

## 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.*

LE DENTU, R. L'oeuvre de la Commission consultative de la Lèpre du Ministère des Colonies. [Work of the Advisory Commission of the Ministry of Colonies.] Rev. colon. Méd. Chir. No. 74 (1935) 306-318.

This article summarizes the partial reports previously published in the same periodical. The author discusses the reform of the prophylaxis of leprosy in the French colonial empire, as stimulated by the commission and carried out by the administration. Because of political and administrative differences it has been necessary to adapt the instructions to three different categories of colonies: (1) the new colonies (e.g., Indochina, French West Africa and Madagascar), (2) the old colonies (e.g., French Guiana, the Antilles, Senegal, the Establishments of Oceania), and (3) New Caledonia. To some it will cause surprise that in French West Africa there are not less than 100,000 lepers. The Central Institute at Bamako is open to workers of all countries. The instructions emphasize the examination of school children and the work of visiting nurses. The classification adopted is: (1) neural, (2) cutaneo-mucous, and (3) latent leprosy.

—ET. BURNET.

ROBINEAU. La nouvelle orientation de la lutte contre la lèpre. [New orientation of the antileprosy campaign.] Rev. colon. Méd. Chir. No. 74 (1935) 318-325.

After recalling the phases of the fight against leprosy since the Middle Ages, the author discusses the application of the new methods of prophylaxis in the colonies of French West Africa and the organization of the Central Institute of Bamako. This is an institute of scientific research where foreign workers will find cases for study, facilities for research, and even personal accommodations. It is the only institution in French West Africa that is equipped to carry on free investigations on the efficacy of new treatments. The small treatment stations are divided into four groups in which are used, for comparison, four forms of chaulmoogra treatment, all given intramuscularly: *H. anthelmintica* oil, *H. wightiana* oil, chaulmoogra ethyl esters with guaiacol, and distilled ethyl esters.

—ET. BURNET.

STÉVENEL, L. AND BERNY, P. Un procédé simple de biopsie cutanée chez les lépreux. [Simple biopsy method.] Bull. Soc. Path. exot. 28 (1935) 547.

As biopsy of the skin should be a common practice, it is necessary to simplify it. The authors recommend the following procedure: insert a sewing

needle into the skin, superficially and tangentially, for 1 to 2 mm., and with a safety razor blade cut the raised portion of skin along the needle. This gives, without bleeding, enough tissue for smears and a histological examination.

—ET. BURNET.

DES ESSARTS, J. Q. AND LEFROU, G. Les sarcoïdes de la lèpre. [The sarcoids of leprosy.] *Bull. Soc. Path. exot.* 28 (1935) 626-639.

The authors, after reporting 11 cases of sarcoid leprosy, define the position of that lesion in pathology in relation to the multiple cutaneous sarcoids of Boeck and with tuberculoid lesions, which the sarcoids resemble though they are distinct. The sarcoids are characterized by the presence in the dermis of peculiar granulomata, constituted of sharply limited cellular layers in connective tissue which remains passive. Vessels are always present in them. The predominating cells are epithelioid, lymphocytes being present in small numbers. Multinucleate cells are found, rarely of the Langhans type. In 6 cases the lesions were simple hypopigmented macules, in the other 5 they were papular or nodular. Contrary to findings in tuberculoid leprides, bacilli were found in sections from all of the latter group, never in globi (in 4 of these cases they had been found in smears), but they could not be found in any of the macular lesions. These lesions are to be differentiated from the sarcoids of Boeck, the tuberculous sarcoids, and the lesions caused by syphilis, leishmaniasis, the mycoses, and even foreign bodies. The authors believe that the sarcoid of leprosy is a special form of tissue reaction to the infection, one of many types which include both the tuberculoid and sarcoid lesions. All possible transitional lesions are found, even in the same case and sometimes in the same biopsy. The sarcoid seems to be more evolved than the tuberculoid, because of the frequency with which bacilli are found in them.

—ET. BURNET.

TISSEUL, J. AND BERNY, P. Un enfant de un an, fils de lépreuse, porteur d'un nodule contenant des bacilles de Hansen. [One-year old child of leper with bacillus-containing nodule.] *Bull. Soc. Path. exot.* 28 (1935) 549.

At the age of 10 months the child showed on the right leg a tawny spot that rapidly developed into a nodule the size of a kidney bean that contained numerous bacilli. The peripheral nerves were intact and the nasal mucosa was free from bacilli. The mother was an advanced case. Separation of children of leprous parents is absolutely imperative.

—ET. BURNET.

TISSEUL, J. Essai de traitement de tuberculoïde de la lèpre par la crisalbine. [Treatment of tuberculoid leprosy with crisalbine.] *Bull. Soc. Path. exot.* 28 (1935) 346.

A boy 13 years of age, who presented a tuberculoid lesion on the left cheek and another on the left thigh, and who had been treated with hydrganol for a long time without success, was treated for some eighteen months with crisalbine, 5 gm. in two biweekly series of 0.1 gm. After a reaction or "activation" of the lesions there was slow but definite improvement. During the course of the treatment a macule appeared on the right cheek and then retrogressed; but another appeared on the right hand that proved more persistent.

—ET. BURNET.

GRIMES, CLUZET AND MINEC. Note préliminaire sur un traitement de la lèpre, à Madagascar, par le violet de gentiane. [Treatment with gentian violet.] Bull. Soc. Path. exot. 28 (1935) 415.

During these first trials 35 patients received a series of 24 injections of Perrier's solution, 1 per cent. The dose was 3 mgm. per kilogram of the body weight; the injections were intravenous, the needle being free from any trace of the solution; two injections were given per week. The first results were healing of perforating ulcers and "all sorts of wounds" (which eliminated three-fourths of the dressings), improvement of functions of contracted hands that had not already ankylosed, diminution of atrophies, return of sensation in about two-thirds of the achromic macules, and parakeratosis and tendency to disappearance of the erythematous spots. The results obtained with 250 cases will be published later. —ET. BURNET.

DUBOIS, A. À propos du traitement de la lèpre au bleu de méthylène. [Methylene blue treatment.] Bull. Soc. Path. exot. 28 (1935) 550.

Is it just to deny all significance to treatment of short duration with methylene blue when one worker (Montel) reports extraordinarily rapid results? The author, even with treatment of many months, totalling from 4 to 6 gm. of the dye (used in 2 per cent solution, as compared with Montel's 1 per cent), had no success. —ET. BURNET.

DELANÖE. Le bleu de méthylène compris dans le traitement mixte de la lèpre. [Methylene blue in mixed treatment.] Bull. Soc. Path. exot. 28 (1935) 695.

Mixed treatment with different medicaments may be of a certain practical value, but it cannot be expected to furnish evidence of the efficacy of any single drug. The two cases reported prove nothing with regard to methylene blue, either for or against it. —ET. BURNET.

MONTEL, R. La chromothérapie de la lèpre. Étude générale. [Dye therapy of leprosy.] Bull. Soc. Path. exot. 28 (1935) 616-626.

In this summary Montel expresses his opinion on the value of the derivatives of acridin (gonacrine, tryptaflavine); brilliant green; trypan blue, which should not be used; neutral red, useful in preparing the subject for the action of methylene blue; fluorescein, nontoxic and efficacious in certain cases; and resorcin, which clears up the patients and has its parallel in the results obtained with the Mercado mixture. With regard to methylene blue the author emphasises the combination of eosin and the blue, which is less toxic than the blue alone, and of the blue and chaulmoogra, which enhances the action of each other. Though there are cases in which the blue acts extraordinarily rapidly, there are others in which it acts slowly, so that it is necessary to use it for from 6 to 8 months before pronouncing it ineffective; and there are cases that are quite rebellious, especially those with generalized nodular lesions. The pus of furunculous or follicular lesions which may arise in lepromata colored with the blue contain a multitude of bacilli, a sign of elimination. Montel believes that there is an involution or disintegration of the bacilli under the action of the dye. In summary, neither chromotherapy in general nor methylene blue in particular produces the cure of leprosy, but it is "a new therapeutic means which should not be neglected." —ET. BURNET.

MONTEL, R. AND TRAN-VAN-HANH. Un cas de lèpre cutanée tuberculeuse généralisée récent, traité par le bleu de méthylène. Blanchiment clinique et bactériologique. [A recent case of generalized cutaneous leprosy treated with methylene blue, with clinical and bacteriological recovery.] Bull. Soc. Path. exot. 28 (1935) 696.

An active case of about a year's duration, an Annamite boy 10 years of age, received in 9 weeks 477 cc. of a 1 per cent solution of methylene blue, with improvement so great that on simple inspection it could not be said that the patient has had leprosy. [It is not stated what the bacteriological findings were at that time.] Subsequently the Mercado mixture, neutral red and again methylene blue were given, after which the bacteriological examinations made were negative, enlarged nerves had diminished in volume, and sensation had been restored, at least in part. —ET. BURNET.

MONTEL, L. R. Pousées de lépromes furonculoïdes au cours du traitement par le bleu de méthylène. [Furunculoid changes in lepromata during methylene-blue treatment.] Bull. Soc. Méd-Chir. Indochine 13 (1935) 9-12.

In several of the cases treated with methylene blue there developed, together with fever, small, dark red, superficial swellings ranging up to 1 or 2 cm., confined to blue-stained lepromatous areas, soft and fluctuant, containing masses of leprosy bacilli. After discharge of some puro-serous matter they healed, but others continued to appear as long as the dye was administered. After healing of these "lepra reaction" lesions there was great amelioration of the lesions in which they developed, so the author does not consider the condition an indication to discontinue the treatment unless this condition is prolonged or very extensive; in patients in the more advanced stages of leprosy this condition is likely to lead to cachexia and marasmus. [From abstract in *Jour. Trop. Med. and Hyg.* 38 (1935) 129.]

1/ DOROLLE, P. AND NGO-QUANG-LY. Essai d'emploi dans le traitement de la lèpre d'un colorant composé: bleu de méthylène-éosine. [Trial of a methylene blue-eosin compound.] Bull. Soc. Méd-Chir. Indochine 13 (1935) 21-24. *revised*

The authors have tried a solution of eosin 1.5 and methylene blue 0.5 per cent, which they hold to be as good as the latter alone. It does not color the lesions and is less toxic: doses range from 5 to 30 cc. per series of injections. In the patient so treated (bacteriologically negative) after 19 injections the erythematous patches had completely disappeared and nerve and muscle conditions had improved. [From abstract in *Jour. Trop. Med. and Hyg.* 38 (1935) 165.]

6 DOROLLE, P. AND NGO-QUANG-LY. Lèpre mixte et polynévrite à marche aiguë. Traitement par le bleu de méthylène. Guérison rapide de la polynévrite. Arrêt et régression de l'évolution lépreuse. [Methylene blue in a mixed case of polyneuritis.] Bull. Soc. Méd-Chir. Indochine 13 (1935) 16-20.

A well-marked case of mutilated "mixed" leprosy, with complete paralysis of the lower limbs and paresis of the upper ones, showed striking improvement after treatment with methylene blue. The marked bilateral strabismus and ptosis were cured after the second injection, and after five months during which

the subject received 930 cc. of the medicament the nerve symptoms had disappeared and the patient was able to walk. Leprotic ulcers healed and infiltrations diminished rapidly. [From abstract in *Jour. Trop. Med. and Hyg.* 38 (1935) 115.]

LÉPINE, P. AND MARKIANOS, J. Action direct du bleu de méthylène sur la bacille de Hansen dans l'organisme humain. [Direct action of methylene blue on the leprosy bacillus in the body.] *Compt. rend. Soc. Biol.* 118 (1935) 9-10.

The authors have studied from time to time material obtained by puncture from lepromata after these had been colored by intravenous injections of methylene blue. Before any alteration is observed in the conditions of the lesions (apart from their blue coloring), some of the bacilli begin to show characteristics of degeneration—granular changes, then polymorphism, and finally loss of acid-fastness. These changes are considered evidence of a direct action of the dye on the bacilli. [From abstract in *Trop. Dis. Bull.* 32 (1935) 546.]

X BURKITT, R. W. Case of leprosy treated by intravenous injections of methylene blue. *East African Med. Jour.* 11 (1935) 356-358. 1

Methylene blue was administered to an advanced case which had proved refractory to other methods of treatment. Dyspnea disappeared after the first injection, and by the end of a course of six injections on alternate days the infiltration and swelling of the face had diminished greatly, the nerves were less thickened, sensation had improved, and the patient felt much better. It was noted that the staining of the lesions made manifest small ones that otherwise would have escaped notice. [From abstract in *Jour. Trop. Med. and Hyg.* 38 (1935) 209.]

BENETAZZO, G. [Methylene blue in leprosy.] *Gior. italiano Derm. e Sifil.* 76 (1935) 1291-1297.

The author has tried this treatment in four cases, ranging from 13 to 38 years of age, all of about five years' duration. He concludes that in all of them there was softening of the nodules, and in some of them a retrogression, and feels that the matter deserves further investigation. He [like Burkitt] notes that the staining of the lesions tends to make visible some that otherwise are invisible. [From abstract in *Urol. and Cut. Rev.* 40 (1936) 132.]

BRAGA, R. R. Tratamento de lepra pelo azul de metileno endovenosa. [Treatment with methylene blue.] *Rev. Leprol. São Paulo* 3 (1935) 7-32.

The author claims priority in the use of methylene blue in leprosy, having used it together with chaulmoogra oil before it was used by Dr. Feliz Guisard. He has treated 122 cases according to Montel's technic—increasing doses from 10 to 45 cc. In some cases the results were better than those obtained with the chaulmoogra treatment. Combined treatment with sodium salicylate gave satisfactory results in painful leprosy conditions. The author advises the use of methylene blue in diagnosis because the lesions, even when only slightly visible, become colored. [From abstract in *Jour. American Med. Assoc.* 105 (1935) 2087.]

FERNANDEZ, J. M. M. AND SCHUJMAN, S. On the use of fluorescein in the treatment of leprosy. *Lep. Rev.* 6 (1935) 182.

The authors record 32 cases treated by fluorescein, and conclude: (1) Using fluorescein in the treatment of leprosy according to Ryrie's method they have not obtained the favorable results observed by other workers. (2) This treatment seems to suit certain forms of acute iritis consecutive to lepra reaction.

—L. ROGERS.

ROY, A. T. AND RAO, G. R. Fluorescein in lepra reaction. *Indian Med. Gaz.* 71 (1936) 27.

Encouraged by Ryrie's experience, the authors observed the effect of fluorescein in nine well-marked reaction cases, using three other cases of similar advancement as controls. Ten cc. of 2 per cent Grüber's fluorescein was given intravenously two or three times a week for two weeks; one control case received 4 cc. of 1 per cent potassium antimony tartrate, another 4 cc. of plain physiological saline, and the third only hospital care and diet. Fever subsided after two to four injections of fluorescein, but the same tendency was noted in the control cases; in both groups the erythrocyte sedimentation rate remained persistently high, indicating debility. The authors conclude that fluorescein has an antipyretic effect but no particular advantage over other methods of anti-reaction treatment now in use. It can be used as an alternative in cases that do not tolerate or respond to other methods of treatment. —MARIANO B. LARA.

ALFRED, E. S. R. A method of improving treatment with esters. *Lep. Rev.* 6 (1935) 179.

The author advises, for lessening the frequency and duration of lepra reactions, intervals in the ethyl-ester treatment during which courses of four to six injections are given twice weekly of either 2 per cent fluorescein in 10 to 20 cc. doses, or of 1 per cent phthalic acid in 10 cc. doses. —L. ROGERS.

RAO, G. R. A comparative study of the relative efficacy of ethyl hydno-*carpate* and ethyl morrhuate in leprosy. *Lep. Rev.* 6 (1935) 120.

Each of the two preparations mentioned was given intradermally, one on either side of the body, in a few cases with symmetrical lesions, and it was found that the hydno-*carpate* was the more effective in spite of the fact that the morrhuate was the more irritating. The author concludes that the hydno-*carpates* have some definite effect, apart from that due to irritation, on both the cutaneous and the nerve lesions. Illustrations of a case before and after treatment show the more extensive formation of keloids due to the morrhuate.

—L. ROGERS.

RAO, G. R. Relapses in leprosy. *Lep. Rev.* 6 (1935) 168.

This short paper is largely concerned with the hypothesis that there is an unknown virus stage of the causative organism. It records four advanced quiescent cases in which amputation of a septic foot was followed by a recrudescence of the disease. A table of 20 relapsed cases includes 16 neural ones, and he suggests the term "disease arrested with deformities" in place of "burnt-out cases."

—L. ROGERS.

DOW, D. P. AND NARAYAN, J. S. Pseudo-reaction in leprosy due to gonorrhoea. *Lep. Rev.* 6 (1935) 176.

The writers find gonorrhoea, and arthritis due to it, to be a frequent retard-

ing complication of leprosy and ten times as frequent as syphilis, and they suggest that "co-called lepra-reactions are in reality gonorrhoeal in nature."

—L. ROGERS.

HARROWER, G. Ainhum disease and the anaesthetic type of leprosy. *Trans. Roy. Soc. Trop. Med. and Hyg.* 29 (1935) 73.

In this brief paper the author records cases of ainhum resembling in some degree anesthetic leprosy.

—L. ROGERS.

DENNEY, O. E. The National Leprosarium of the United States. *Lep. Rev.* 6 (1935) 102.

This is a brief description of the well-known leprosy institution at Carville, Louisiana, where a total of \$1,143,082 (over £200,000) has been expended up to date in providing hospital and living accommodations, including recreation, school, library and administrative buildings, for 500 patients. In the course of fourteen years 801 patients have been admitted. The daily cost per patient of the 350 now resident is \$2.39. It is doubtless the best equipped, and the most costly institution of its kind in the world.

—L. ROGERS.

COCHRANE, R. G. Leprosy in the Leeward and Windward Islands. *Lep. Rev.* 6 (1935) 125.

This brief report brings out the point that in those islands in which the economic conditions are fairly satisfactory there appears to be little leprosy of endemic importance. The highest incidence was in Dominica and St. Kitts in the Leeward Islands, with a rate of 0.8 in the latter. Few cases were found in the Windward Islands of St. Vincent, St. Lucia and Grenada. The great danger of nodular cases of leprosy is well brought out by the fact that in every instance in which the contacts of such cases were examined, one to three children were found to have become infected from them. The provision of a central leper institute for these islands is discussed, but against this proposal it is pointed out that the removal of patients far from their homes may result in harmful hiding of cases. Local arrangements are to be preferred, recommendations for which on the usual lines are made.

—L. ROGERS.

BROWNING, W. E. Leprosy in South America. *Lep. Review* 6 (1935) 160.

After a brief historical introduction the author gives a general account of the incidence of leprosy in South America, with estimates of the numbers of cases in the different countries and the prophylactic measures in use. Venezuela: Several thousand cases among 8,000,000 people; a few hundred in two Government leprosaria. Colombia: probably 30,000 cases among 8,000,000, with over 4,000 in three leprosaria, in which but little expert treatment is provided. Ecuador: Possibly several thousand among 2,000,000 people; only one small leprosarium; no definite data on record. Peru and Bolivia: Little leprosy, most of it in warm Amazon basin; very few cases in the very dry west coastal area. Chile: Free from leprosy except in the Easter Island colony in the Pacific. Argentina: Estimates vary between 4,000 and 10,000 cases among 12,000,000 people, mostly in the warmer northern provinces; only 2,500 revealed by a census, with but 250 in institutions. Uruguay: 500 cases, according to a recent estimate, among 500,000 people; only 40 under care at the present time. Paraguay: 4,000 to 10,000 among 800,000 population; leprosaria built or

under construction will provide for 2,500. Brazil: Not less than 50,000 cases in a population of 45,000,000; in some states the incidence is as high as 4 per mille; large sums are being spent to provide leprosaria, and more is being done to combat the menace than in any other part of the continent. Leprosy is thus widespread in South America, and the author believes that 100,000 cases would be as exact an estimate as it is possible to make.

—L. ROGERS

ARMSTRONG, H. C. Account of a visit to leprosy institutions in Nigeria. *Lep. Rev.* 6 (1935) 153.

The writer is one of the two medical officers whom the British Empire Leprosy Relief Association is helping to maintain in West Africa to deal with the vast and difficult leprosy problem in that area. He lays stress on the importance of efficient segregation of all open cases, but adds: "This can only be done by having a settlement which patients are willing to enter at the beginning of the disease." Details of local interest are given of the Uzuakoli settlement, where nearly 500 inmates are maintained at a cost of about £4 per head, much of the necessary food being grown by them. The largest settlement is the wellknown Itu one in South Nigeria, organized by Dr. Macdonald. Here are approximately 1,600 inmates, each of whom has to put in five hours' work for each injection he receives, and a small number own their own farms. Babies born in the settlement are removed at once to the "clean" babies' house, where the mothers whose condition admits of it go to suckle them, precautions being taken against more than minimal contact; those who remain healthy are sent to relatives after three years. A new settlement has recently been constructed by the Government at Ossiomo, with about 400 patients who are engaged in clearing the bush, etc. The settlements run by missionaries compare favorably in the general outlook of the patients with Government ones. Ample beneficial work is provided for the inmates. Marriage should be permitted with the safeguards mentioned.

—L. ROGERS

JOSEPH, J. J. Leprosy work in the Madras Presidency. *Lep. Rev.* 6 (1935)-108.

The writer points out that the leprosy survey made in 1929 by Dr. Santra resulted in the organization of numerous out-patient clinics. These now number four hundred, with 903,090 attendances of 120,000 registered cases during 1934, at very low cost per head; in 1932 there were 380,050 attendances. Further, 2,100 patients are accommodated in twelve leprosy asylums, including 750 in the Lady Willingdon one at Chingleput; the total expenditure for the year was Rs. 300,000 (£22,500). An analysis is given of the results of treatment in 14,306 cases treated in one hundred seven of the clinics. This showed 5 per cent symptom-free, 35.5 per cent greatly improved, 40.5 per cent slightly improved and the remaining 21 per cent unimproved. In one area a house-to-house survey revealed 456 cases among 33,037 persons examined (1.38 per cent). In three hundred nine schools examined in four years 503 cases were found among 44,955 children (1.12 per cent). The treatment is becoming popular. Attention is paid to propaganda, and advice on the improvement of local health conditions is given. About five hundred medical men have been trained in methods of classification, diagnosis and treatment. Considerable sums have been collected in very small amounts on special "Leper Days."

—L. ROGERS



MUIR, E. AND CHATTERJI, K. R. The record of a leprous village, with a scheme for a statistical survey. *Lep. in India* 7 (1935) 4-18.

This article is the report of a detailed survey of a leprous Mussulman village in Bengal. Two family trees are given, showing five generations; in both of these the disease appeared in the third generation, since when 13 infective and 5 uninfected cases have occurred in one family and 2 and 3 respectively in the other, a total of 23 cases in 45 years. No less than 15 of these were probably infected by one case. The spread of the disease was apparently due to family relationship and closeness of residence. Omitting one case of this group, the average time between the appearance of the first symptoms and the development of the infectious stage of the disease was 3.5 years. A scheme is proposed to assist surveys. [From abstract in *Trop. Dis. Bull.* 32 (1935) 539.]

SANTRA, I. Further notes on antileprosy work in the Salem District. *Lep. in India* 8 (1936) 11.

In the Salem District of the Madras Presidency there are forty-two clinics which treat 3,217 patients monthly, only 25 per cent of the recorded cases appearing regularly. Recommendations for improvement of the treatment work include individualization of the dosage of the drug, to be determined by medical officers, and development of bacteriological and serological work, which should be done in a central laboratory. The part played by the District Leprosy Councils and clinic committees is discussed, including a plan to establish a village for leper children. The incidence as recorded in the clinics is 20,381, or 8.4 per 1,000, the distribution varying from village to village apparently independently of climatic conditions. Amongst 5,119 students examined the incidence was only 0.4 per cent. The spread of the disease generally is restricted to members of the same family, adult males being affected three times more than the adult females, but in children males and females are affected about equally. Signs of nerve leprosy appear more commonly in children; some develop the cutaneous type later but others remain cases of nerve leprosy or show spontaneous arrest.

—MARIANO B. LARA

CHATTERJI, S. N. The early manifestations of leprosy as seen in an out-patient clinic. *Lep. in India* 8 (1936) 6.

The author lists the early manifestations observed in patients at the leprosy clinic of the School of Tropical Medicine, Calcutta. (1) Sensory changes: anesthesia (numbness), partial or complete, of some skin area; burning sensation; pain in the nerve, commonly the ulnar, which may be very severe especially at night; tingling sensation in the distribution of the nerve; analgesia to hard pinching or pricking; feeling of heaviness in the affected part, especially the limb. (2) Pigmentary changes in skin patches: hypopigmentation; erythema and thickening. (3) Motor changes: paralysis or loss of power and impairment of coordination (foot-drop or characteristic gait); deformities, as slight contraction of the little finger, wasting of the muscles of the hand, particularly the thenar and hypothenar eminence or the interosseous muscles. (4) Sundry symptoms: blisters and ulcers resulting from injury of anesthetic areas; swelling of hands or feet, frequently accompanied by anesthesia and thickening of nerves; thickened nerves, particularly the great auricular and cutaneous nerves, and occasionally abscess formation in such nerves; anhydrosis and absence of prickly

heat; diffuse thickening of the skin, most marked at face and ears; loss of hair; keratosis or ichthyosis, noticed particularly in winter.

Cases of alleged development of signs of leprosy at the sites of injury the author considers due to either (a) a pre-existent lesion unnoticed until after the injury, or (b) local lowering of resistance that aggravates the leprosy lesion, making it noticeable afterward. Other diseases as smallpox, malaria, scabies, syphilis, may act as predisposing causes, or they may bring the patient for medical examination, when the leprosy condition is discovered.

—MARIANO B. LARA

RODRIGUEZ, J. Results of the chaulmoogra treatment in very early cases of leprosy. *Lep. Rev.* 5 (1934) 102.

Contrary to his expectations the author has found that treatment with chaulmoogra oil derivatives in 336 children with early clinical leprosy was not as effective as in the acid-fast-positive patients. Of 225 dispensary patients 16.2 per cent of 173 that received irregular or inadequate treatment became bacteriologically positive, as against 5.8 per cent of 52 that received adequate treatment (60 per cent or more of the number they should have had). However, this apparent advantage is shown statistically not to be in relation with the length of treatment. After several years of observation the author was able to demonstrate Much-positive nonacid-fast forms of *My. leprae* in the closed and incipient cases. He advances the theory that in the early pale macule the organism may exist, as suggested by Manalang, in an invisible virus form that excites a distinct cellular reaction; that this changes into the Much-positive nonacid-fast form mentioned, which excites a tuberculoid tissue reaction; and that later these organisms become the typical bacilli in the infiltrated characteristic cutaneous lesions. He believes that the chaulmoogra-oil derivatives are effective only with the acid-fast form of the organism, and not on the Much-positive phase present in the early clinical lesions, which do not respond so well to the treatment.

—MARIANO B. LARA

RODRIGUEZ, J. Evaluation of the results of treatment in incipient leprosy. *Lep. Rev.* 5 (1934) 163.

It is held that the best method for determining the efficacy of a drug in incipient cases of leprosy is to divide the cases into two groups, one to be treated adequately and the other to receive inadequate treatment or none. In cutaneous leprosy the criteria by which the efficacy of a treatment is evaluated are the disappearance of *My. leprae* from lesions formerly positive, and the clearing up of nodules, infiltrations, or other signs of activity. Regarding the purely incipient neural cases, because the lesions are bacteriologically negative the examiner is forced to base his judgment of the efficacy of his treatment solely on the appearance of the macules or the degree of anesthesia. The author maintains that the period of observation ought not to be less than five years, at which time an estimate of the effect of treatment can be arrived at by comparing the numbers of cases that have become bacteriologically positive in the adequately and inadequately treated groups. [From abstract in *Rev. Filipina Med. y Farm.* 25 (1934) 555.]

RODRIGUEZ, J., MARALAY, E. AND TOLENTINO, J. G. A medical survey of the paroled negatives living in the province of Cebu. A preliminary report.

Month. Bull. Bu. Health 15 (1935) 400.

The author investigated the question of relapse among 1,093 persons paroled from various leprosaria who returned to Cebu to live. In all 736 (67 per cent) were examined, either by the authors or by the national disposal committee; of the others 81 had died, 81 had gone elsewhere (most of them returning to live at Culion) 163 could not be located and 32 failed or refused to appear for examination. Of the 736 examined, 287, (or 39 per cent) had relapsed. The relapse rates of the patients released from Culion (453) and from the Cebu leprosarium (277) were very similar, 40 and 36 per cent, respectively. Comments are made on certain conditions observed, and suggestions are offered for improvement of the follow-up work.

—MARIANO B. LARA

TOLENTINO, J. G. Certain factors supposed to influence the results of the treatment of leprosy. *Philippine Jour. Sci.* 59 (1936) 163.

The records of 447 cases of leprosy treated with *H. wightiana* oil or its ester iodized or creosoted, in the Eversley Childs Treatment Station at Cebu from 1929 to 1933, were studied to ascertain whether the type of lesion, duration of the disease at admission, age, sex, civil status, and degree of robustness, have any influence upon the result of treatment, this being gauged by the percentages of paroled cases. In the classification of types the author utilized only C1, C2 and C3 of the Memorial classification, disregarding the neural element. Bacteriologically negative neural cases are not segregated. The author concludes that: (1) among the more advanced cases there are fewer paroles than among those less advanced; (2) duration has no apparent relation to the results; (3) the first, fourth, fifth and sixth decades give higher percentages of paroles than the second and third; (4) females show the better results except in the fifth decade, when they are disturbed by menopause; (5) childhood and puberty do not seem to be important factors; (6) in the widowed group the results are better than in the children and the single and married adults (probably because the females and those of less advanced stage are preponderant among the widowed; also, the majority of widowed persons are in the favorable fourth, fifth and sixth decades); (7) healthy thin patients (whose thinness is not due to complicating diseases) showed better results than the normal and obese.

—MARIANO B. LARA

MANALANG, C. Pathologic and bacteriologic survey of lepers. (Postmortem).

I. Month. Bull. Bu. Health (Manila) 13 (1933) 411-413.

This is a report of the histological findings in tissues taken from the hollows of the palms and the balls of the fingers of the clinically normal left hands of 19 out of 20 consecutive autopsies at Culion. Leprous infiltrations with leprosy bacilli were found in 13 hands. Another case showed similar infiltrations without bacilli and in 3 cases perivascular infiltration and fibrosis; only two hands were normal.

—MARIANO B. LARA

[An abstract of the second article of this series, taken from another source, was published in No. 1., Vol. 4 of the JOURNAL.]

MANALANG, C. Pathologic and bacteriologic survey of lepers. (Postmortem).

III. Month. Bull. Bu. Health 15 (1935) 109.

Of 17 clinically normal left feet of lepers the author found 16 to have

varying degrees of leprous infiltration, with *My. leprae* positive in 11. Because of ulcerations the other 3 of 20 consecutive cases involved were not examined.

—MARIANO B. LARA

MANALANG, C. Pathologic and bacteriologic survey of lepers (Post Mortem).

IV. Month. Bull. Bu. Health 15 (1935) 361.

Tissues removed from the plantar surfaces of clinically normal right feet (ball of toe and arch of foot) in 16 of 20 Culion autopsies showed *My. leprae* in 14 cases and histological changes varying from perivascular infiltration to leproma present in 15. The author concludes that the hydnocarpus drug has little or no systemic effect, that the examination of candidates for parole and the follow-up of paroled lepers should include multiple smears from the soles of the feet, and that the findings like those in the hands indicate that infection of nerves of the extremities is probably always from the periphery.

—MARIANO B. LARA

MANALANG, C. Pathologic and bacteriologic survey of lepers. (Post mortem).

V. Month. Bull. Bu. Health 15 (1935) 391.

In connection with the question of the so-called immune areas in leprosy the author reports findings in tissue from 20 Culion autopsies. All 40 specimens from the posterior-inferior auricular area showed perivascular infiltration, and in one case there was lepromatous change; 16 specimens showed bacilli. The inguinal regions in 8 cases (16 specimens) showed slight peri-vascular change, the others being normal; bacilli were found in 4 of the 40 specimens. It is pointed out that the perivascular infiltration may be leprotic or due to other causes, and opinions concerning the presence of bacilli are presented. The author rejects the theory of blood-stream dissemination in explanation of the symmetrical distribution of the lesions of leprosy, reiterating his belief in their pathogenesis through prolonged skin-to-skin contact of the infant and young child. Disagreeing with Hayashi's explanation of the frequency of leprosy of the hairy scalp in Japan, which he ascribes to the cold climate, the author restates his belief that it is due to the practice of shaving the heads of infants. The view of Hopkins et al., that the immune areas are less exposed to the effects of sunlight, temperature changes, trauma, etc., and Lai's bacteriological findings in such areas are touched on. The apparent immunity of the inguinal area is ascribed to the infrequency of carrying the child astride the bare arm. In general it is held that, though clinically visible lesions do not occur or are rare in the immune areas, probably no such areas are immune to microscopic changes, provided that lesions are present nearby; and that, though there are other factors, the nonformation of visible lesions is influenced by lack of skin-to-skin contact at the time of infection.

—MARIANO B. LARA

SCHUJMAN, S. Coexistencia de abceso nervioso y lepra tuberculoides. [Nerve abscess associated with tuberculoid leprosy.] Rev. Leprol. São Paulo 2 (1935) 277.

Three cases of nerve abscess were seen among 400 lepers under observation. The nerves affected were the cubital, the internal cutaneous brachial and the superficial transverse cervical. There were apparent tuberculoid lesions of the skin in these cases. In the abscesses was found an exudative reaction with polymor-

phonuclears, lymphocytes and giant-cell formation. Associated skin lesions in two cases proved typically tuberculoid. Very scanty bacilli (3 in 5 fields) were found in material from the abscess cavity and in scrapings from the skin lesions in only one of the cases. The leprolin test was frankly positive in all. The author cites several theories advanced to explain the scarcity of the bacilli in the lesions: (a), the abscess is caused by toxins; (b) bacilli are located only in the nerves and not in the skin; (c), bacilli are always present but in such small numbers that they are not demonstrated by the usual technique; (d), the tissue reaction is produced not by the bacillus but by a virus stage (Muir); and (e), the abscess is related to organic resistance which causes the process to be limited and the bacilli to be phagocytosed (Lowe, Wade), with which the author agrees. The author is inclined to believe that the nerve abscess is tuberculoid leprosy of the nerve, or better, the tuberculoid granuloma of the nerve in reactions similar to the reactions observed in the tuberculoid lesions of the skin, and that both the nerve and skin phenomena can be explained as allergic in nature.

—MARIANO B. LARA

HUIZENGA, L. Sensation disturbances in leprosy. *Urol. and Cut. Rev.* 40 (1936) 102.

Practically all of 500 cases seen in Jukao, China, showed sensory disturbances. The author enumerates the lesions frequently seen and the sensory disturbances complained of, and describes the tests used. The importance of the sensory changes in early diagnosis is stressed; these are sufficient to establish the diagnosis without positive bacteriological findings.

—MARIANO B. LARA

MOSTERT, H. v. R. Bacillæmia in leprosy. *Lep. Rev.* 7 (1936) 7.

The author in discussing bacillemia in leprosy considers its value in diagnosis and significance in prognosis, and the value of Much's staining method. He describes the technique of taking the blood from the vein to avoid including bacilli from the skin, and his method of thick blood-film examination. All of a group of 15 nodular cases were positive, indicating that bacillemia is the rule in this type. In 79 other such cases the blood films were positive in 62 (78 per cent), doubtful in 10 (13 per cent), and negative in 7 (9 per cent). None of 121 maculo-anesthetic cases gave a positive film. The bacilli were found only after prolonged search, much less readily than in ordinary scrapings of the skin or nasal mucosa, hence it is concluded that the blood examination is of no practical value. Bacillemia is considered a very unfavorable indication as regards prognosis. Much's modification of Gram's technique was found advantageous in this work.

—MARIANO B. LARA

PARMAKSON, P. Ueber die eosinophilen Zellen in Blutbilde der Leprakranken. [Eosinophilia in lepers.] *Dermatol. Wehnschr.* 100 (1935) 285-288.

Parmakson studied the blood count of 103 patients with leprosy in various stages and concluded: (a) Eosinophilia is not characteristically associated with leprosy. (b) In untreated patients in active stages of the disease there is a decrease in the number of eosinophiles, while in patients in latent stages the number is normal or slightly increased. (c) In the course of successful treatment the number of eosinophiles is increased. [From abstract in *Arch. Dermat. and Syphil.* 31 (1936) 365.]

8. LOMBOLT, S. AND ENGELBRETH-HOLM, J. Ueber die eosinophilen Zellen im Blutbilde der Leprakranken. [Eosinophilia in lepers.] *Dermatol. Wehnschr.* 100 (1935) 541.

Remarking on the article of Parmakson on the same subject, Lomholt, who has used antileprol in the treatment of various dermatoses, has observed after such treatment a very marked eosinophilia (as high as 64 per cent), and confirms the opinion of Parmakson that this condition is not peculiar to leprosy. Engelbreth-Holm, if he sees a post-therapeutic eosinophilia in lepers, does not consider it a prognostic indication of the efficacy of the treatment, for he has provoked such a change experimentally in animals by intravenous injections of various oils, including antileprol, which does not cause eosinophilia when given intramuscularly, and oil of paraffin. [From abstract in *Ann. Dermatol. et Syphilig.* 6 (1935) 851.]

- POOMAN, A. Ueber die Blutlipase bei Leprösen. [Blood lipase in leprosy.] *Arch. f. Schiffs- u. Tropen-Hyg.* 39 (1935) 70.

There is a diminution of blood lipase in leprosy. It is increased by treatment that ameliorates the condition of the patient, and inversely, so that the measure of the lipase is an indicator of the efficacy of a treatment. [From abstract in *Bull. Inst. Pasteur* 33 (1935) 698.]

- POOMAN, A. Die McClure-Aldrich-Quaddelprobe beim Leprösen. [The wheal test in leprosy.] *Arch. f. Schiffs- u. Tropen-Hyg.* 39 (1935) 121-123.

The author reports on trials of the McClure-Aldrich intradermal wheal test (Q.R.Z.) in 14 cases of leprosy, one of which was a recovered case. In healthy persons absorption of the test substance takes 60 to 90 minutes—in the author's own controls an average of 58 minutes. In seven nodular cases the time was from 17 to 39 minutes, in four maculo-anesthetic cases it was 25 to 48 minutes, in one mixed case 27 minutes, and in one tuberculoid case 17 minutes. [From abstract in *Trop. Dis. Bull* 32 (1935) 551.]

- PIERINI, L. E. La prueba de la histamina en el diagnostico de la lepra. Su prioridad. [The histamine test in leprosy; priority.] *Rev. Argentina Dermatosis.* 18 (1935) 144.

In lepers the histamine test is characterized by absence of the peripheral halo of erythema surrounding the central element. The text of a report published in April, 1931, establishes the priority of the author in the discovery of this special character of the reaction in leprosy. [From abstract in *Ann. Dermat. et Syphilig.* 6 (1935) 858.]

- ARGEHR, P. Zur Leprafrage. [The leprosy question.] *Münchener Med. Wehnschr.* 82 (1935) 56-57.

The author recounts work with the cutaneous test made with suspensions of lepromata, done several years ago. Persons tested are said to be divisible into four classes: (1) Those who have never come into contact with lepers give a negative reaction, as there has been no opportunity for the formation in the system of antibodies. (2) Those who have lived for long in contact with lepers, but have remained healthy, give a positive reaction, because as the result of infection they have developed antibodies which have overcome the infection. (3) Persons who have developed active bacteriologically positive leprosy give a

negative reaction, because they have developed antibodies insufficient to overcome the infection. (4) Persons who have lost all active symptoms of leprosy and passed into a quiescent recovered stage give a positive reaction, because they have developed sufficient antibodies. The author also maintains that, by giving two to four or more intradermal injections of his leprolin, immunity can gradually be produced, and he thinks this may prove of value in combating the disease. [From abstract in *Trop. Dis. Bull.* 32 (1935) 543.]

FISCHL, V. Zur Chemotherapie der Tuberculose und Lepra. [Chemotherapy of tuberculosis and leprosy.] *Ztschr. f. Immun.* 85 (1935) 71.

This work was done with the avian tubercle bacillus in mice, which untreated die in about 70 days. Salts of gold, silver and copper in very small doses prolonged the survival period when given periodically beginning the day after the inoculation. Subcutaneous injections of certain fats (cod-liver oil, castor oil, *Hydnocarpus* oil, etc., and oleic, linoleic and ricinoleic acids) increased survival to 90 to 120 days, none showing any particular advantage over the others. With regard to the action of the fats the author believes that there is a relation between the fat content of the bacteria and their sensitiveness to the action of other fats. In studying these substances it is necessary to take account of their optimal activity, the length of the carbon chains and their lateral chains, the position of the carboxyl group, the presence and number of double bonds, and the presence of a carbon ring. [From abstract in *Bull. Inst. Pasteur* 33 (1935) 955.]

CATALUYUD, S. G. Un tratamiento eficaz de las úlceras leprosas. [An effective treatment of leprotic ulcers.] *Act. Derm.-sifil.* 27 (1934) 101.

Intradermal injections of antileprol are made around the ulcers, and this perifocal infiltration gives rise to an intense inflammatory reaction, followed by rapid healing. The only inconvenience of the method is the strong smarting pain caused by the injections. [From abstract in *Ann. Dermatol. et Syphilig.* 6 (1935) 263.]

SABIN, F. R., SMITHBURN, E. C. AND THOMAS, R. M. Cellular reactions to waxes from *Mycobacterium leprae*. *Jour. Exper. Med.* 62 (1935) 771. 8

The authors worked with waxes extracted from the original strain of *My. leprae* isolated in Honolulu about 1909. Five preparations were used: (1) a crude, chloroform-soluble wax (6 rabbits); (2) a wax obtained from the purification of the lepra phosphatid, consisting according to Anderson mainly of solid glyceride "leprosin," a number of fatty acids, and the alcohols  $C_{20}H_{42}O$  and  $C_{18}H_{36}O$  (7 rabbits); (3) leprosin, from purification of the preceding (5 rabbits); (4) leprosinic acid, obtained from analysis of leprosin (5 rabbits); and (5) crystalline alcohol II, from the unsaponifiable matter of *My. leprae* and alcohol isolated from the wax of the Timothy grass bacillus (2 rabbits). These fractions were given intraperitoneally in dry form or suspended in water. The rabbits were killed after different intervals, and the visceral organs, particularly the omentum and peritoneum, were studied. The findings after intravital and ordinary staining are given in detail. It is concluded that the waxes from *My. leprae* are remarkable stimulants of cells; the purified products (leprosinic acid and the crystalline alcohols) cause formation of foreign-body giant cells, while the whole,

unpurified wax causes a more general cellular reaction with leucocytes, monocytes, fibroblasts and giant cells. —MARIANO B. LARA

LOWE, J. A note on the application of tissue culture methods to leprosy research. *Lep. in India* 7 (1935) 19-22.

This is a brief review of former work on attempts to grow the lepra bacillus in tissue cultures by Salle, Timofejewsky and McKinley and Verder. Lowe reports that he has failed to confirm the work of the last two, but thinks further trials are required. [Abstract from *Trop. Dis. Bull.* 32 (1935) 550.]

WALKER, E. AND SWEENEY, M. A. Embryonic and tumour tissues as culture media for the micro-organism of rat leprosy. *American Jour. Trop. Med.* 14 (1935) 507-514.

Noting that Zinsser and Carey, in 1912, first attempted the cultivation of the bacillus of rat leprosy in tissue cultures, and that Salle, in 1934, reported successful cultivations from a leprous granuloma of one rat lesion and four of human leprosy, the authors report their own culture experiments with a strain of rat leprosy that has been maintained at their laboratory for many years. They used rat embryonic tissue chiefly, supplementing this with other related tissues, including malignant tumours of rats and mice. No multiplication of acid-fast bacteria was observed in the cultures in minced embryonic (fetal or neoplastic) tissues suspended in Tyrode solution, but an acid-sensitive but facultative acid-fast and pleomorphic organism did grow in certain of the cultures. They suggest that the diverse cultural results with embryonic tissue medium reported by other authors may be due to (a) the great number of serial transfer of acid-fast bacteria of the inoculum; and (b) to the interpretation of the acid-sensitive organisms appearing in the cultures as contaminants. [From abstract in *Jour. Trop. Med. & Hyg.* 39 (1936) 21.]

BULKIN, A. [Complement fixation with leprous antigens in leprosy.] *Med. Parasit. & Parasitic Dis. (Moscow)* 4 (1935) 36-38. [In Russian, with English summary.]

The author describes the results of complement-fixation tests with bacterial, testicular and mixed (bacterial and testicular) antigens on 101 sera, 84 from cases of leprosy and 17 from nonlepers. The nonleprous sera all gave negative results; with the leprous sera the highest percentage of positive results was with the bacterial antigen, and the lowest with the testicular. [From abstract in *Trop. Dis. Bull.* 32 (1935) 552.]

BENETAZZO, G. [Studies on the complement-fixation reaction in leprosy.] *Gior. italiano Derm. e Sifil.* 76 (1935) 143.

An investigation has been made as to whether the quantity of reagin for the Wassermann reaction differs in positive syphilitic and leprous sera. By progressive dilution the author found it to be much the greater in leprous sera, for whereas complement fixation ceases with syphilitic sera with a dilution of 1 in 80, in leprous sera the dilution had to be carried to 1 in 5,120 to get that result. The reaction was more sensitive in leprosy with an extract of leprous nodule used as the antigen than with guinea-pig-heart extract. [From abstract in *British. Jour. Dermat. & Syph.* 67 (1935) 532.]



RUBINO, C. Les réactions sérologiques dans la lèpre. Leur état actuel. [The present status of serological reaction in leprosy.] *Rev. Argentina Dermatosisif.* 18 (1935) 147.

The author considers the different serological reactions used in leprosy. That of Botelho lacks specificity. Eitner's reaction, which is quite sensitive, gives positive results with syphilitic sera. The Gomes reaction does not permit confirmation of the diagnosis of leprosy. The author's test, of which he gives the technique, is less sensitive than others and gives lower percentages of positive results, especially in neural leprosy, but it is absolutely specific in that it is constantly negative with the sera of nonlepers. It is difficult to correlate the reaction and the degree of evolution of the disease because of lack of knowledge of the factors of positivity. Only extensive experimentation in leprosy regions can fix definitely the value of the reaction for the detection of initial or larval forms of the disease. [From abstract in *Ann. Dermat. & Syphilig.* 6 (1935) 859.]

BIER, O. G. AND ARNOLD, K. Estudos sobre a serologia da lepra. Sobre a especificidade e a sensibilidade da reação de Rubino. Pesquisas sobre o mecanismo da reação. [The specificity, sensitivity and mechanism of the Rubino reaction.] *Ann. Paulista Med. & Cir.* 29 (1935) 177.

The authors report studies on the specificity of the Rubino test in leprosy. They examined 327 samples of sera. The proportion of positive tests in the different forms of leprosy was as follows: pure nervous leprosy, 29.4 per cent; maculo-anesthetic leprosy, 41.7 per cent; mixed form, 56.5 per cent; nodular form, 66.6 per cent; incipient cases 13.8 per cent. Only one positive test was obtained with 945 control sera. In mixed forms, the specificity of the test varies with the intensity of the cutaneous symptoms without any apparent relation to the nervous component. These studies confirm the statements of Rubino, Marchoux and Caro on the necessity of electrolytes for the agglutination and on the exclusive absorption of leprosy agglutinins by a suspension of globules in formaldehyde. [From abstract in *Jour. American Med. Assoc.* 104 (1935) 2200.]

NOJIMA, T. Einige besondere Formen der acuten Erscheinungen bei Lepra. [Special forms of acute manifestations in leprosy.] *Japanese Jour. Dermatol. & Urol.* 35 (1934) 10. [Abstract section; original in Japanese.]

In the first case described, a man 50 years of age with marked nodular leprosy, there suddenly appeared many small abscesses on the hairy scalp, with chills and fever; the pus contained no microorganisms other than abundant lepra bacilli. In the second case, neural leprosy of six years' duration, there developed a measles-like eruption over the entire body; this eruption disappeared spontaneously in a week, after which the disease changed into the nodular form; the patient finally succumbed. The third case, moderate nodular leprosy, developed a generalized erysipelas-like eruption. Such exanthemata are always accompanied with fever, but the general condition is less affected than in true erysipelas. [From original abstract.]

MUNEICHI, T. Beiträge zur Kenntniss des Bluttypus bei Lepra-Kranken. [Blood types of leprosy patients.] *Japanese Jour. Dermatol. & Urol.* 35 (1934) 10. [Abstract section; original in Japanese.]

Determinations of the blood types were made on 419 patients in the Oshima leprosarium. From the results [table given] it is concluded that there is no distinct difference in this respect between lepers and controls, or between patients of the different types. [From original abstract.]

YOSHIMURA, Y. Ueber die Funktion der Schweissdrüsen der leprösen Flecke. [Function of the sweat glands in leprosy macules.] Japanese Jour. Dermatol. & Urol. 35 (1935) 17. [Abstract section; original in Japanese.]

Pointing out that study of the vegetative nerves in leprosy has been neglected, the author reports on investigations of the sweat glands in the macules of about 100 cases, measuring the output of water in (1) the normal condition (perspiratio insensibilis, P.i.), and (2) during sweating. (1) P.i. is higher than normal, in proportion to the degree of inflammation; in many macules that macroscopically show no inflammation P.i. is normal, except that on the palm and sole there is often a decrease. It is concluded that on many parts of the body P.i. is principally the evaporation of water, in which sweat secretion does not participate, but that on the sole and palm glandular function may play an important role. (2) When sweating is induced by increased temperature or by pilocarpin, less water is given off from the macules than from normal skin; when there is much inflammation there may be almost no sweating, whereas noninflammatory macules (as secondary leucoderma) often show a marked increase. The anhidrosis is not purely neurogenic, since there is sometimes restoration of the secretion of these functionless macules after the subsidence of the inflammation, from which it is suspected that in the disturbance of the sweat function a part is played by some sort of mechanical disturbance of the sweat gland by the cellular infiltration. [From author's abstract.]

SATANI, Y., TANIMURA, C. AND MINAMI, H. Clinical experiences with a new remedy for lepra, Hoechst 4828a. Japanese Jour. Dermatol. & Urol. 36 (1934) 85. [Abstract section; original in Japanese.]

The authors used a new chaulmoogra preparation, Hoechst 4828a, in 21 cases of leprosy (2 nodular, 3 neural and 11 maculo-neural), of which 16 were observed for relatively long periods. Results: 5 improved, 8 unchanged, 3 somewhat worse. Almost no secondary effects were observed. No conclusion is arrived at regarding the value of this preparation. [From abstract.]

UCHIDA, M. AND MITA, M. Ueber den Erfolg von Goldpräparat für Neuralgia leprosa. [Value of a gold preparation in leprosy neuralgia.] Japanese Jour. Dermatol. & Urol. 36 (1934) 108. [Abstract section.]

Of the various means available for treating leprosy neuralgia, aurothio-phenol-m-carbon-saures natrium is of outstanding value. The results are practically 100 per cent (40+++ , 33++ , 27+). In the majority of cases the pain disappears or becomes less after 3 to 10 injections, and in some cases the nerve thickening has decreased. [From abstract.]

TAYAMA, I. AND ISHIZU, S. Ueber den leprösen Haarausfall. (Klinische Untersuchung.) [Loss of hair in leprosy.] Japanese Jour. Dermatol. & Urol. 37 (1935) 9. [Abstract section; original in Japanese.]

This very detailed analysis of the conditions found is presented with 31 tables. Of 499 patients examined, 79 per cent showed loss of hair in some region,

only 21 per cent showing none. Of the nodular cases 99 per cent were affected, of the macular cases 84, and of the nerve cases 71 per cent. The eyebrows were affected in 80 per cent, the scalp ("alopecia leprotica") in 62, the beard in 43, the axillary region in 50, and the pubis in 47 per cent. Females suffered slightly more often than males, except as regards the scalp. The proportion increased with age up to 50 years, and then decreased. [From abstract in *Trop. Dis. Bull.* 32 (1935) 544.]

SAKURAI, H. An experimental study on the penetration of lepra bacilli through the skin. *La Lepro* 6 (1935) 3. [Abstract section; original in Japanese.] 8

Three experiments were performed. (1) A suspension of leprous nodules was painted on the thigh of a leprous woman for 30 minutes. A few bacilli or globi were found in a microscopic abrasion. Sometimes they entered deeply into the corium. (2) Rabbits were cropped closely and minimal superficial wounds made, to which a leproma suspension was applied for 30 minutes. Bacilli were found in some of the wounds. (3) Rabbits were cropped without evident wound or irritation and a suspension applied. Bacilli, though in small numbers, were found within the skin, penetrating the superficial layer. It is concluded that bacilli can enter into the depth of the skin. Their presence is demonstrated by photomicrographs through either the stratum corneum or the hair follicle.—[From author's abstract.]

TAKASHIMA, S. On the reduced blood glutathione of lepers. *La Lepro* 6 (1935) 31. [Abstract section; original in Japanese.] 8

The author has measured the reduced blood glutathione (GSH) of lepers by Iwatake's method. The amount is smaller than in healthy persons. Comparing the two types of leprosy, no constant significant difference was found. There is no mutual relation between the amount of GSH and the condition of the disease as regards progression or chronicity, degree of severity, or duration, nor is there any relation to body weight. The amount decreases in periods of "erythema nodosum," neuralgia and "acuter Schub." The changes in lepers with complications are very variable, with no definite tendency toward either decrease or increase. Subcutaneous injection of chaulmoogra oil has no immediate influence, but there is a tendency to increase when injections are made continuously, and to decrease in patients who are not injected. [From author's abstract.]

UCHIDA, M. A case of leprous erythema nodosum on the episclera. *La Lepro* 6 (1935) 35. [Abstract section; original in Japanese.] 2

The author found a tumor the size of a red bean on the episclera of the left eye, 3 mm. from the limbus corneae, in a 31 year-old patient who had suffered from lepra nodosa for 15 years. There was also leprous erythema nodosum on the face and limbs. The tumor of the eye disappeared together with the erythema nodosum of the face. He believes that this tumor can be distinguished from the genuine leprous nodule or a tuberculous tumor. [From author's abstract.]

UCHIDA, M. Again the effect of gold preparations for leprous affections of the eye. *La Lepro* 6 (1935) 29. [Abstract section; original in Japanese.] 2

The author tested the effect of two gold preparations in acute leprous iridocyclitis. (1) Aurothiphenol-m-carbonsaures natrium Takeda, used in 22 cases

gave excellent effects, alleviating chiefly pain in the eyes and facial nerve (60 per cent), and congestion of the eye (40 per cent), but it gave relatively poor results as regards restoration of vision (9 per cent). This drug has little side-effect, but where there is acute exacerbation of the eye affection or bleeding of the iris in the course of the treatment one should be careful in its use. (2) Gold-olganosol (Horiba-Odagiri), used in 6 cases, gave slight and slowly appearing benefit, as it is injected subcutaneously. Neither preparation had any effect upon leprous infiltration of the cornea and sclera. [From author's summary.]

GERMOND, R. C. The modern international type classification of leprosy. *South African Med. Jour.* 10 (1936) 17-25.

After pointing out that the chief clinical manifestations of leprosy are due to (a) skin lesions and (b) nerve lesions, the author gives a searching description of the dermatological manifestations of the disease in their clinical, histological and bacteriological aspects. He describes: (1) the common leprous macule; (2) the so-called raised macule with its subtypes: papillary, inter-follicular, sub-follicular and tuberculoid; (3) diffuse leprotic infiltration, which at one stage may form a picture identical with that resulting from the coalescence of leptomacules of the interfollicular subtype, though this is only a temporary phase, because as the infiltration reaches the deeper layers of the corium the skin becomes more tensely swollen and loses its natural surface markings; the final stage is leontiasis, which is distinct from nodular leprosy though nodulation is not infrequently superadded to it; (4) the leprous nodule. Next follows an exposition of the neurological aspects of leprosy, comprising the cranial nerves (fifth and seventh), the motor system, the sensory system, and macular anaesthesia. Remarks are made on the frequency with which tactile sensation is found to be normal in macular areas, especially in the tuberculoid form.

Discussing the Leonard Wood Memorial Conference classification, the writer criticizes the incorporation of the tuberculoid variety in the neural group: "The question of the position of the tuberculoid case was not brought up at the Memorial Conference; . . . it has to be coaxed, if not forced, into the framework of the new classification; . . . the frame was not made for the picture." Reviewing Wade's reasons for classifying the tuberculoid variety in the neural group, Germond concludes that a position of stalemate has been reached, because "the arguments for or against the inclusion of tuberculoid lesions in one or the other of the two groups are equally convincing and equally irrefutable." He advocates an amendment of the Manila classification by abandoning the term "neural" and substituting for it the time-honored designation "maculo-anaesthetic": (1) Maculo-anaesthetic (M.A.), including polyneuritis and leprides, both simple and tuberculoid (i.e., all superficial cutaneous lesions), and (2) Cutaneous (Cu), including leprotic macules (i.e., all deeper macular lesions), diffuse leprotic infiltrations and leprotic nodules.

—P. D. STRACHAN.