

## CURRENT LITERATURE

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

LATAPI, F. Veinticinco años del Centro Dermatológico Pascua. [Twenty-five years of the Pascua Dermatology Center.] *Dermatología (Mexico)* **6** (1962) 237-245.

The 25-year history of the Centro Dermatológico Pascua is reviewed. The accomplishments of the institution from its founding in 1937 as an antileprosy outpatient clinic to the present time are briefly discussed, especially its role in the training of dermatoleprologists, the treatment of patients with the sulfones, the formation of the Mexican Association for Action Against Leprosy, the establishment of dermatologic consultation facilities, and, the control of patients—ideas which originated with the Centro Pascua and then spread beyond its walls to be followed by other institutions in Mexico as well as abroad.—[From author's summary.]

AGUIAR PUPO, J. Prevenção da lepromatosa pela cura dos casos incipientes do grupo indeterminado. Inspeção periódica dos focos domiciliares no ciclo da incubação de lepra. Quimioprofilaxia pelas sulfonas. [Prevention of lepromatous leprosy by the treatment of cases of the incipient indeterminate form. Periodic inspection of domiciliary foci in the incubation cycle of leprosy. Chemoprophylaxis by the sulfones.] *Rev. brasileira Leprol.* **30** (1962) 87-96.

Starting from the traditional concept established by Hansen that leprosy is a disease spread through contagion within the family, the author suggests a prophylactic system in accordance with irrefutable epidemiologic arguments and with an ecologic basis in the field of preventive medicine. The features of this system are as follows: (a) periodic inspection of domestic foci by mobile sanitary units; (b) intensive treatment of the indeterminate cases, so as to avoid their development toward the lepromatous type and to break the cycle of contagion; (c) higher efficiency and more facilities for sulfone therapy when lepromatosis is diagnosed in its initial evolution, avoiding the development of highly infective open lesions through intensive treatment; (d) abandonment of compulsory isolation, which is extremely expensive and brings about the hiding of infective cases; (e) the existing sanatoria should be maintained with an open door policy, to assist advanced cases (selective isolation advocated by the Tokyo Congress in 1958); (f) transformation of preventoria into institutions for the assistential and education of needy minors, so as to protect from the traditional stigma the children of leprosy patients; (g) integration of leprosy prophylaxis within the Public Health Service, in consequence of which specific standards would be raised and the stigmas and anathemas against leprosy and tuberculosis would be forgotten.—[From author's summary.]

MARIANO, J. Lepra tuberculóid reacional. Localização pouco comum de amiotrofias. Regressão das manifestações cutâneas após tratamento com a sulfametoxipiridazina. [Reactional tuberculoid leprosy. Uncommon localization of amyotrophy. Regression of cutaneous manifestations after treatment with sulfametoxypyridine.] *Rev. brasileira Leprol.* **30** (1962) 131-146.

Report of a case of major tuberculoid leprosy with neuritis of the forearm and

macular lesions and edema of the right hand. There was a similar lesion in the left scapular region. The case was treated with sulfametoxyypyridine for 15 days, with good results.—[From author's summary.]

DESTOMBES, P., SILVERIE, CH. R. and RAVISSE, P. Une observation de lèpre dimorphe. [A case of dimorphous leprosy.] *Bull. Soc. Path. exot.* **55** (1962) 955-958.

Report of a preputial localization of the disease. A predominant lepromatous aspect of the lesion, as well as deep tuberculoid and abacillary structures, have been observed. In such a form of leprosy [borderline], sulfone treatment induced a reactional episode, then a tuberculoid regression.—[From authors' summary.]

MONTESTRUC, E. La transformation tuberculoïde des lèpres lépromateuses. [Transformation of lepromatous to tuberculoid leprosy.] *Bull. Soc. Path. exot.* **55** (1962) 984-992.

In certain cases of leprosy there occurs, after a reactional episode, a transformation of the lepromatous type to the tuberculoid type. This transformation may be either early or delayed. The delayed reactional tuberculoid transformation seems to be a tuberculoid relapse rather than an actual transformation.—[From author's summary.] [See "reversal reaction," *THE JOURNAL* **23** (1955) 443-446 (editorial).—EDITOR.]

HARTER, P. and TRINH-THI-KIM-MONG-DON. Formes escarrotiques d'erythema nodosum leprosum et leurs relations avec le phénomène du Lucio. [Ulcerative forms of erythema nodosum leprosum and their relations with the Lucio phenomenon.] *Bull. Soc. Path. exot.* **55** (1962) 993-1024.

Reporting 11 cases of phlyctenular leprosy, the authors compare the ulcerative forms of erythema nodosum leprosum with Lucio's phenomenon. The former is observed in ENL nodules or in the elements of erythema multiforme; it includes many elements; the elective sites are the face and limbs; it is painful, with deep ulcerations; it leaves fibrous and radiating scars; and it shows a hypodermal panvasculitis. The bacilli are of deeply-located origin, degenerating, sometimes absent. The Medina-Ramirez reaction is negative. In Lucio's phenomenon the lesions, rare at the beginning, appear in roseolus macules; the face remains unaffected; pain is moderate; ulcerations are skin-deep; scars are flattened, atrophic, with pigmented borders. Bacilli are very numerous and form clusters. Necrosis of the superficial and terminal vessels is observed, and the Medina-Ramirez reaction is positive.—[From authors' summary.]

RAKHMEDOV, SH. M. [Some features of the leprosy clinical picture among the population of Kara-Kalpak ASSR.] *Trans. Lep. Inst.* **8** (1962) 6-8.

The initial macular eruptions, according to their clinical picture, are infrequently found to be difficult to attribute to a definitive type of the disease, all the more that in many cases with indeterminate leprosy normal sensitivity of the macules persists for a long period of time. In patients with lepromatous leprosy there is a diffuse superficial infiltration of the face, and manifestations on the trunk and extremities are present with the dischromias, trophic disorders, atrophies, and scars.—N. A. TORSUEV

FYODOROV, N. [On fascicular and fibrillar twitching in the muscles of leprosy patients and their diagnostic significance.] *Trans. Lep. Inst.* **8** (1962) 3-5.

Fascicular and fibrillar twitchings in leprosy are explained by lesions of the anterior horns and some cranio-cerebral nerves (facial, trigeminal) in the case of advanced disease. In leprosy patients they frequently occur in the group of facial muscles, which are

already atrophied and give reactions of degeneration. Their local excitation is lowered; mechanical irritation gives no such twitchings. All kinds of superficial skin sensations on these sites are lowered, as well as vascular secretory reactions. In spinal and truncal gliosis (syringomyelia and bulbomyelia), skin areas covering these muscles have a partial type of sensory disturbance, with preserved tactile sense but diminished pain and temperature senses, with segmentary localization. In the case of syringomyelia, they develop after manifestations of segmentary disorders of sensation. In lateral amyotrophic sclerosis, fibrillar twitches occur not only in atrophied muscles but perhaps in normal ones. These muscles are easily stimulated mechanically, by striking with the rubber hammer, and respond with fibrillar twitchings. Sensory functions are not disturbed in this disease, but there are symptoms of spinal and truncal automatism.—N. A. TORSUEV

✓ KAMIYA, M. The existence of a man placed in a limit-situation. An anthropological analysis of a paranoid case in a leprosarium. *Confinis psychiat.* (Basel) **6** (1963) 15-52.

While conducting a series of psychiatric investigations on the Aisei-en leprosarium, a patient was seen who had religious delusions based on auditory hallucinations that had awakened him from his sleep every night for the last five years. The patient, however, was well adapted to the life in the leprous community, and was liked and respected by all around him as a "queer but noble personality." His psychotic symptoms had first appeared before his entrance to the leprosarium, after a few years spent with his family in continuous and ever-growing anxiety due to a relapse of his illness which seemed to deprive him of all hope and all his *raison d'être*. The sudden appearance of his mystical hallucinations saved him from despair and suicide by giving him a new world-view and a new mission in life, and led him to an altruistic way of life that seemed almost superhuman in the eyes of his fellow patients. Nevertheless, these "voices" also led him to refuse obstinately almost all medical treatment and food, a fact which was virtually the cause of his death, which occurred a little after the author's interview. The life of this patient was studied here mainly from the phenomenologic-anthropologic point of view as a striking example of one of the ways in which man may surmount a limit-situation by changing his mode of existence, an example which seems to reveal to us "the sources of human potentialities," as K. Jaspers says.—[From author's summary.]

CURRIE, G. A clinical trial of Etisul in lepromatous leprosy. *Trans. Roy. Soc. Trop. Med. & Hyg.* **57** (1963) 196-205.

✓ In a clinical trial of Etisul in the treatment of 36 lepromatous patients, the drug was given alone or in combination with dapsone over a period of 2 years. It was concluded that: (1) During the first 6 months Etisul is as effective as, if not more effective than, dapsone [DDS] in achieving bacillus clearance and changes in bacillus morphology. (2) If Etisul is withdrawn for 6 months and then given by itself for a second 6 months, signs of bacterial regeneration are seen. This was taken as evidence that the bacteria had become resistant to Etisul. (3) In new cases, combined Etisul and dapsone produced a slight acceleration (of doubtful statistical significance) in bacillus clearance during the first 6 months. By the end of 2 years, however, the bacteriologic improvement was no greater than could be achieved by dapsone alone. (4) Etisul accelerated bacillus clearance in patients who had received dapsone for 3 years or more, and increased the proportion of nonviable bacilli in skin smears during the first 6 months. (5) When given alone, Etisul does not provoke or aggravate ENL, and does not evoke the aches and paresthesiae which often accompany dapsone treatment. (6) When given in conjunction with dapsone, Etisul greatly reduces or abolishes the unpleasant side-effects of the dapsone. The incidence of ENL is little reduced, but the lesions are less

profuse, less painful, and more transient than when dapsone is given alone. The cause of this protective action is not known. (7) Etisul is well tolerated. Side-effects consist of heat sensation in the skin particularly in the area of inunction, and hyperhidrosis. Dermatoses and dermatitis medicamentosa are rare. The odor of Etisul is willingly accepted by most patients as a small price to pay for the therapeutic benefit enjoyed.—[From author's summary and conclusions.]

BROWNE, S. G. and HOGERZEIL, L. M. Apparent resistance of *M. leprae* to "B 663." *Leprosy Rev.* **33** (1962) 185-189.

This paper is in continuation of a previous one [see *THE JOURNAL* **30** (1962) 379], and deals with the 5 patients in whom, after treatment with B 663 alone for 12 months, there was a sudden rise of the bacillus index and a reappearance of normal bacilli in skin lesions. It is believed that the occurrence of this drug resistance may be associated with the likelihood that B 663 exerts a true bactericidal action on *M. leprae*. It is also believed that the resistant bacilli remained sensitive to DDS, since in these 5 patients the bacillus index returned to the former level after 12 weeks treatment with DDS.—[From abstract by E. Muir in *Trop. Dis. Bull.* **59** (1962) 1070.]

BROWNE, S. G. and HOGERZEIL, L. M. "B 663" in the treatment of leprosy; supplementary report of the pilot trial. *Leprosy Rev.* **33** (1962) 182-184.

This is a third and final report on 3 groups of leprosy patients in whom B 663 was tried. In the first group (10 patients), after 6 months on a combination of B 663 and DDS there was improvement of 44% in the bacillus index; after a further 12 months on DDS alone there was 80% improvement. In the second group (13 patients), after 6 months on B 663 alone there was 37% improvement; following this, after DDS alone for 12 months, there was 83% improvement. In the third group (5 patients), with B 663 for 6 months and ditophal (Etisul) for the first 3 of these months, there was 27% improvement; when this was followed for 6 months by DDS alone the improvement increased to 37%. Five patients on B 663 alone suddenly showed, toward the end of the 12 months, a sudden increase of bacilli which were morphologically normal. It is believed that this drug might be useful for cases which do not tolerate DDS, but because of the expense of preparation it could not be a rival of DDS.—[From abstract by E. Muir in *Trop. Dis. Bull.* **59** (1962) 1070.]

BROWNE, S. G. and HOGERZEIL, L. M. Methimazole in the treatment of leprosy. *Leprosy Rev.* **33** (1962) 190-192.

Trials on 5 leprosy patients with methimazole gave disappointing results. The dosage of 5 mgm. thrice daily gave side effects which interrupted treatment for 6 weeks on an average. On 36 occasions the granular leucocytes were below 30%. Only 2 of the patients improved clinically, and the bacterial index corresponded with the clinical findings. The authors do not believe that further trials on a larger scale are indicated.—[From abstract by E. Muir in *Trop. Dis. Bull.* **59** (1962) 1070.]

✓ LOGINOV, V. K., LETICHEVSKAYA, A. M., AKSANOVA, R. A. and KHRIKOV, G. A. [Experience of the leprosy patients treatment with Etoxyde.] *Trans. Lep. Inst.* **8** (1962) 15-21.

Etoxyde is a Soviet preparation, n,n'-dietoxythiocarbanilid, successfully used in the treatment of tuberculosis patients. The authors used it in treatment of 24 previously untreated leprosy patients (11 lepromatous, 11 tuberculoid, and 2 indeterminate). The treatment course was 40 weeks: first week, 0.1 gm. 3 times daily; second week, 0.2 gm. 3 times daily; later, 0.3 gm. daily. Beginning from the 21st week, provided tolerance is

good, the maximum daily dose can be increased to 1.5 gm. for individual persons. Regression of the lesions was observed in 14-21 weeks in the lepromatous patients. In 8 of them, regressive phenomena with degeneration of the bacilli were ascertained in the histologic picture. The bacillus index decreased considerably, becoming negative in 3 cases. ENL eruptions occurred in 3 cases. Of the tuberculoid cases, the majority presented fairly rapid improvement, sometimes in 2-3 weeks after beginning treatment. Towards the end of the course, in 6 patients the tuberculoid histology had changed to lymphocytic infiltration. In three patients, weakly positive Mitsuda reactions became positive. Considerable regression of macular lesions in patients with indeterminate leprosy was also observed. Some of the patients treated with Etoxyde had signs of hypochromic anemia and decrease in the number of white blood cells.—N. A. TORSUEV

TORSUEV, N. A. and POGORELOV, V. N. [Concerning the question of sulfonic dermatitis.] Trans. Lep. Inst. **8** (1962) 22-29.

After a review of the literature on dermatitis in patients treated with the sulfones, the authors describe four cases of contact dermatitis in medical workers who made intramuscular injections of 50% solution of [Sulphetrone] to leprosy patients. In none did the dermatitis make its appearance until after 2-3 weeks or a few months of exposure. It began with redness and edema of the skin of the wrists and the flexor surfaces of the forearms, with itching and burning; on the next day there were lesions on the face, and conjunctivitis developed. Against this background there appeared small papules and vesicles, with crusting. There was rapid spreading of lesions on the face, the upper and lower extremities, beginning on the latter from the feet and reaching the knees. There were painful fissures in the interdigital folds of the fingers. Slowly, lesion areas came to be infiltrated and the skin pattern to be sharply defined. After discontinuance of contact with the drug, and under the influence of desensitizing therapy and topical symptomatic treatment, all symptoms of dermatitis accompanied with desquamation vanished without leaving any trace in 1-2 weeks. Resumption of work in the procedures' room gave appearance to the same dermatitis in 22 days. Epicutaneous tests with 50% solution of Sulphetrone gave intense erythema formation of vesicles, edema and itching.—N. A. TORSUEV

PRASAD, B. N. *Alectra parasitica* A. Rich (variety *Chitrakutensis*). An indigenous drug in the treatment of leprosy in Bihar; a preliminary observation. Leprosy Rev. **33** (1962) 207-209.

An account is given of clinical trials in leprosy of a powder obtained from an indigenous Indian plant, *Alectra parasitica*. It was given in tablet form to 10 patients of both types, lepromatous and tuberculoid, the dose being 4 gm. daily. Larger doses were not tolerated. The only side effect was loose bowel motions. The tuberculoid patients were relieved in 6 months, areas of anesthesia diminishing and the nerves becoming less thickened. In lepromatous patients, bacilli became reduced from 4+ to 1+ within 6 months. Further investigation is being made. The plant is described as a parasite growing on the roots of *Vitex nigundo*.—[From abstract by E. Muir in *Trop. Dis. Bull.* **59** (1962) 1070-1071.]

REGINATO, L. E., BELDA, W., FAGGIN, J. E., DE ALMEIDA, N. G., CANTON, P., CRUZ, E., MENDES, F. C. A epineurectomia do tibial posterior no tratamento do mal perfurante plantar de origem leprosa. [Epineurectomy of the posterior tibial nerve in the treatment of plantar ulcers of leprosy origin.] Rev. brasileira Leprol. **30** (1962) 103-110.

The authors employ epineurectomy of the posterior tibial nerve as a basic means for the treatment of the plantar ulcers of leprosy, and to accelerate the recovery they advise



extending simultaneously the operation to the lateral popliteal nerve, which may also be affected. They have realized four interventions of this kind, two of them being complemented at the same time by epineurectomy of the lateral and the median branches of the sciatic nerve. The results in the first of these cases were not uncomplicated, but those in the other three cases—in which there was no other kind of treatment, not even absolute rest—there was rapid cure of the plantar ulcer, followed by a return of sensation, improvement of the blood supply, and better walking conditions. These satisfactory results have persisted for more than 6 months. In performing the operation the nerve is reached through a J-shaped incision behind the malleolar furrow, following a line drawn between it and the Achilles tendon. This incision is 15-16 cm. long, beginning at the lower third of the leg and reaching the calcaneus channel. As the aponeurotic plane is opened, the epineurectomy is done and its interfascicularis adhesion is removed. When the surgical wound is being closed, the aponeurosis should not be comprised in the suture, but should remain open.—[From authors' summary.]

✓ REGINATO, L. S. and DE MELLO, P. H. O enxerto dérmico na correção das deformidades amiotróficas do dorso da mão. [The dermal graft in the correction of amyotrophic deformities of the hand.] *Bol. Serv. Nac. Lepra* **20** (1961) 141-154.

—, Ensaio de correção das deformidades amiotróficas do dorso da mão por um novo método: enxertos dérmicos. [Attempt at correction of amyotrophic deformities of the dorsum of the hand by a new method: skin grafts.] *Rev. brasileira Leprol.* **30** (1962) 125-130.

The authors review, historically and critically, the methods of plastic restoration of the contour of the dorsum of the hand after leprosy amyotrophy of the interosseous muscles. Concluding that no permanent or satisfactory results had been obtained by any of the techniques heretofore employed, they have tried a new method of surgical correction of these deformities. This procedure consists in autogenous free dermal graft of the intermetacarpal spaces. It was applied to a tuberculoid patient who had been definitely discharged fifteen years before, and who returned asking for the correction of his most unsightly stigma, deep wasting of the interosseous muscles. The intermetacarpal spaces were tunnelled through hidden incisions in the interdigital webs, and then filled out with dermal grafts of proper shape and thickness, held with transfixing nylon sutures. Immobilization with wood [sic] pads was maintained for twenty days. The donor area (abdomen wall) was grafted with its own skin after the removal of the dermal transplant. The cosmetic results after one year appear very encouraging.—[From authors' summary.]

✓ BEIGUELMAN, B. Reação gustativa a fenil-tio-carbamida (PTC) e lepra. [Taste reaction to phenylthiocarbamide (PTC) in leprosy. *Rev. brasileira Leprol.* **30** (1962) 111-124.]

The incidence of nontasters to phenylthiocarbamide (PTC) was determined in 1,699 patients with both polar forms of the disease, and no significant difference was found with respect to the type. However, when the incidence of nontasters among the whole sample (19.5%) was compared with data obtained among healthy people, the value among the leprosy patients as a whole was found to be significantly the lower. An increase of tasters among leprosy patients is regarded as due to natural selection. Data on thyroid disease, the effect of antithyroid drugs, cyclic changes in hormonal equilibrium, geographic distribution, and racial variations of high incidence of leprosy and tuberculosis, are discussed in connection with PTC taste ability. A hypothesis for explanation of the polymorphism for taste sensitivity and high incidence of leprosy in some regions is proposed.—[From author's summary.]

PRABHAKARAN, K. and BRAGANCA, B. M. Glutamic acid decarboxylase activity of *Mycobacterium leprae* and occurrence of  $\gamma$ -amino butyric acid in skin lesions of leprosy. *Nature* (London) **196** (1962) 589-590.

This report is a part of a study of the metabolism of *M. leprae*, using concentrates of the bacilli separated from unheated (but frozen) nodules. The cell debris was separated from the bacilli by differential centrifuging. Normal skin and certain other mycobacteria were used as control materials. The pattern of amino acids in chromatograms after determining the decarboxylase activity of the leprosy bacilli on L-glutamic acid showed, besides those found in normal skin, a spot (X) having the same *R<sub>f</sub>* as  $\gamma$ -amino butyric acid (GABA). It is conceivable that GABA detected in leprosy skin lesions arises through the decarboxylase activity of *M. leprae* on skin glutamic acid.—H. W. W.

KOSOLAPKINA, L. I. [On metachromatic substances in leprosy lesions of skin.] *Trans. Lep. Inst.* **8** (1962) 61-66.

In fresh lepromatous lesions of the skin, a chromotropic substance was found localized in the papillary layer, near the hair follicles and around the vessels. In cases with marked lesions, it exists in places where the lepra cells and bacilli have accumulated. There is a marked increase of the chromotropic substance during the periods of lepra reactions. This substance is probably formed from protein exudate impregnating the interstitial substance. In lesions of tuberculoid and indeterminate leprosy, the chromatic substance is distributed mainly under the epidermis and about the blood vessels its content in infiltrates is rather low. The chromotropic substance, being found in the basic matter of connective tissue and in cellular formation, is capable of turning into fibrillary structure which further transform into collagen fibers. Perhaps, sclerosis of connective tissue can develop during regressive process in leprosy lesions. The newly formed collagen fibers forming from argerophilic fibers lose their chromotropic properties and transform into ripen collagenic fibers, and the latter spreads in growing and favors the ousting of lepromatous granulomas.—N. A. TORSUEV

TUMA, M., SILVA, C. and DE OLIVEIRA, N. F. Algumas considerações acerca de preparo e padronização de lepromina. [Certain considerations regarding the preparation and dosage of lepromin.] *Bol. Serv. Nac. Lepra* **20** (1961) 165-174.

The authors comment on the techniques of standardization of lepromin, as well as on the best way to obtain the raw material for production of the antigen, which is becoming more and more scarce. Concerning the latter, the authors discuss the mechanical trituration of lepromatous tissues, dilution of the lepromin, the use of visceral lepromin, and also a method combining the usual techniques of Hayashi and Dharmendra, now used in the Instituto de Leprologia. The authors conclude that the problem of standardization of the lepromin antigen has not yet been satisfactorily solved, and they describe the results with techniques which include bacterial counts, the weighing of chloroform extracts, and Hanks' technique.—[From authors' summary.]

AZULAY, R. D. Lepromino-reação em coletividades indígenas leprosas. [Lepromin reaction in group of people free from leprosy.] *Rev. brasileira Leprol.* **30** (1962) 97-102.

The author has performed the lepromin test on the Carajás Indians who, for more than four centuries, have lived isolated from the civilized world and, consequently, have not had any previous contact with either *M. leprae* or *M. tuberculosis*. Tests were made of 133 Indians, only 48 of whom (26 males and 22 females) showed up for the late reading. The findings were as follows: (a) 7 cases (14.6%) were positive; (b) none of the 16 persons of the 0-20 years age group was positive; (c) all of the positive cases were

adults between 21 and 28 years of age, this representing an adult rate of 21.9% (7 positives in 32 tested); (d) there was no significant difference in reactivity between males and females; (e) the positive reactions were 1+ in 6 cases and 2+ in 1 case. In other words, the Indians below 0-20 years of age reacted as do the new-borns in civilized communities, and those above 20 reacted as do the new-borns in civilized communities, and those above 20 reacted as do children of the 0-5 years age group. This special way of reactivity of the Indians is thought to be due to differences in the exposures, and to natural selection. The Indian population is, nowadays, in the same position as the present civilized population would have been centuries ago. The high anergic band of a population without any contact with civilized people must decrease gradually, due to exposure to other antigens and to natural selection.—[From author's summary.]

KAY, K. and RIEKE, W. O. Tuberculin hypersensitivity: Studies with radioactive antigen and mononuclear cells. *Science* **139** (1963) 487-489.

The type and fate of mononuclear cells of guinea-pigs hypersensitive to tuberculin were studied by means of purified protein derivative labeled with  $I^{125}$  and mononuclear cells labeled with tritiated thymidine. The labeled protein derivative was taken up *in vitro* by lymphocytes and neutrophils of animals regardless of their state of reactivity to tuberculin, but it was bound more frequently by the cells of sensitized animals. Passive transfer of tuberculin hypersensitivity by means of lymphocytes labeled with tritiated thymidine indicated that significant numbers of radioactive cells migrated to the site where the skin was tested with purified protein derivative only when the test was made immediately after transfusion. Although skin reactions from tests made with PPD 24 hours after transfusion were comparable to those from tests made immediately, the number of labeled cells at the sites of the later tests was not consistently larger than it was in controls. Thus, transfused tuberculin-sensitive cells are neither always attracted to the sites of the test with PPD nor are they required in large numbers at the site for a positive reaction to develop.—[From authors' abstract.]

BASACA-SEVILLA, V. Serological reactions among lepers. *Philippine J. Sci.* **90** (1961) 355-360.

Sera from 719 tuberculoid and 100 lepromatous cases of leprosy were subjected to the Kahn, VDRL and Kolmer tests (with certain modifications, especially in the antigens employed). Of the tuberculoid cases, 8.62% reacted with Kahn, 3.19% with VDRL, and 2.64% with Kolmer. Of the lepromatous cases, 71% reacted with Kahn, 6% with VDRL, and 3% with Kolmer. It was brought out that the type of leprosy affects the seroactivity to the Kahn test. Since in both types the lowest reactivities were the VDRL and Kolmer tests, these two are recommended for use in the detection of syphilis among leprosy patients.—[From author's summary.]

TREO, M. M., SILVA, C. and DE OLIVEIRA, N. F. Nota sobre tentativas de cultivo de *Mycobacterium leprae* em diferentes tipos de células cultivadas "in vitro." [Attempts to cultivate *M. leprae* in different types of cells cultivated *in vitro*.] *Bol. Serv. Nac. Lepra* **20** (1961) 155-164.

The bacillus is phagocytized by a majority of the cells that have been tested. The phagocytized bacilli have remained inside the cells like foreign bodies, not actively interfering with the metabolism of the cells. The cells were kept alive for a long time, in comparison with what happens to those inoculated with viruses, which usually interfere actively with the metabolism of the cells, organizing it in their favor and resulting in the death of the cell. It seems as though there was an impermeable membrane which avoids exchanges between the bacilli and the host cells.—[From authors' conclusions.]



REES, R. J. W. and GARBUTT, E. W. Studies on *Mycobacterium lepraemurium* in tissue culture. I. Multiplication and growth characteristics in cultures of rat fibroblasts. *British J. Exper. Path.* **43** (1962) 221-235.

In this further report on the successful continuous multiplication of *M. leprae murium* in the 14pf line of rat fibroblasts, the authors describe some of the growth characteristics of the bacilli. Originally, a bottle of fibroblasts was infected with  $2.6 \times 10^9$  bacilli and on the following day the cells were trypsinized. The cells were then transferred to half test-tubes and incubated at 34°C. Every 10th day the medium was changed, and after the cells were twice subcultured to fresh tubes, at 21 and 32 days' of incubation, respectively, the cells were transferred to flasks. At each of these subcultures 50-86% of cells were retained for transfer, and the total number of bacilli present was determined. This culture has now been maintained for over 500 days, and during the culture periods of 425 and 477 days the cumulative increases in the bacilli were  $9.3 \times 10^8$  and  $2.2 \times 10^9$  fold, respectively, which figures five mean generation times of 14.2 and 15.3 days. (These times are similar to those found in rats and mice.) There was no evidence of a lag-phase in multiplication in the primary culture, although there apparently is one when this bacillus is injected into rats. The appearances of the bacilli by electron microscopy indicated that 10% of the cells were degenerate at the beginning of the experiment, and at no time did the proportion of dead bacilli exceed 20%. The highest proportion of degenerate bacilli occurred at about the 328th culture day, when the host cells were overcrowded with bacilli. Inoculation of some of the bacilli into mice at intervals from days 154 to 417 showed that the bacilli were still viable and pathogenic. Attempts to grow the bacilli on artificial media on days 154, 206 and 308, however, or in cell-free tissue culture medium at day 360, were unsuccessful. Mycobacterial antigens were detectable by the agar double-diffusion technique, with serum from rabbits immunized with *M. leprae murium* as the test serum, in concentrated filtrates of the culture from day 174. On day 206, the bacilli were successfully transferred to fresh cells by inoculating washed bacilli freed from the original culture by ultrasonic vibration, and on day 328 by adding fresh cells to the culture.—[From abstract by S. R. M. Bushby in *Trop. Dis. Bull.* **59** (1962) 1072-1073.]

HART, P. D'A., REES, R. J. W. and VALENTINE, R. C. Isoniazid resistant and dependent strains of *Mycobacterium lepraemurium* studied *in vivo* and *in vitro*. *J. Path. Bact.* **84** (1962) 105-111.

In this study the authors took advantage of the morphologic changes that can be detected in dead mycobacteria by electron microscopy, and of the elongation that occurs *in vitro* with viable rat leprosy bacilli when incubated in a favorable medium. The proportion of degenerate bacilli in smears from the livers of mice increased from about 10% to 90% during the early stages with 40-50 µgm. isoniazid per gm., started 4 months after infection; in the later stages of treatment, when the organisms were apparently resistant to this drug, the proportion decreased to about 40%. The resistance of the bacilli to the drug was confirmed by showing that treatment with isoniazid caused no increase in the degenerate bacilli when the animals were infected with bacilli that had been 3 times serially passaged through animals treated with isoniazid, and that higher concentrations of isoniazid (1-25 µgm./cc.) were necessary to prevent the elongation of these bacilli than the amount (0.2-1.0 µgm./cc.) that inhibited these changes in normal bacilli. In mice infected with the resistant bacilli, there was a greater increase in the number of bacilli in the livers during treatment with isoniazid compared with that which occurred in untreated animals, and the authors suggest that some of the bacilli were isoniazid-dependent.—[From abstract by S. R. W. Bushby in *Trop. Dis. Bull.* **59** (1962) 1167.]

RESSANG, A. A. and TITUS, I. A case report of lepra bovina in a Holstein-Friesian cow. *Communicationes Veterinariae* (Bogor, Indonesia) **4** (1960) 47-50.

A description is given of the first case of bovine leprosy ever found in a Holstein-Friesian cow. The leprosy nodules were mainly located in the lower part of the left hind- and right front-leg. The affection did not trouble the animal's health. The mode of infection could not be disclosed. A similar infection in an Ongole cow has been described [Kraneveld and Roza]. Leprosy in the water buffalo and in the bovine has been found only in Indonesia until the present day.—[Authors' summary.]

TORSUEV, N. A. [Leprosy-like diseases in animals.] *Trans. Lep. Inst.* **8** (1962) 81-87.

This article deals with a detailed survey of the literature with respect to the problem of leprosy-like diseases in fishes, reptiles, birds, cats, dogs, cattle, marsupials, nanny-goats, buffaloes, asses, sows, sheep, mice and minks. Although these diseases are due to acid-resistant bacteria, the author considers them to have nothing to do with leprosy in human beings. Forty-two literary sources are listed.—N. A. TORSUEV

GANGADHARAM, P. R. J., COHN, M. L., DAVIS, C. L. and MIDDLEBROOK, G. Infectivity and pathogenicity of Indian and British strains of tubercle bacilli studied by aerogenic infection of guinea pigs. *American Rev. Resp. Dis.* **87** (1963) 200-205.

The results of a study of the multiplication and dissemination of 10 Indian and 2 British strains of *M. tuberculosis* by means of aerogenic infection of guinea-pigs have permitted classification of strains of tubercle bacilli with various degrees of infectivity and pathogenicity. Analysis of the results suggests that it may be possible to characterize a population of tubercle bacilli with regard to infectivity and pathogenicity after an experimental infection period of only three weeks.—[From authors' summary.]

SPICKETT, S. G. Genetics and the epidemiology of leprosy. II. The form of leprosy. *Leprosy Rev.* **33** (1962) 173-181.

Expatriate races show forms of leprosy more similar to those prevailing in their own native lands than to those among the natives of the land in which they live. Different groups in multiracial societies vary in the ratios of the different forms of leprosy and in their detailed manifestations. Quantitative comparison between populations of the frequency of different forms of leprosy varies according to the methods of classification used. Populations are polymorphic with regard to their reactions to lepromin, and this may indicate genetic variation. Affected individuals within families tend to suffer from similar forms of leprosy. The evidence suggests that there is a genetic system in man which affects the form that leprosy may take. There is a possibility that genetic variability in *M. leprae* itself influences the manifestations of leprosy.—[From author's summary in *Trop. Dis. Bull.* **59** (1962) 1067.]