubtful, on neuritis and cubital deformity nil, on the lepromata nil or transitory. In one case in which the nasal mucus had constantly been positive it became negative. The vaccine seems to act as a "desensitizer" on the manifestations of allergic nature. It and chaulmoogra have different indications, and it is advantageous to use them in association, or better, alternately.

—ET. BURNET

8 KIKUTH, W. AND VERFÜHRTH, D. H. Ueber den heutigen Stand der Leprabazillenzüchtung. [Present status of the cultivation of the leprosy bacillus.] Deutsche med. Wchnschr. 36 (1935) 1435.

Hardly a year has passed since the discovery of the leprosy bacillus without some announcement of its cultivation, but actually proven success has never been attained. The authors review work that has been done in this field, and examine in some detail that of Vaudremer and his coworkers, who since 1931 have insisted that they have cultivated the organism. The authors believe that this claim has yet to be substantiated. [From abstract in *Bruxelles Méd.* (1935) Dec. 15, and others.]

8 LIE, H. P. Ueber den heutigen Stand der Leprabazillenzüchtung. [Present sta-

tus of the cultivation of the leprosy bacillus.] *Deutsche med. Wchnschr.* 37 (1936) 747.

The author, to correct an error by Kikuth and Verfürth [apparently they confused Lie and Loewenstein], defines his position with regard to the cultivation of the bacillus. Though like many others he has found the organism in the blood, he has never cultivated it from there; in fact, all of the many attempts made during his forty years of work to cultivate this germ were negative. At one time he did believe that he had succeeded, but the culture proved to be an attenuated bovine tubercle bacillus, and on other occasions he obtained growths of acid-fast bacilli, but these too were tubercle bacilli. Lie discusses a condition that frequently leads to erroneous conclusions, namely, the formation of "pseudo-colonies" by the concentration of bacilli present in the planted tissue as the cellular elements of the tissue disappear, giving a suggestion of multiplication. He believes that it is not yet certain that the leprosy bacillus has ever been cultivated, which indicates that some new technique must be acquired before that can be done.

—H. W. W.

SUMMENT, P. *Klinische Betrachtungen über die Lepra und deren Behandlung.* [Clinical remarks on leprosy and its treatment.] *Dermat. Wchnschr.* 101 (1935) 1002.

Leprosy is more prevalent in Europe than is generally believed; it is estimated that there are about 1,000 cases in Estonia and Latvia. Besides the classical forms, one sees in the leprosaria "brutal" ones—necrosing and "galloping" leprosy—which the author believes are due to a special form of the bacillus. In these cases with extensive ulcerations he has obtained good results with goudron-sulfoderme powder, which is a mixture containing 1% colloidal sulphur and 6% coal tar. This powder is applied after cleansing the lesion with benzene, ablation of the purulent foci, and baths or dressings of potassium permanganate. [From abstract in *Ann. Dermat. et Syphil.* 5 (1935) 1135.]

RIVELLONI, G. *Osservazioni sulla velocità di sedimentazione dei globuli rossi nella lepra.* [Velocity of erythrocyte sedimentation in leprosy.] *Dermosifilog.* 10 (1935) 497-520.

Rivelloni studied the velocity of erythrocyte sedimentation in 24 cases of leprosy—2 nodular, 6 mixed, 13 anesthetic and 3 incipient. Acceleration was most frequent (79%) and most marked in the nodular forms. No relation with the duration of the disease was noted. Sedimentation was not retarded by treatment (gold salts, chaulmoogra) or accelerated by any intercurrent phenomenon or disease. In the author's opinion the test has no special diagnostic significance, but it may be used to supplement other diagnostic measures. It may turn out to be of some use as a criterion of therapeutic efficiency. [From abstract in *Urol. and Cut. Rev.* 40 (1936) 219.]

GLINGANI, A. *L'introduzione del bleu di metilene nella lebbra a scopo terapeutico e diagnostico.* [Methylene blue in therapy and diagnosis.] *Dermosifil.* 10 (1935) 684-698.

The results of treatment of 6 cases with methylene blue are reported. The treatment is harmless, while the results have been satisfactory, especially in ocular involvements, though the germs themselves seem to be very slightly or not at all influenced. With regard to the peculiar affinity of the drug for the lesions, the author found it to bring into evidence anesthetic areas which had

not previously been noticed, but in smears from which numerous bacilli were found, and he suggests that it may have some value as a means of diagnosis, as well as for treatment. (From abstract in *Ann. Dermat. et Syphil.* 7 (1936) 324.)

LISI, F. AND SEBASTIANI, F. [Sarcoid forms of leprosy.] *Giorn. ital. Derm. Sifilol.* 76 (1935) 1029.

Borderline cases in which an absolute diagnosis between leprosy and tuberculosis is extremely difficult have been reported. Kissmeyer has said that the sarcoid of Boeck stands between the granulomata caused by the tubercle bacilli and those of leprosy, and they show many points of resemblance in their histological, bacteriological and clinical features. The authors contribute a report of a case in an Italian ex-soldier who, in 1933, had an extensive erythematous eruption that disappeared in a few months but recurred in the following year. Serological reactions were negative, as were human and bovine tuberculin tests, x-ray examination of the lungs, hands and feet, blood cultures for the tubercle bacillus, and nasal smears for that of leprosy. Sections showed histiocytic and epithelioid cell collections, no giant cells or necrosis, but numerous acid-fast bacilli. Guinea-pig inoculation was negative. The condition has remained stationary. [From abstract in *Urol. and Cut. Rev.* 40 (1936) 60.]

6 SOPO BARRETO, R. *Leprea y ginecomastia.* [Gynecomastia in lepers.] *An. de Med. int.* 3 (1934) 693-705.

The author claims to have been the first to draw attention to the frequent occurrence of true gynecomastia in the leprosy, having found the condition in a substantial percentage of 200 males examined in the El Rincon leper colony in Cuba. He comments on the frequency of previous testicular inflammation, whether due to *My. leprae* or to venereal or other disease. The cases are classified under six headings, excluding those in which the hypertrophy was a pseudogynecomastia or of the type called by German writers "Fett Mamma." The communication is profusely illustrated. [From abstract in *British Med. Jour.* 2 (1934) 80.]

8 HERRERA REYES, M. *La calcemia en los leprosos.* [Calcemia in leprosy.] *Siglo Méd.* 95 (1935) 394-396; *Medicina, México* 15 (1935) 473-475.

The author studied the calcium content of the blood in 62 patients at Fontilles, 34 males and 28 females; 21 of them showed lepra reaction, and 18 had had treatment. In general, he found an increase of calcium, higher than that reported by most authors, which may possibly be related to the calcium content of the water at the asylum. There was no material difference between the sexes or between the different forms of the disease. Patients below 35 years of age gave lower readings than those above. Reaction cases gave lower readings than the others, perhaps because the fever resulted in greater metabolic combustion and lower ingestion. Treatment caused increase of the blood calcium. [From abstract in *Urol. and Cut. Rev.* 39 (1935) 507.]

RODRIGUEZ DE ALBUQUERQUE, A. F. *Sur l'isolement d'un bacille acido-résistant d'un lepromme.* [Isolation of an acid-fast bacillus from a leproma.] *Compt. rend. Soc. Biol.* 118 (1935) 713-715.

Cultures were made from two leprosy nodules removed from a patient, triturated in a sterile manner with salt solution and inseminated on glycerine jelly

and broth, Petroff's and Petragnani's media. On the last, after eight days, there were obtained yellowish-white colonies of an acid-fast bacillus, which retained their characters to the third subculture. [From abstract in *Trop. Dis. Bull.* 32 (1935) 552.]

PEREIRA, L. Contribution to the study of leprosy in Goa. *Med. Digest.* 3 (1936) 540-542.

Pereira states that his observations do not agree with the conclusions of other writers that most infections occur at an early age. In the Central Leper Asylum at Goa, of 107 patients examined (66 males and 41 females), only one-sixth had shown the first signs of the disease before the age of 20, and none before 5. It is concluded that in Goa it is the adult rather than the child that is affected, and that this is because the Goans fear the disease and enforce segregation upon their lepers, thus protecting the children especially from contact.

—H. W. W.

PARRA, R. *Leprosia y niños.* [Leprosy and children.] *Rev. Hig. (Colombia)* 15 (1933) 164-178.

The author reviews briefly statistics on leprosy in children in various countries and discusses the findings in the Agua de Dios leprosarium in Colombia. The 726 leper children admitted from 1920 to 1934 were classified as: cutaneous 63%, neural 13%, mixed 16% and suspected 7%. The great susceptibility of children to the disease, and the frequency of the association of childhood infection and leprous parents, are pointed out. Immediate separation, periodical examination, and proper education of these children are advocated.

—MARIANO B. LARA

LLERAS, F. A. Algunas consideraciones sobre la biología del bacilo de Hansen. [Considerations on the biology of Hansen's bacillus.] *Rev. Fac. Med. (Colombia)* 1 (1935), No. 12, Reprinted in *Rev. Hig. (Colombia)* 15 (1935) 179-192.

The author describes his technique of cultivating *My. leprae* from the blood. Blood is aspirated from the vein, mixed with 3 cc. of sterile 3% sodium citrate, centrifuged, and 3% acetic acid is added to the sediment to produce hemolysis. The sediment from this mixture is washed with normal saline, treated with 10 cc. of 10% sulphuric acid for 30 minutes, washed finally with saline, and planted on Petragnani medium. After 10 days the growth appears as large, yellowish, humid colonies, composed of acid-fast granular rods in globi, morphologically identical with Hansen's bacillus. Injection of this culture to guinea pigs does not produce tuberculosis. Fifteen successful subcultures have been made.

—MARIANO B. LARA

LUTZ, A. Transmission of leprosy and prophylactic indications. *Mem. Inst. Oswaldo Cruz* 31 (1936) 383-390.

— — — Entstehung, Ausbreitung und Bekämpfung der Lepra. [Causation, transmission and control of leprosy.] *Ann. Acad. Brasileira Sci.* 8 (1936) 87-125.

From long experience (it was in 1886 that he gave the generic name *Coccithrix*, which he insists has priority over *Mycobacterium*, to the organisms of leprosy and tuberculosis), Lutz discusses the problem of transmission and prophylaxis of leprosy. His thesis is that, though infectious, the disease is not

contagious. As proof he cites noninfection of others by lepers in European cities; the many cases cited by most writers as showing contagiousness only prove that the disease can be transmitted to healthy people in the countries in which it is indigenous. Negative inoculation experiments with man contradict the idea that the germs deriving from lepers are infectious. Where leprosy is not transmitted, the necessary transmitting elements are absent. There must be a living, blood-sucking agent which, after the organism has undergone transformation and multiplication, can infect other people under suitable conditions. The only agents of that kind that can be considered, because they must be present in leprosy countries and absent in noninfected cities, are the Diptera, and among them chiefly the mosquitoes. "Experimental proof should not be necessary" [and is not offered] because the "circumstantial evidence is so clear." The suggestion is advanced that the granular (and perhaps nonacid-fast) form of the bacillus may be more infectious than the bacillary form. It is held that, all other prophylactic measures having failed, mosquito prophylaxis should be adopted.

—H. W. W.

ALEIXO, A. *Investigação, epidemiologia, estatística de lepra. Da sua importância na prophylaxia da endêmica leprosa.* [Epidemiological and statistical investigation of leprosy; its importance in prophylaxis.] *Brasil-Med.* 50 (1936) 377-379.

The author discusses the importance of the work undertaken by the "serviço de fóco de lepra." He believes that isolation is of capital importance in prophylaxis, but that the method must be persuasive and humane. To this end the service must prepare the lepers, their families and the people in the locality infested with leprosy. Of 13 patients isolated in the Colonia Santa Isabel from one place under the persuasive method, only one had gone back to his locality after 3 years, but he had to return immediately to the colony. On the other hand one-third of those confined from another area under the coercive method went home. The service, which should include specially trained young physicians, should verify diagnoses, collect statistics and make obligatory but confidential reports of cases found. The lepers should be isolated in adequate leproseries, whether collective or individual, public or private, and the children born of leprous parents should also be segregated. Instruction should be given to all persons collaborating in the sanitary work, including the physicians.

—MARIANO B. LARA

VESPOLI, M. *Ensaio de pathologia da lepra. Superinfecção.* [Superinfection in leprosy.] *Rev. Leprol. São Paulo* 2 (1935) 173-184.

It is argued that superinfection and reinfection may occur in leprosy, as in other chronic infectious diseases, and details are given of 3 cases which, the author believes, support this view. He holds that superinfection is one of the factors responsible for converting latent into active cases, that this factor must be taken into consideration in connection with prophylaxis, and even that lepers of different classes should be separated from each other.

—H. W. W.

RABELLO, JR. *Novas provas contrárias a inclusão da variedade tuberculoid da lepra na forma nervosa.* [New proofs against the inclusion of the tuberculoid variety of leprosy in the neural type.] *Brasil-Med.* 50 (1936) 397-398.

Recalling that Jadassohn called the tuberculoid variety of leprosy a "transitional" form, and recognizing that the Japanese include it in the neural type, the author reiterates the opinion of Ed. Rabello that this variety, as well as the other forms of leprosy, may show predominant nervous symptoms in some countries and cutaneous symptoms in others. In favor of the "frequently cutaneous character" of this condition the author lists a number of features which (to the reviewer) seem chiefly to show that the condition affects the skin, but not in any way to relate it to the "cutaneous" type of the disease. It is suggested that in the production of the condition there is a cross relationship of allergy between leprosy and tuberculosis in lepers with the latter infection. The Witebsky, Klingenstein, Kuhn reaction is positive in 90 percent of C cases and 70 percent of N cases, but about 60 percent of 40 tuberculoid cases were negative. Tuberculoid leprosy represents a "variant" in the evolution of ordinary leprosy; it is neither cutaneous nor neural, but transitional, being closely related to the maculo-anesthetic form.

—H. W. W.

FILHO, R. Besnier-Boeck's disease and leprosy. *Jour. American Med. Assoc.* 105 (1935) 1205. (Foreign letters.)

After reviewing the features of Besnier-Boeck's sarcoid disease, Filho stated in a lecture that leprosy may cause all symptoms of that disease, including the clinical picture of osseous and cutaneous sarcoid and the histological picture of pure epithelioid growths unmixed with other types of cells. A specific rhinitis undifferentiable from sarcoid rhinitis, without leprosy bacilli, develops in leprosy; it is not amenable to arsenical treatment but is controlled by chaulmoogra, as is sarcoid rhinitis. In about 95% of leprosy cases there is an adenopathy similar clinically and histologically to that of sarcoid. Even in the more florid and bacilliferous forms of leprosy there is apt to be anergy to tuberculin in sarcoid lesions. Sarcoid reactions with eosinophilia appear in the course of treatment in both conditions. Cultures from leprosy and sarcoid tissues give the same types of bacteria, streptothrix and Gram-positive organisms. Inoculation of animals with either kind of tissue results in either (a) failure, or (b) a special localized disease with acid-fast organisms, or in rare cases (c) tuberculosis. The speaker does not believe in a special virus for Boeck's disease; both the tubercle and leprosy bacilli may be concerned. It is plausible that certain European races, especially those in cold climates, may, because of inherited resistance, develop a systematic disease that is a modification of leprosy.

—H. W. W.

BECELLI, L. M. Considerações sobre alguns casos de esplenomegalias na lepra. [Cases of splenomegaly in leprosy.] *Rev. Leprol. São Paulo* 2 (1935) 213-273.

In the first part of this report 13 cases of leprosy with marked clinical splenomegaly are discussed in detail. The findings in large spleens of 9 other cases examined at autopsy but not studied clinically are recorded, with numerous illustrations, some of them in colors. It is concluded that, in the cutaneous type, leprosy may induce a considerable increase in the size of the spleen, which may or may not give rise to slight disturbances. It is held that failure to find bacilli in material obtained by spleen puncture does not negate the specific nature of the condition.

—H. W. W.

- DE ASSUMPCAO, L. AND FLEURY DA SILVEIRA, G. Contribuição ao estudo da fixação do complemento no lepra. [Complement fixation in leprosy.] Rev. Leprol. São Paulo 2 (1935) 13-36.

The Gomes complement fixation reaction, with antigens of *Streptothrix leproide* Deycke, was performed with the sera of 51 leprosy patients and 79 controls, the latter including cases of tuberculosis and syphilis. Two antigens were used, aqueous and methylic. The former gave 82% positive reactions with the leprosy sera, the latter 53%. With the former the percentages in the different type groups were 90 for cutaneous, 70 for neural, and 85 for mixed; those with the methylic antigen were lower. The aqueous antigen also gave somewhat the better results (fewer positives) with the controls, no positives with the syphilitic sera, 30% with the tuberculous, and 54% with skin diseases other than leprosy. It is concluded that this test is not specific and that a positive reaction is only suggestive of leprosy. —H. W. W.

- DE SOUSA LIMA, L. A serologia da sífilis em face do tratamento antileprotico. [Serological tests for syphilis in leprosy under treatment.] Rev. Leprol. São Paulo (1935), Special Number, 183-185.

The author has investigated the correctness of the conclusion of Monserrat that leprosy patients whose sera are positive for syphilis (Wassermann or Kahn test) may become negative as the result of prolonged chaulmoogra treatment. Sixty-four cases were chosen in which syphilis was suspected and whose sera were positive, 47 by Wassermann and 17 by the Kahn test. After chaulmoogra treatment for 6 to 24 months, 36 of the Wassermann-positive cases and 13 of the Kahn-positive cases showed a reduction of the reaction. The author asks how we can confirm a suspected diagnosis of syphilis in leprosy, and what guide we have of the results of antisyphilitic treatment in such patients. [From abstract in *Bull. Hyg.* (1936), March.]

- MAURANO, F. Os resultados do tratamento pelo azul de metileno endovenoso segundo a tecnica de Montel sob o ponto de vista dermatologico. [Results of methylene blue treatment from the dermatological viewpoint.] Rev. Leprol. São Paulo (1935), Special Number, 33-37.

The Montel method of treatment is lacking in efficacy and in some cases may do harm. Of the 44 cases treated 25% became worse from the dermatologic aspect, and in 18% the general condition was worse; the rest were unchanged. In only one case (one of the macular form) did the lesions disappear. [From abstract in *Rev. San. Hig. Publ.* 9 (1936) 170.]

- RODRIGUEZ DE SOUZA, A. Acido osmico intravenoso nas nevrites agudas leproticas. [Osmic acid intravenously for acute leprosy neuritis.] Rev. Leprol. São Paulo (1935), Special Number, 93-96.

Although osmic acid was introduced in therapeutics many years ago, particularly for the treatment of neuralgias, the author is the first to administer it intravenously. He gives 2 cc. of a freshly prepared 0.2% solution in distilled water, in a series of 5 to 10 injections. Its use in 18 cases of leprosy gave good results, lessening the pain and improving the general condition, with only slight pain along the vein during the injection. [From abstract in *Rev. San. e Hig. Publ.* 9 (1936) 170.]

SUSSINI, M., ROBERTO PASO, J. AND PUENTE, J. J. Organización de la lucha antileprosa en la República Argentina. [Leprosy campaign in the Argentine Republic.] *Semana méd.* 42 (1935) 1335-1342.

The number of lepers recorded at the National Department of Hygiene is increasing; in 1906 there were 724, in 1934, 2,959. Of these 621 are in Santa Fé, 614 in Capital Federal, 339 in Corrientes, 317 in Buenos Aires and 297 in Córdoba. In short, 88 percent of the cases are in the littoral provinces, 11 in the central provinces and only about 1 percent in the mountainous districts. These figures represent actually known cases. There are others seen by medical men but not reported, others are under no medical care, and still others have been wrongly diagnosed. The above total is therefore only indicative of the true prevalence, which is very probably double or treble this. The usual lines are laid down for dealing with the problem, according as the cases are in early or advanced stages—the establishment of dispensaries and colonies. Detailed general plans of such a colony are among the illustrations. [From abstract in *Trop. Dis. Bull.* 32 (1935) 861.]

FERNANDEZ, J. M. M. La campaña antileprosa en el país. [The antileprosy campaign in Argentina.] *Rev. Med. Argentina* 25 (1935) No. 4.

Leprosy has increased in Argentina until it is now a serious problem. Baliña, in Buenos Aires, saw on the average 13 new cases a year between 1910 and 1921, 33 a year between 1921 and 1928, and 62 a year between 1928 and 1933. Fidanza and others have seen a similar increase in Rosario; in 1928 the known cases there numbered 70, while now there are 230, of whom 56 percent acquired the disease in the city. As classified by Baliña there are: (a) the officially known cases, (b) those known but not reported officially, (c) established cases not known to physicians, (d) obscure cases, not correctly diagnosed, and (e) infected individuals as yet without symptoms. The known cases belong to the first group, the minority; there are probably between 8,000 and 10,000 in the country. The warm, humid littoral regions are chiefly affected. The author discusses the general principles of an antileprosy campaign, and special features of the problem.

—H. W. W.

SCHUJMAN, S., FERNANDEZ, J. M. M. AND HUBER, E. Lepra ocular. [Ocular leprosy.] *Rev. Med. Rosario* 24 (1934) No. 12.

The authors record their four years' experience in the treatment of leprosy eye affections. Heliotherapy (used in 10 cases), artificial actinotherapy (4 cases), gold preparations (10 cases) and local treatment with iodine (iontophoresis, 4 cases) gave no benefit; iodine by mouth or injection proved contraindicated in acute processes. Chaulmoogra by epibulbar injection (12 cases) was harmful, though given by ordinary methods it gave slight benefit. Certain dyes—fluorescein, eosin, mercurochrome and trypan blue—given intravenously (32 cases) are highly recommended in acute conditions, and they are also useful in these conditions when given by the episcleral route, though not in the chronic affections.

—H. W. W.

FERNANDEZ, J. M. M. Bacteriología de la reacción leprosa. Investigación del *Mycobacterium leprae* en las lesiones cutáneas de reacción leprosa. [Bacteriology of the skin lesions in leprosy reaction.] *Rev. Brasileira Leprol.* 4 (1936) 9-23.

— Patología del brote agudo de la lepra. (Com. previa.) [Pathology of

acute reaction in leprosy.] *Rev. Argentina Dermatosif.* 19 (1935) 466 (abstract).

In 24 patients in the condition of lepra reaction the author examined the bacilli in: (a) the reacting skin lesions, (b) areas of apparently normal skin around the reacting foci, (c) areas of apparently normal skin far from the reacting foci, and (d) in nonreacting lepromata near to and far from the reacting foci. In the reacting lesions, during both the acute and subsiding stages, the bacilli presented the granular form, exclusively or predominantly in proportion to the severity of the reaction. In the acute stage there was marked polymorphism, while during subsidence diplobacillary forms predominated. During the acute stage the intensity of staining varied from well-stained forms to thin, tenuous organisms and scarcely visible pale granules. In severe reaction, with suppuration, there was observed a peculiar "agglutination" of granular forms into groups of 4 or 5 or more elements. Specimens from the apparently normal skin near reacting lesions were always positive, the bacilli being granular, while distant areas were usually negative. Nonreacting lesions near the reacting ones, though apparently inactive themselves, often showed abundant granular forms, especially when the reaction was severe, but distant lesions generally showed a predominance of long, solid rods massed in globi.

—H. W. W.

SCHUJMAN, S. *Lepra tuberculoide. Contribución a su estudio clínico e histopatológico.* [Tubercloid leprosy; a clinical and histopathological study.] *Prensa Méd. Argentina* (1935), Dec. 4, 11, 18 and 25.

This study, reprinted as a monograph of 156 pages, discusses the concept and diagnosis of tubercloid leprosy, reviews briefly the literature on the subject, and presents in detail 21 cases observed personally, including the histopathology of biopsy specimens of each; it is illustrated with 71 photographs and photomicrographs, and the summary is given in three languages. It reports tubercloid leprosy as common in Argentina, but seen only in persons of the white race. An understanding of its nature is important, as its diagnosis is difficult for the nonspecialist, though in spite of its polymorphism its distinctive features permit it to be diagnosed clinically if it is understood. It resembles in some respects lupus vulgaris, herpes circinatus, granuloma annularis, tertiary syphilides, lichen annularis, etc., which must be differentiated. The histological features in active and improved cases are summarized. Features seen in three of the lesions raise the question whether the latter were in the process of transformation to lepromata. They were usually negative bacteriologically, and when bacilli were found in them they were few and scattered. The author apparently believes that this variety of leprosy is distinct from the ordinary forms of the disease, "cutaneous, neural and mixed."

—H. W. W.

SCHUJMAN, S. *Reaccion leprosa tuberculoide.* [Tubercloid reaction in leprosy.] *Rev. Argentina Dermatosif.* 19 (1935) 411-433.

The author points out that, besides the common lepra reaction, there exists a reaction in tubercloid leprosy, recently observed by Wade, which shows a very different clinical picture. Among the 25 cases of tubercloid leprosy that he has observed, 7 have shown this condition; he reports the 5 that he has been able to study clinically and histologically. He discusses the differential diagnosis of this condition and non-reacting tubercloid leprosy, and especially the

common lepra reaction in ordinary cutaneous leprosy. The erythrocyte sedimentation index and leprolin reaction in these patients have special importance for differential diagnosis and prognosis. [From abstract in *Rev. Argentina Dermatosisif.* 19 (1935) 315, and author's summary.]

ARIAS, C. AND MAZZINI, M. A. Tuberculides leproides en napa. ["Leproid tuberculides."] *Rev. Assoc. Míd. Argentina* 49. (1935) 1159-1165.

This is a case report of a man, 42 years of age, who with preceding pains in the extremities but without fever had developed a profuse, multiple eruption on the extremities, the head and trunk being exempt. The eruption was symmetrical and showed a predilection for the extensor surfaces. Some of the elements were single, but most of them formed confluent groups and patches. Some were violet-red, others were dark at the periphery with a violaceous tint centrally. There were disturbances of sensation. No evidence of lues. Differential diagnosis included leprosy, sarcoids and papulo-necrotic tuberculides. Nasal secretion negative for acid-fast bacilli. Sarcoids were suggested by the localization, though usually the face and costal regions are involved. Because of the chronic evolution of the process, the tendency of the lesions to show pustulation and necrosis, their violaceous color, the absence of pruritus, and the effects of arsenical treatment, the diagnosis finally adopted was "leproid tuberculides en nappe." [From abstract in *Urol. and Cut. Rev.* 40 (1936) 132.]

SCHUJMAN, S. El valor de la eritrosedimentación en la lepra. [Value of erythrocyte sedimentation in leprosy.] *Rev. Méd. Rosario* 25 (1935) Nos. 6 and 7.

Erythrocyte sedimentation tests made from 2 to 8 times within a period of three months on 200 leprosy patients have led the author to conclude that this test, repeated at intervals, is of great importance in leprosy. A continuously high index indicates an unfavorable prognosis, and a low one is of good omen with regard to termination and to tolerance of the anti-leprosy drug. However, the test has no diagnostic value; it is not specific and it is almost always normal in incipient cases. In general the index increases with the degree of infection, but there are exceptions to this rule. It is increased in complicating conditions, including nephritis and various infections, and is highest in lepra reaction.

—MARIANO B. LARA

FERNANDEZ, J. M. M. AND SCHUJMAN, S. Nuestra experiencia acerca del valor de algunas anilinas en el tratamiento de la lepra. [Experiences with certain aniline dyes in treatment.] *Rev. Paulista de Leprol.* 2 (1935) 157-168.

Five dyes were used in the work here reported. There was no improvement of lesions with eosin, methylene blue or Bonney's blue, and with fluorescein there was only slight beneficial action in complicating acute iritis. With trypan blue there was one fatality. It is concluded that the aniline dyes are inferior in therapeutic effect to chaulmoogra oil and its derivatives. —MARIANO B. LARA

SCHUJMAN, S. AND FERNANDEZ, J. M. M. El empleo de las anilinas en el tratamiento de la reacción leprosa. [Aniline dyes in the treatment of lepra reaction.] *Actas Vº Cong. Nac. Med., Rosario, 1935*, vol. 6.

The authors saw no decisive therapeutic benefit in lepra reaction from mercurochrome, fluorescein and eosin. Mercurochrome has a slight favorable effect when there is secondary infection with pyogenic organisms, and there is some

indication for fluorescein in eye complications. Eosin gave no noticeable benefit in the cases treated with it.

—MARIANO B. LARA

GRECO, N. V. Alcalinoterapia en la lepra y otras enfermedades. [Alkalinization in leprosy and other diseases.] *Semana méd.* 2 (1935) 597-604.

During work on the cultivation of the leprosy bacillus the author noted that that organism does not grow well on alkalinized blood; it grows better in slightly acid or neutral media. The author assumes that an important cause for its development in the human skin is the fact that the lymph there is more acid than the blood, and suggests that the question of altering the acid-base equilibrium of the body, and especially of the skin, is worthy of consideration. Sodium bicarbonate has been administered intravenously to three cases, with favorable effect; there was no such effect in one case of psoriasis and one of cryptococcosis similarly treated. [From abstract in *Urol. Cut. Rev.* 40 (1936) 128.]

MUIR, E. Leprosy in children. *Indian Jour. Pediat.* 3 (1936) 15-16.

Emphasis is laid on the all-important rôle played in the endemicity of leprosy by children, who are especially susceptible to the disease due to their close contact with leprosy relatives but more to their low resistance. The author restates his views on symbiosis of bacilli and body cells with, often, few or no symptoms of the disease:

The signs of leprosy are due to cellular resistance and proliferation rather than to the presence of the bacilli in the body in a symbiotic state. Thus, though fugitive signs often appear in early childhood, it is more common for definite macules, nodules and nerve signs to show themselves about the age of 8 or 10, or to be delayed until puberty... It is these infections of early life that produce the great majority of cases of severe cutaneous leprosy. Adult infections tend to be of the milder, neural noninfectious type... The central item of any campaign against leprosy in India must therefore be protection of children from infection... The examination of school children and school staff is exceedingly important, as a single infectious pupil, teacher or school servant may infect large number of young contacts.

—H. W. W.

LOWE, J. Modern thought on leprosy and its bearing on mission work in India.

Address delivered at the Mission to Lepers Conference, Calcutta, February 5th, 1936; 10 pp.

Discussing the leprosy problem in India from the public health viewpoint, Lowe agrees (quoting Heiser) that there has been "no discovery of prime importance...since Hansen's discovery of the bacillus," but points out that, gradually, there has been material progress. He makes a number of statements of interest in connection with developments in India. Optimistic expectations with regard to treatment having failed, there is danger of excessive pessimism; similarly, as regards control, the swing away from isolation in favor of outpatient treatment has ceased, and the need for isolation is again being stressed. "It is now being realized that the control of leprosy is an exceedingly complicated problem, quite as much a social and economic problem as a medical one."

—H. W. W.

LAMPE, P. H. J. AND DE MOOR, C. E. Rattenlepra. I. De diagnostiek van de rattenlepra. Het voorkomen van deze rattenziekte te Batavia. De geografische distributie. [Rat leprosy. I. Diagnosis. Occurrence of this rat disease in Batavia. Geographical distribution.] *Geneesk. Tijdschr. v. Nederlandsch-Indië* 75 (1935) 634-654.

- — II. Experimenteele infectie van witte ratten. [Experimental infection of white rats.] *Ibid* 75 (1935) 2033-2049.
- — III. Endemiologische waarnemingen en beschouwingen. [Endemiological.] *Ibid* 76 (1936) 1619-1641.

I. The purpose of these articles is to contribute to knowledge of rat leprosy in Netherlands India and to stimulate interest in infections caused by acid-fast organisms in general. Diagnosis of rat leprosy, the authors point out, must be based on bacteriological examinations of subcutaneous lymph nodes, especially the inguinal nodes, by which means 9% of 5,000 Batavia rats were found infected. In some 35% of them bacilli were found at the root of the tail, which is the site of predilection for manifest lesions. Obvious skin lesions were found in only 14 out of 500 infected rats, indicating the relative frequency of latency. It is suggested that rat leprosy may prove to be common, and is "possibly related to analogous bacillary invasions found in countless other kinds of animals (rodents in general (?), buffaloes, birds, reptiles, etc.)," which suggests "a virus that originally was a common saprophyte and has only secondarily adapted itself to the animal kingdom." This surmise "may be the keynote to the leprosy problem in man."

II. White rats were infected by both percutaneous and subcutaneous inoculation. The development of lesions is described, and details are given about the bacteriologic findings in smears and sections, the general symptoms and the progress of the condition. Cutaneous lesions occurred only when the diet was deficient in vitamins B₂.

III. The conditions found in animals permit distinction between lymph-node and skin leprosy, and the latter can be divided into latent and manifest. Among 10,000 rats examined, 930 had lymph-node lesions, and only 23 manifest skin leprosy, 3 with ulcerations. The most important and perhaps the only portal of entry is the skin. Under "endemiological considerations" it is said that direct transmission from animal to animal is probably of little significance; indirect transmission by biting insects may be of importance; infection from the ground without direct intermediation is conceivable, but whether the causative organism can exist saprophytically is not known.

—H. W. W.

LOBEL, L. W. M. Büffellepra (lepra bubalorum). *Handel. 7de Med. Ind. Natuurwetenschappelijk Congress, 1936*, p. 385.

In this very brief note [in which the article that appeared in *THE JOURNAL* 4 (1936) 79, is referred to for a description of the condition mentioned] the author reports that 63 cases have now been recognized, 23 from Java and 40 from Celebes. As yet buffalo leprosy has not been recognized anywhere outside of Netherlands India.

—H. W. W.

SMITH, R. O. A. AND HALDER, K. C. Some observations on dermal leishmaniasis. *Indian Med. Gaz.* 70 (1935) 544-550.

This article will be of interest to leprosy workers in regions where dermal leishmaniasis occurs, because of the remarkable resemblance that some cases of that condition show to nodular leprosy, for which they may easily be mistaken.

—H. W. W.

[EGYPT.] Annual report of the Endemic Disease Section, Ministry of the Interior, for the year 1934. III. Leprosy Branch.

Since the inauguration of the leprosy branch of the service 7,080 patients, of whom 2,780 were positive for leprosy, have applied for treatment at the different leprosy units. In 1934, 1,273 applied; 618 were found positive. The total number of patients on the registers of the units has been diminishing. The treatment being prolonged, many patients who do not recover during the first year discontinue attendance, and the same condition causes many lepers to refrain from presenting themselves for treatment. There were 151 male patients in Abu Zaabal Leper Colony on January 1, 1935, 30 of them accommodated temporarily in tents. Further construction was proposed for 1935. The construction of staff quarters had been completed and the majority of the staff were in residence. There were also 57 female lepers accommodated in the Cairo Leprosy Hospital. [Abstracted from reprint in *Jour. Trop. Med. and Hyg.* 39 (1936) 133.]

[MISSION TO LEPERS.] Greater Works. Sixty-first Annual Report of the Mission to Lepers, for the year 1935. London, p. 32.

In the 46 homes supported by the Mission and 45 others aided by it there were, at the end of 1935, 15,559 patients and 1,353 healthy children. More than two-thirds of these were in the owned homes. Reports from 54 places give a total of 11,922 patients under treatment, with 1,054 (8.8%) arrested without deformity, 527 (4.4%) arrested with deformity, 3,918 (33%) much improved, 2,853 (24%) slightly improved, 1,202 (10%) apparently stationary; the remaining 2,368 (20%) were worse, had died or had left. In addition, 7,500 cases had been treated as outpatients. During the year a total of £81,842 was received and £79,739 expended, but it is reported that the income received for ordinary and general maintenance of the ever-expanding work was £5,071 less than the amount expended for that purpose. —H. W. W.

HENDERSON, H. J., ARONSON, J. AND LONG, E. R. Studies in the bacteriology and immunology of leprosy. *Jour. Bact.* 31 (1936) 41. (Abstract.)

Two apparently similar chromogenic, acid- and alcohol-fast organisms were obtained from lepromata of different patients. One was isolated from the popliteal node of a rabbit that had been inoculated intratesticularly with tissue-culture explants from a leproma, the other from the bone marrow of a frog inoculated in the dorsal sac with a suspension of another leproma. Colonies on Loewenstein's medium were soft, moist and orange-colored. These cultures produced only local nodules when injected intracutaneously or intratesticularly into rabbits. Of 16 bullfrogs inoculated in the dorsal sac with suspensions from 16 lepromata, acid-fast bacilli were demonstrable in the bone marrow or spleen in 10. None were found in 24 uninoculated frogs. Purified proteins obtained from the two cultures were compared with corresponding proteins from five stock strains of *My. leprae*, avian, human and bovine strains of *My. tuberculosis*, cultures isolated from tuberculosis of cold-blooded animals, and *My. butyricum*, *smegmatis*, and *phlei*. The cultures were grown on Long's medium, filtered, and the proteins precipitated with trichloroacetic acid (Seibert method). Rabbits were immunized with the different proteins and the antigenic specificity was determined by the precipitin reaction. A group relationship between the proteins

was found. Those of the two lepromata cultures and their antisera reacted with the antisera and proteins obtained from the Clegg, rat leprosy, and *My. phlei* cultures. Walker's leprosy strain reacted only with homologous antiserum. Duval's nonchromogenic culture and that of Levi-Kedrowsky differed antigenically from the others. Intracutaneous tests on 158 leprosy patients at Carville, Louisiana, and on 263 nonleprosy patients, with proteins from the Clegg strain and from one of the recently isolated ones, did not show sufficient specificity for practical diagnostic use.

—H. W. W.

ANDERSON, H. H. Effect of heat on viability of *Mycobacterium leprae* muris. Proc. Soc. Exper. Biol. and Med. 33 (1935) 204-205.

In connection with the present interest in fever therapy the author tested the viability of the rat leprosy bacillus in a suspension of a rat leproma after exposure to varying degrees of temperature. Rats injected with suspensions heated at 17, 37, 39, 41 and 45°C. for five hours developed palpable lesions; the emulsions heated similarly at 50 and 60°C. did not produce lesions.

—MARIANO B. LARA

PLANTILLA, F. C. Observations on leprosy at the Cebu Skin Clinic. Month. Bull. Bu. Health (Manila) 15 (1935) 3-16.

The author, estimating that there may be 1,000 undetected cases of leprosy in the province of Cebu, reports his findings in 577 contacts of known cases. Among these, 19 (3.2%) were found to be definitely leprosy, and another 123 (21.3%) were classed as suspicious. The lesions on which these diagnoses were based include, among others, an ichthyotic or shiny tense condition of the legs; shiny, dry, localized areas of skin; and goose-flesh appearance of the skin. Of the 142 positive or suspicious cases one-half (72) were below 16 years of age; they represented 27% of all the persons in the age group examined; the male : female sex ratio was 1.4 to 1.0. Among the remaining 70 persons the ratio was 1.1 : 1.0. While the 8 males diagnosed as leprosy cases were all below 26 years of age, 7 of the 11 females so diagnosed were above that age. Among 13,586 school children examined (sex ratio 1.2 : 1.0.), leprosy was diagnosed definitely in 36 (sex ratio 2.3 : 1.0).

—H. W. W.

LARA, C. B. Leprosy research in the Philippines. A historico-critical review. Bulletin No. 10, National Research Council of the Philippine Islands, 1936, p. 48.

In this review of leprosy research in the Philippines since the beginning of the American occupation, the author summarizes the significant contributions made from this country. The work of Mercado in demonstrating the value of chaulmoogra oil; the work of Perkins which culminated in the synthesis of chaulmoogric acid; the chemotherapeutic investigations of Schöbl; the various contributions to the study of early leprosy in children begun by Gomez, Avellana and Nicolas and continued by Rodriguez, Chiyuto and others; the epidemiological studies of leprosy by Rodriguez and associates in Cebu, with the aid of the Leonard Memorial; and the studies on the newer orientation in the etiology of leprosy by Manalang, are among the features mentioned by the author.

—MARIANO B. LARA

REISS, F. Tuberculoid leprosy amongst Chinese. Delib. IX Cong. Internat. Dermatol. Budapest, 1935, vol. 2.

The purpose of this paper, aside from showing that tuberculoid leprosy is not rare in the Chinese, was to invite discussion of its classification. The author describes six cases, summarizes the clinical varieties of tuberculoid lesions observed, and goes into the variations of the histological changes. Neither leprolin nor Loewenstein's vaccine had given any special information with regard to changed allergic conditions. As for classification, though he admits that most of the cases were neural, the author "cannot share entirely" Wade's opinion that this form of the disease belongs to that type, and in support of this position he quotes verbatim the Wood Memorial Conference classification; he believes that tuberculoid leprosy should be recognized as a "special subtype" and designated NT when occurring in the main neural type and CT when lepromatous changes are present.

—H. W. W.

UCHIDA, M. The tracheotomy operation on the lepers. *La Lepro* 6 (1935) 87 (abstract section; original in Japanese).

Of 46 patients in the Kyushu leprosarium on whom tracheotomy was performed in the course of about ten years, one-half are still living and comprise 2.7% of the 850 inmates. The duration of the disease from onset of leprosy to operation varied from 5 to 31 years, the average being 15.4 years. Of the 23 that have died, 3 died within one month of operation and 2 survived for 4 years; the average survival period was 1.6 years. Leprous asthenia caused 56% of these deaths, and pneumonia 34%. Two of the living patients have survived more than 7 years; the 4 who have survived the longest are all females. In only one case has the opening closed again; operation at an early stage of the disturbance might result in healing of the laryngeal affection and more frequent closing of the opening. The author believes that tracheotomy is an indispensable operation; it relieves pain, prolongs life and lessens the morbid changes in the larynx. [From author's abstract.]

LEE, H. S. Sodium chloride metabolism in leprosy. *Japanese Jour. Derm. and Urol.* 38 (1935) 70 (abstract section; original in Japanese).

On the understanding that there is a relationship between the electrolytes in the body and skin diseases, and that the skin is one of the chief organs retaining sodium chloride, Lee has determined the sodium chloride content of the blood (Whitehorn's method) in 40 cases of leprosy, and of the urine (Valhald-Salkowski method) in 31 cases. Recently admitted patients who had had little or no chaulmoogra treatment were selected. The blood values ranged from 480 to 497 mg/dl (average 487), while a control series gave 450 to 502 mg/dl. The urine values (24-hour specimens) varied from 6.868 to 24.377 gm.; (the average was 13.718, slightly lower than normal. It is concluded that there is no evident disturbance of sodium chloride metabolism in leprosy. [From author's abstract.]

LEE, H. S. The gastric secretions of the patients with leprosy. *Japanese Jour. Derm. and Urol.* 37 (1935) 87 (abstract section; original in Japanese).

Stating that there is a much closer relation between skin diseases and metabolism than was formerly realized, and that certain viscera are especially sensitive to such diseases, the author reports the results of gastric analyses on 311 Korean lepers. It was found that only a few of them had high total or free acidity, most of them had hyp acidity or achylia. There was a definite relation

between the duration of the disease and the decreased acidity, this being the more marked in cases of long standing. [From author's abstract.]

KINOSHITA, J. Ueber die leprösen Veränderungen der männlichen Geschlechtsorgane, mit besonderer Berücksichtigung ihrer histologischen Befunde. [Histology of the male genital organs in leprosy.] *Japanese Jour. Derm. & Urol.* 37 (1935) 141 (abstract section; original in Japanese). 6

The materials investigated comprised 35 testicles, 31 epididymes, 18 prostates, 19 seminal vesicles, and 7 spermatic ducts, from 20 cases, of which 14 were nodular, 5 neural, and 1 macular. The macroscopic findings having been accurately described by Kobayashi, only the histology is discussed. The testicle was the most markedly affected, with hyaline degeneration in almost all cases and lepromatous infiltration of several. The changes in the epididymis were much less marked, but leprous infiltration was found, probably by extension of the infection from the testis. In the prostate and seminal vesicles only localized cellular infiltration, chiefly lymphocytic, was seen; this condition was present in several cases. In no case was the spermatic cord affected. [No comparison of the findings in the different types of cases is made.] The author compares these conditions with those obtaining in genital tuberculosis, in which both the epididymis and the prostate are frequently affected. [From abstract.]

NISHIYAMA, K. Ueber die Sauerfestigkeit der Leprabazillen. [The acid-fastness of leprosy bacilli.] *La Lepro* 6 (1935) 21 (abstract section; original in Japanese). 8

It has been believed that the leprosy bacillus is less strongly acid-fast than that of tuberculosis. The author investigated this question, using leprosy bacilli from nodules and tubercle bacilli from sputa and tuberculous kidneys. After staining with Ziehl's solution, the bacilli were treated with sulphuric, nitric and hydrochloric acids, each in 10, 20 and 30% solutions. It was found that, in general, the acid-fastness in a given concentration of an acid differed according to the strain of the organism, and that leprosy bacilli were no less resistant than the others, so it is almost impossible to differentiate these bacilli in this way. Hydrochloric acid was most active in decolorizing, and sulphuric acid least. [From abstract.]

HAYATA, H. Beitrag zur serochemischen Diagnostik der Lepra. (MHH-Reaktion.) [The MHH serochemical reaction in the diagnosis of leprosy.] *La Lepro* 5 (1934) 33 (abstract section; original in Japanese). 8

— [Serochemical reaction for leprosy.] *Hiftuto-Hitsunyo* 3 (1935) 29.

This test, originally described by Minami, Hikichi and Hayata [see *THE JOURNAL* 3 (1935) 380] is claimed to have corresponded with the clinical diagnosis in more than 300 cases. It is always positive in cases of leprosy, and is the best test for that disease, especially in the earlier stages; the author believes it to be at least as sensitive and specific as the Wassermann reaction in syphilis. It is negative in healthy persons, in cases of tuberculosis and syphilis, and in tumor cases. The technic, described in detail, is based on the Fuchs carcinoma reaction, but Kodama's colorimetric method of determining residual nitrogen is used instead of nesslerization. [From abstracts.]

OTA, M. AND ISHIBASHI, T. Ueber ein neues wirksames Antigen für die Kom-

plementbindungsreaktion bei Lepra. [New antigen for the complement fixation reaction in leprosy.] Japanese Jour. Dermat. & Urol. 37 (1935)

64 (abstract section; original in Japanese).

Since their first report on the subject [THE JOURNAL 2 (1934) 413] the authors have endeavored to produce a more effective antigen. They extract 0.3 gm. of dried avian tubercle bacillus in ether, reduce the extract to 30 cc., add 30 cc. of absolute alcohol, evaporate the mixture to 30 cc. on a waterbath, and add 1% cholesterol alcohol in a proportion of 9:1. Of this stock, diluted 120 times, 0.5 cc. is the test dose. It gave no positive reactions with 58 non-leprosy syphilitic sera, but 22 out of 24 leper's sera were positive (14 + + +, 2 + +, and 6 +); 1 each were \pm and -.

—H. W. W.

4 SATO, M. AND SATO, Y. Intrakutanreaktion nach Mitsuda auf Leprösen und leprösen Ratten. [The Mitsuda reaction in lepers and leprosy rats.] Japanese Jour. Derm. & Urol. 38 (1935) 67 (abstract section; original in Japanese).

Mitsuda's leprolins, made from human and rat leprosy material, were used comparatively in human cases of leprosy and infected rats, in various stages of the infections. It was found (as shown in the table below) that in rat leprosy, as in the human disease, there is anergy in the height of the disease. The fact that the human cases reacted more strongly to the rat leprosy emulsion than to the human material, while conversely the rats reacted most strongly to the human vaccine, is evidence that the two bacilli are quite different, though clear distinction between them cannot be made on morphological or tinctorial grounds.

Cases tested	Human leprolin	Rat leprolin
<i>Human leprosy</i>		
Nodular and mixed	5 —	1 + + +, 3 + +, 1 +
Macular and neural	3 + + +, 3 + +, 3 +, 5 —	4 + + +, 8 + +, 2 +
Controls (healthy)	3 +	3 + + +
<i>Rat leprosy</i>		
35 days after injection	1 + +, 4 +	4 + +, 1 +
123 days after injection	5 +	3 + +, 2 +
252 days after injection	1 +, 2 \pm , 2 —	1 +, 2 \pm , 2 —
Controls (healthy)	1 + + +, 1 + +, 3 +	2 + +, 3 +

(From abstract)

9 OHTAWARA, T. AND KAMAMURA, M. Studium der Lepra. II. Mitteilung. Wie reagiert der Leprakranke auf die intrakutane Injektion von Rattenlepra bazillen? [Reaction of human cases of leprosy to intracutaneous injection of rat leprosy bacilli.] Zentralbl. Bakt. I. Orig. 134 (1935) 312.

Emulsions of human and rat leprosy material were injected similarly into the skin of cases of neural and nodular leprosy. The rat emulsion caused positive reactions in both forms of the disease, whereas the human material gave positive reactions in only an occasional nodular case and in more than half of

the neural cases. It is concluded that the two bacilli are different. [From abstract in *Arch. Schiffs- u. Trop.-Hyg.* 40 (1936) 84.]

MUNEUCHI T. AND TAKAHASHI, T. The curative action of gold-organosol (Horiba-Odagiri) in leprosy. *La Lepro* 6 (1935) 47 (abstract section; original in Japanese.)

Gold-organosol (made in the chemical institute of the Kyoto Imperial University) was used on 18 cases—10 nodular, 3 macular and 3 nervous. Curative effect was seen in 8 cases (44%), especially distinctly in the macular form. There was reduction or disappearance of nodules and infiltrations, fading of macules, decrease of thickening and pain in peripheral nerves, and recovery from paralysis. In another 8 cases there was no improvement, and the remaining 2 grew worse. There were side effects in 8 cases, rather marked in 5 advanced nodular ones. Comparison of the results with those of chaulmoogra showed little difference. [From author's abstract.]

YASUDA, T. Ueber die Resultate der Aurothiophenol-m-carbon-saures Natrium-Behandlung bei Augenlepra. [Treatment of leprosy eye affections with a new gold preparation.] *Japanese Jour. Derm. & Urol.* 37 (1935) 141 (supplement; abstract in German).

The author has used a new local gold preparation (sodium aurothiophenol-m-carboxylate) in eye affections of 15 quite severe cases of leprosy. Dullness of the cornea decreased in 16 out of 30 cases, with diminution of the infiltration. Good results were obtained in 6 out of 10 cases of infiltration and leproma of the lids, in all of 6 cases with scleral and sclero-corneal leproma, and in all of 3 cases of iris leproma. In chronic iritis the pupillary reaction returned in 9 eyes (one-third of the cases) and there was marked improvement in 15 cases with acute inflammation. Sharpness of vision was improved in 17 eyes, unchanged in 9, and worse in 1. Side reactions were seen in 6 cases, mostly of slight degree and none dangerous. The author supports the view of Paldrock and Dubois that gold acts directly upon the bacilli. [From abstract.]

MARAYUMA, S. Resultate der Schwefeltherapie bei Lepra. [Sulphur therapy.] *La Lepro* 5 (1934) 29 (abstract section; original in Japanese).

Nineteen cases (10 neural, 3 macular, and 6 mixed) were given sulfuroil, which contains 0.5% sulphur, by intramuscular injections twice a week. Fever to 40°C. developed in a few hours after injection, reaching its maximum in about 14 hours, disappearing within 24 hours. The principal side effects (occurring in one-half of the cases) were headache, general weakness and loss of appetite. The treatment was most effective on the tumors, less on macules, nodules and edema, and without effect on the neural symptoms. A tabulation of final results shows improvement in 7 of the 9 macular and mixed cases, and in only 2 of the 10 neural cases. [From author's abstract.]

UCHIDA, M. An experimental study on the relation between various nutriment and leprosy affection. II. On the influence of various vitamins on morbid changes of leprosy of the rat. *La Lepro* 6 (1935) 7. [Abstract section; original in Japanese.]

The author investigated the influence on experimental rat leprosy of vitamin A (10 per cent oily solution of basterine), vitamin B (10 per cent watery solution of orizantin), and vitamin D (10 per cent oily solution of viganol).

He concludes that vitamine A prevents morbid changes of leprosy of the rat, vitamine B is almost unable to prevent such changes, while vitamine D is able to prevent such changes in a high degree. [From author's abstract.]

2/8
UCHIDA, M. On pathological changes of the eyes of rats in which the bacilli of rat lepra are injected into the abdominal cavity. *La Lepro* 6 (1935) 27. [Abstract section; original in Japanese.]

Eight months after injecting into the abdominal cavities of 3 young rats 0.2 cc. of a suspension of a rat leprosy nodule, pathological changes of the eye were observed in all. The parts of the eye affected were the conjunctiva palpebrae, palpebra, limbus episclerae, conjunctiva bulbi, environs of eye-ball, gland tissue, and environs of the optic nerve. No bacilli were found in the cornea, the internal tissues of the eye or the optic nerve. The frontal half of the eye is affected, as in human leprosy, the infection coming from the skin surrounding the orbit but not through the blood metastatically. [From author's abstract.]

8
MAJIMA, S. A study on rat leprosy. I. General statistical view of rat leprosy in the city of Taihoku. *La Lepro* 6 (1935) 5. [Abstract section; original in Japanese.]

There being no information as to the existence of rat leprosy in Formosa, the author examined 25,517 rats in Taihoku and found 496 (2 per cent) infected. Most of them had the musculo-cutaneous type. Assuming that the lymphatic gland type is three or four times more common, the incidence rate would approach 9 per cent. The species affected were *Mus decumanus* and *M. alexandrinus*, the former giving 89 and the latter 11 per cent of the infected animals. Males totalled 46 and females 54 per cent. All were grown adults. A minority of them came from the commercial and residential districts. The disease presented no special features. Severe cases of the lymphatic gland type were rare. The glands were almost equally infected in both types. Among the musculo-cutaneous cases nodules were found in 16 per cent and ulcers in 21 per cent. Bacilli were found in 56 per cent of the ulcers. [From author's abstract.]

3
ITAKURA, T. Zahnärztliche Untersuchungen bei Leprakranken. I Bericht: Befunde über Zahnausfall, Weisheitszahnausbruch und Zahnkaries besonders bei leprakranken Formosa-Chinesen (Fokien-Stamm). [Dental studies in leprosy among Formosan Chinese.] *Jour. Med. Assoc. Formosa* 34 (1935) 211. [Abstract section; original in Japanese.]

Data on the dental changes in 162 Formosan lepers are given. These do not show striking differences from those of normal persons, though the longer the disease has existed the worse are the dental conditions. The average loss of teeth was 3.64, with no difference in the two types. Carious teeth averaged 2.4, highest in women and in neural cases. [From abstract in *Trop. Dis. Bull.* 32 (1935) 542.]