

Abstracts

The following Abstracts are reprinted from *Tropical Diseases Bulletin*, Volume 71, by courtesy of The Director, Bureau of Hygiene and Tropical Diseases.

1. TALWAR, G. P., KRISHNAN, A. D. & GUPTA, P. D. **Quantitative evaluation of the progress of intracellular infection in vitro: incorporation of ^3H -thymidine into deoxyribonucleic acid by *Mycobacterium leprae* in cultivated blood monocytes.** *Infection & Immunity*, 1974, v. 9, No. 1, 187-91.

"Growth of intracellular parasites such as *Mycobacterium leprae* in macrophages derived from human peripheral blood monocytes can be assessed by selective incorporation of [*methyl*- ^3H] thymidine into deoxyribonucleic acid of the bacterial cells. The radioactive precursor is not taken up by the host cells, and evidence has been presented for its incorporation into bacteria. The procedure is sensitive, reproducible, and highly quantitative."

2. SUGIYAMA, K. & IZUMI, S. **Electron microscopic study of the Morphologic Index.** *Int. J. Lepr.*, 1973, v. 41, No. 1, 1-6.

"A new method of examining the Morphologic Index of leprosy bacilli by electron microscopy, using the microsuspension method, is reported. The Morphologic Index determinations of 28 lepromatous and two borderline-lepromatous cases were determined by comparative light and electron microscopy. In almost all cases the electron microscope gave higher values than the light microscope. A correlation between the two kinds of M.I. can be expressed by the formula: $\text{E.M.-M.I. (\%)} = (\text{L.M.-M.I.}) \times 4.38 - 8.08$. By using this equation, it is possible to estimate more reliable M.I. value from the data obtained by the light microscope and then it is possible to more precisely evaluate the early therapeutic effect of antileprosy drugs than by use of the light microscopy values alone. It was also found that M.I. negative values by light microscopy may be positive by electron microscopy."

3. LOUIE, J. S., KORANSKY, J. R. & COHEN, A. H. **Lepra cells in synovial fluid of a patient with erythema nodosum leprosum.** *New Engl. J. Med.*, 1973, v. 289, No. 26, 1410-11.

Leprosy bacilli were found free as well as in foamy macrophages and neutrophils of the synovial fluid of a patient with polyarthritis associated with erythema nodosum leprosum. The authors give reasons for thinking that the organisms were not contaminants from the skin.

D. S. Ridley

4. DRUTZ, D. J., CLINE, M. J. & LEVY, L. **Leukocyte antimicrobial function in patients with leprosy.** *J. Clin. Invest.*, 1974, v. 53, No. 2, 380-86.

"Patients with lepromatous leprosy are unresponsive to lepromin skin-test material and possess defective lymphocyte function *in vitro*, including impaired mitogenesis in response to antigens of *Mycobacterium leprae*. It has been claimed that their macrophages cannot digest *Myco*."

leprae in vitro; such a defect could explain both lepromin nonreactivity and impaired lymphocyte function on the basis of failure of the afferent limb of the immune response i.e. defective macrophage 'processing' of *Myco. leprae*.

"The present studies indicate that macrophages from patients with lepromatous and tuberculoid leprosy and from normal donors do not differ in their ability to digest heat-killed *Myco. leprae in vitro*, or in their ability to sustain the viability of *Myco. leprae* in tissue culture; that monocytes, macrophages, and polymorphonuclear leukocytes of leprosy patients and controls possess equivalent microbicidal activity against *Listeria monocytogenes*, *Escherichia coli*, *Proteus vulgaris*, *Staphylococcus aureus*, and *Candida albicans*; and that polymorphonuclear leukocytes from patients with lepromatous leprosy ingest bacteria normally. Whether the basic immune defect leading to the development of lepromatous leprosy resides in the lymphocyte or in the macrophage remains to be determined. However, the present study shows that phagocytic cells from patients with either principal form of leprosy function normally in a variety of sophisticated tests of antimicrobial function."

5. BULLOCK, W. E., CALLERAME, M. L. & PANNER, B. J. Immunohistologic alteration of skin and ultrastructural changes of glomerular basement membranes in leprosy. *Am. J. Trop. Med. Hyg.*, 1974, v. 23, No. 1, 81-6.

"Immunofluorescent 'banding' of the dermal-epidermal junction of skin was demonstrated in 3 of 7 patients with lepromatous leprosy by direct immunofluorescence microscopy. The 'banding' was caused specifically by deposition of IgM. Within the glomeruli of one patient, dense, amorphous deposits in subendothelial and intramembranous position were also demonstrated by electron microscopy. These preliminary findings suggest that lepromatous leprosy may be associated with immunologic disturbances of both skin and glomerular basement membranes."

6. GRABOSZ, J. A. J., DERBLOM, H. & GODAL, T. IgE serum levels in leprosy. *Acta Path. Microbiol. Scand., Sect. B*, 1973, v. 81, No. 6, 806-7.

Forty-nine adult patients with lepromatous leprosy, 52 with tuberculoid leprosy, 19 healthy household contacts of patients with leprosy and 19 healthy Ethiopian members of staff were studied. The median serum concentrations of IgE were respectively 2700 units/ml, 1690, 1830, and 668 units/ml, the last group being statistically lower than the others. The difference between the two control groups is probably due to different exposures to intestinal parasites.

C. S. Goodwin

7. MALCHOW-MØLLER, A. A three-year leprosy control programme in Tamil Nadu (India). *Dan. Med. Bull.*, 1973, v. 20, No. 6, 198-203.

Senior Danish medical students have co-operated in the organization of a programme of leprosy treatment/control in a circumscribed area of 746 km² in Tamil Nadu, India, based on the central hospital in Kumbakonam. The prevalence of leprosy in the population (estimated at about 300,000) is approximately 2.5%, giving a probable total of 7500 patients suffering from leprosy.

Following closely the principles laid down by the WHO, the team employed trained paramedical workers for the routine surveys, contact examination, absentee tracing and weekly leprosy clinics. Adequate laboratory facilities were provided for each of the 12 zones in the care of each paramedical worker.

Simple drug regimens of dapsone, given orally in a standard fashion, were applied throughout the area and for all kinds of leprosy. *Erythema nodosum leprosum*, lesion

exacerbation and neuritis, if not responding to roadside treatment, necessitated removal to the central hospital for a time.

Self-reporting on suspicion provided the greatest number of patients with leprosy (25% of those reporting), while routine whole-population surveys were the least productive (only 1%).

Health education and propaganda have gone hand in hand with determined efforts to discover all those needing treatment for leprosy; over 90% of patients were detected because of health education or through mass surveys. Preliminary findings among schoolchildren indicate an annual incidence of 5 per thousand. So far, 4501 patients have been placed on treatment, of whom 161 have been declared inactive (on WHO criteria).

Reconstructive surgery was available for patients with remediable deformity.

S. G. Browne

8. JOB, C. K. Culture study of *Myco. leprae* in mice in tropics with and without controlled environmental air temperature. *Indian J. Med Res.*, 1973, v. 61, No. 10, 1485-8.

"In 5 experiments, multiplication of *Myco. leprae* in the footpads of mice kept in ordinary room temperature in South India varying from 18°C to 38°C was compared with that in mice kept in air conditioned rooms with constant temperature of 22°C. Although bacillary growth was found in the footpads of mice kept in both conditions, the growth was inconsistent and the number of bacilli harvested was significantly lower in animals kept in non-air conditioned rooms. It is recommended that the mice used for the culture of *Myco. leprae* especially in tropical countries be kept in air conditioned rooms at 20-22°C to obtain consistent and maximum possible multiplication."

9. MERKLEN, F. P., PENNEC, J. & HORNER, C. Raréfaction, mais possibilité persistante, de lèpres contractées en France métropolitaine. (The rarity of endemic leprosy in France, but its possible persistence.) *Bull. Acad. Natn. Méd.*, 1973, v. 157, No. 6, 439-43.

The authors provide a useful summary of the numbers of cases of leprosy arising in metropolitan France for each decade since 1923. The totals were 13 and 12 for the first 2 decades, but have been 5 for each of the last three. Despite the influx during recent years of leprosy sufferers from abroad (especially the West Indies), the numbers of infections apparently contracted in France itself show a progressive decline. It is, of course, difficult to establish without doubt that patients who develop the first signs of leprosy while living in France did not actually become infected during a period of military service overseas.

In 1973, 4 new cases were reported, 3 from the neighbourhood of Lyons and one from Nice. The authors indicate that indigenous foci of leprosy in France, quite unknown and perhaps unsuspected, may exist, and utter a salutary warning that doctors should be made aware of this possibility.

S. G. Browne

10. TÉMIME, P. & PRIVAT, Y. Un cas de lèpre apparemment contractée en France. (A case of leprosy apparently contracted in France.) *Bull. Acad. Natn. Méd.*, 1973, v. 157, No. 6, 444-5.

A gardener aged 47 years presented with signs of severe iridocyclitis, which was associated with unsuspected advanced lepromatous leprosy with all the classical signs. The nasal discharge contained numerous leprosy bacilli, as did the skin.

The interest lies in the source of contagion. The patient had never left France, and had had no known contact with anybody from abroad. None of his family has leprosy. The question is raised whether there might be a persistent focus of leprosy in the vicinity of Nice, and the suggestion is tentatively made that he might possibly have been infected through the intermediary of one of the exotic plants, which he was in the habit of handling in the course of his work.

S. G. Browne

11. SÉRIE, C., SABOURIN, G., DUJEU, G. & MERCIER, J. Considerations sur l'encemie hansénienne en Guyane Française. (Features of the leprosy situation in French Guiana.) *Bull. Soc. Path. Exot.*, 1973, v. 66, No. 3, 371-80.

This intensive study of the small population of French Guiana (about 50,000 people) discloses facts that are of general epidemiological interest. All the 957 patients at present under treatment for leprosy are seen twice annually by a doctor, and regular case-finding surveys are conducted at the schools (which are attended by 95% of the children of school age).

Despite an excellent coverage of the whole population since 1952, and the vaccination of all children with BCG since 1961, very little impression appears to have been made on the situation. The numbers of new notifications year by year remain unchanged; the male : female ratio stands at 62 : 38; the age incidence is the same, and so is the distribution of the various types of leprosy.

Some 557 patients have been declared disease-free during this period, and a further 267 are still under observation, "disease arrested".

A special section of the paper is concerned with leprosy in children. Apparently, no difference in incidence was noted between children in households where a parent had leprosy, and those whose parents were free from the disease, and no differences were noted in the proportions of the forms of leprosy in the 2 groups.

According to the authors, other factors besides the presence of the infective agent in the vicinity must be at work; these may well be concerned with the "soil" rather than with the "seed".

S. G. Browne

12. NAVALKAR, R. G. Immunologic studies on leprosy. 2. Antigenic studies of *Mycobacterium leprae*. *Ztschr. Tropenmed. Parasit.*, 1973, v. 24, No. 1, 66-72.

"Antigenic mosaic of *Myco. leprae* was determined first by analysing sera from leprosy patients in various stages of infection by the use of antigenic preparations derived from a number of mycobacterial species. These studies led to the detection of two serologically distinct types of antibodies and the antigens reacting with these antibodies were found to be shared by a number of other mycobacterial species. Further extension of these observations was carried out by preparing antiserum against tissue separated *Myco. leprae*. The analysis of the *Myco leprae*-anti-*Myco. leprae* system showed the presence of 5 detectable antigens, two of which were the same as those seen in earlier studies with the sera. Chromatographic separation of the *Myco. leprae* antigens resulted in obtaining a number of fractions, some of which gave immuno-precipitates when tested against the anti-leprae serum. These fractions were tested in animals sensitized with *Myco. leprae* and other mycobacteria to determine their hypersensitivity eliciting potential. Preliminary results indicate that a few of the fractions were able to elicit hypersensitivity in the homologously sensitized animals. These studies are in progress for further confirmation of the specificity of the reactions noted."

13. WALL, J. R. & WRIGHT, D. J. M. Antibodies against testicular germinal cells in lepromatous leprosy. *Clin. Exp. Immunol.*, 1974, v. 17, No. 1, 51-9.

"Testicular germinal cell antibodies were found in 44 out of the 59 patients with lepromatous leprosy and in 4 out of 10 patients with tuberculoid disease. A similar pattern was found in 12 out of 262 control patients and normal subjects.

"The antibody was found to be of the IgG class and 40 out of 49 of these antibodies were shown to be complement fixing. Spermatozoal antibodies were detected in 12 patients, but no ovarian antibodies were found in any specimen. There was no close correlation between *erythema nodosum leprosum* (ENL) and testicular antibodies. It was found that the characteristic of the testicular antibody in leprosy was its ability to be absorbed by

Mycobacterium BCG suspension suggesting that this is another antibody induced by infection. A similar fluorescent pattern was seen in some patients who did not have leprosy, but in these cases it could not be abolished with BCG. It is concluded that autoimmunity may be one of the factors involved in the pathogenesis of orchitis in leprosy."

14. DUTTA, R. N. & SAHA, K. **Australia antigen and lepromatous leprosy: its incidence, persistence and relation to cell mediated immunity.** *Indian J. Med. Res.*, 1973, v. 61, No. 12, 1758-65.

Hepatitis B antigen was detected by counter-immunoelectrophoresis in the serum of 2 (2.08%) out of 96 military personnel with leprosy of all types and in 3 (5.35%) out of 56 civilian patients with leprosy. When the cases of lepromatous leprosy and borderline lepromatous cases were grouped together, the antigen was detected in 1 (3.3%) of 30 army patients and in 3 (8.1%) of 37 civilian patients. The respective prevalence of the antigen among army and civilian voluntary blood donors was 2.88% and 2.67%.

It is considered that the greater frequency of hepatitis B antigen in patients with lepromatous leprosy is due mainly to impairment of the cell-mediated immune response in this form of the disease.

It is also noted that the number of tuberculoid forms of leprosy was much higher in the army group (59 out of a total of 96 cases) and it is suggested that the better nutritional status and physical condition may be factors in resisting the development of lepromatous variety of the infection.

A. J. Zuckerman

15. PATTYN, S. R. & SAERENS, E. J. **Results of intermittent treatment with dapsone and rifampicin of mice inoculated with *Mycobacterium leprae*.** *Ann. Soc. Belg. Méd. Trop.*, 1974, v. 54, No. 1, 35-41.

"Dapsone administered continuously in the food at a 0.01% concentration during 6 months was bactericidal for *Myco. leprae* in the mouse footpad test. When the same dose was given once a week or less frequently the effect was bacteriostatic. The MID for once weekly regimens of rifampicin is situated between 0.125 mg and 0.062 mg. In a dose of 1.5 mg once a week and once every 2 weeks this drug had a bactericidal effect. A dose of 0.5 mg once a week and once every 2 and 4 weeks was bactericidal. A dose of 0.25 mg was bactericidal when given once a week and once every 4 weeks, bacteriostatic only when given once every 8 weeks.

Such experiments should provide information on the possibility to use low doses of rifampicin as an introductory treatment in lepromatous leprosy."

16. AXELSEN, N. H., HARBOE, M., CLOSS, O. & GODAL, T. **BCG antibody profiles in tuberculoid and lepromatous leprosy.** *Infection & Immunity*, 1974, v. 9, No 5, 952-8.

"In sera from 12 patients with polar tuberculoid leprosy, 12 with subpolar tuberculoid leprosy, and 16 with lepromatous leprosy were demonstrated a total number of 125 anti-BCG precipitins by means of crossed immunoelectrophoresis with intermediate gel. Up to 14 different precipitins were found in individual sera, and the complexity in antibody response was higher than previously realized. The specificity of 69% of the antibodies was defined, and these antibodies were titrated in three arbitrary titer units. A highly significant difference ($P < 0.002$) was found in antibody response between the tuberculoid and the lepromatous group. Due to simplicity, sensitivity, and high resolution, the method used is a promising tool for providing exact data to be used as guidelines for purification of important individual mycobacterial antigens. The need for reference antisera is emphasized."

17. GELBER, R. H., DRUTZ, D. J., EPSTEIN, W. V. & FASAL, P. **Clinical correlates of C1q-precipitating substances in the sera of patients with leprosy.** *Am. J. Trop. Med. Hyg.*, 1974, v. 23, No. 3, 471-5.

"*Erythema nodosum leprosum* (ENL) is often interpreted as a manifestation of immune-complex deposition in patients with lepromatous leprosy. We used a C1q precipitin assay technique to demonstrate directly the presence of immune complexes in sera from patients with leprosy. Seven of 15 patients with ENL had serum C1q precipitin activity; serial tests often showed continued C1q precipitin activity. Only 3 of 27 lepromatous patients without ENL had positive tests; multiple positive tests were not seen in these patients. Single positive tests were encountered in patients with borderline (dimorphous) leprosy, especially those with downgrading reactions. There was no relationship between C1q precipitin activity and serum levels of C3, CH₅₀, or cryoglobulins. Single positive C1q precipitin tests may occur sporadically in patients with leprosy, but repeatedly positive tests are closely associated with occurrence of ENL, supporting the concept that ENL is a complication related to the presence of circulating immune complexes."

18. PATTYN, S. R., ROLLIER, R., SAERENS, E. J. & ROLLIER, M. R. **Initial three months continuous and intermittent therapy in lepromatous leprosy. A controlled clinical trial. Preliminary data.** *Ann. Soc. Belg. Méd. Trop.*, 1974, v. 54, No. 1, 43-9.

The results of intermittent treatment with rifampicin of mice infected in the footpad with *Mycobacterium leprae* (this *Trop. Dis. Bull.*, 1974, v. 71, abstr. 1518) suggested that this was a useful initial treatment of leprosy. Fifty-four adults, previously untreated, with lepromatous or borderline lepromatous leprosy were randomly allocated to one of 4 treatment schedules: dapsone 100 mg daily (D100D), rifampicin 450 mg daily (R450D), rifampicin 900 mg weekly (R900W), and clofazimine 300 mg weekly (C300W). Treatment was given for 3 months on an in-patient basis. Following this initial period, patients were discharged and further treated with dapsone 100 mg daily. Biopsies were taken before treatment, and at 1, 2, 3, and 6 months. Bacterial and morphological indices were determined. Results of treatment on the morphological indices are shown in the table below.

	<i>Months of Treatment</i>				
	0	1	2	3	6
D100D	26 (11-45)	12 (0-30)	7 (0-20)	4 (0-14)	No. insufficient
R450D	36 (10-60)	1.5 (0-8)	1.6 (0-8)	1.7 (0-11)	1.8 (0-2)
R900W	31 (10-58)	3 (0-12)	2 (0-7)	2 (0-10)	0 (0-1)
C300W	28 (10-51)	22 (3-50)	15 (1-42)	7 (0-25)	No. insufficient

Morphological indices (mean and range)

G. H. Rée

19. ELLARD, G. A., GAMMON, P. T., HELMY, H. S. & REES, R. J. W. **Urine tests to monitor the self-administration of dapsone by leprosy patients.** *Am. J. Trop. Med. Hyg.*, 1974, v. 23, No. 3, 464-70.

"Three qualitative and one simple quantitative urine test methods are described for monitoring the self-administration of daily doses of dapsone (DDS) by leprosy patients. The qualitative

methods can be employed for monitoring the taking of daily doses of 50 mg DDS or more. In the quantitative method the ratio of DDS plus its diazotizable metabolites to creatinine in the urine is determined using simple colorimetric methods. This method is considerably more sensitive and efficient than the qualitative methods and is capable of monitoring the taking of daily doses of DDS of as little as 10 mg."

20. NG, H., JACOBSEN, P. L. & LEVY, L. Analogy of *Mycobacterium marinum* disease to *Mycobacterium leprae* infection in footpads of mice. *Infection & Immunity*, 1973, v. 8, No. 6, 860-67.

"Because it appeared likely that the disease process that follows inoculation of footpads of mice with *Mycobacterium marinum* might serve as a useful model of mouse footpad infection with *Myco. leprae* for immunological studies, an attempt was made to establish an analogy between the two processes. As a second objective, the adequacy of measurements of mouse footpad thickness as an index of the total number of *Myco. marinum* and of the number of viable *Myco. marinum* was determined. The evolution of *Myco. marinum* disease in the footpads of BALB/c mice was observed, and the influences of mouse age and sex and of inoculum size were measured. Mice were challenged with *Myco. marinum* in one footpad at several intervals after inoculation of the contralateral hind footpad with the same organism. In all of these experiments, mouse footpad thickness was noted to parallel multiplication of *Myco. marinum*. during the phase of increasing footpad swelling. Cessation of bacterial multiplication was noted to occur just before maximal swelling had been achieved, and was followed by rapid loss of viable *Myco. marinum*. The total number of organisms and mouse footpad thickness decreased only slowly and incompletely. Analogy between *Myco. marinum* disease and *Myco. leprae* infection of the mouse footpad was established by the self-limited nature of both processes, and by similar patterns of protection against homologous and heterologous challenge conferred by the two processes."

21. NAKAMURA, M. Quantitative multiplication of *Mycobacterium lepraemurium* in a cell-free liquid medium (NC-5). *J. Gen. Microbiol.*, 1974, v. 82, Pt 2, 385-91.

"*Mycobacterium lepraemurium* multiplies in a cell-free liquid medium, referred to as NC-5, which is enriched Kirchner medium plus goat serum, α -ketoglutaric acid, cytochrome *c*, haemin, and L-cysteine. At 30° C, the bacilli gradually elongated before multiplying 100- to 1000-fold. The maximum number of bacilli is reached after 8 weeks' incubation. The generation time of *Mycobacterium lepraemurium* is between 8 and 14 days, depending upon the size of inoculum. Bacilli grown in NC-5 medium maintain their capacity to produce leprosy in mice. Optimum growth was with the basal medium at pH 7.3 using a small number of bacilli in the inoculum."

22. WALTER, J., SEAL, K. S., SANSARRICQ, H. & ENGLER, V. Random sample surveys in leprosy control programmes—are they a nuisance? *Ztschr. Tropenmed. Parasit.*, 1974, v. 25, No. 1, 89-95.

Since reliable statistics of the incidence of leprosy are not available for the countries where leprosy constitutes an important public health problem (that is, where the prevalence rate of known cases is 1 in 1000 or higher), the authors describe methods of random sampling surveys specially conceived for the purposes of leprosy investigation in a population.

The leprosy prevalence rate in schoolchildren aged 5-14 years may furnish a rough indication of the total prevalence in a given area. A method more generally applicable, described by the authors, consists of determining the situation at 5- and 10-year intervals in countries in which a leprosy control programme is in operation, integrated or not (depending on the local circumstances) into the general health services.

By comparing the projected prevalence rates, as calculated from the basic data obtained at the initial random sample survey and 5 years later, with the actual findings, the value of any control measures adopted in the meantime will become obvious in the discordance noted between the projected rate and the actual rate found.

The investment of money and time into such random surveys is held to be more than justified because of the data they bring to the effectiveness of the anti-leprosy programme.

The paper is illustrated with explanatory figures.

S. G. Browne

23. PARIKH, A. C., D'SOUZA, N. G., CHAULAWALA, R. & GANAPATI, R. **Leprosy lesions in the scalp.** *Lepr. India*, 1974, v. 46, No. 1, 39-42.

"The few references on the incidence of leprosy lesions on the scalp are pointed out.

"The case histories of 2 patients, one with borderline leprosy showing raised anaesthetic lesions on the scalp and another with lepra reaction showing lesion resembling ENL on the scalp are described.

"It is concluded that though, in the vast majority of lepromatous patients, the bacilli cannot be demonstrated in the smears from the scalp there is evidence to show that the scalp is a site where *Myc. leprae* do thrive and produce lesions though rarely."

24. TEXIER, L., DAVID-CHAUSSE, J., TAMISIER, J. M., GAUTHIER, O., GAUTHIER, Y. & BORAUD, P. Enfermedad de Hansen. Reacción leprosa con intensas manifestaciones articulares. (**Leprosy. Lepromatous reaction with intense articular manifestations.**) *Medna Cutánea*, 1973, v. 7, No. 6, 69-70.

The English summary appended to the paper is as follows:

"We report the case of a patient with lepromatous leprosy, who for a certain period showed criteria of the Lucio-type leprosy. The incubation is remarkably long. Undergoing treatment with disulone, this patient now shows articular reactions similar to a rheumatoid polyarthritis in addition to the symptomatic leprotic reaction. The presence of BH [Hansen's bacillus] in the liquid of the joint cavity and in synovial cells, leads us to connect these symptoms to Hansen's disease. The facts have only recently come to light and occur in all cases of lepromatous leprosy in the reaction phase. We report the satisfactory therapeutic results obtained with rifampicine."

25. SEBILLE, A., BOISSON, M. E. & ROUGEMONT, A. Manifestations cliniques de la névrite lépreuse. (**Clinical manifestations of leprosy of the nervous system.**) *Méd. Afr. Noire*, 1974, v. 21, No. 3, 193-7.

The authors present an analysis of the gross clinical manifestations of peripheral nerve damage seen in a selected series of 90 patients suffering from various kinds of leprosy (61 lepromatous, 20 tuberculoid, 4 borderline, and 5 indeterminate). All were receiving treatment for leprosy at the Marchoux Institute, Bamako, Mali.

Their results, which disclose no novel findings, confirm the generally accepted views that the ulnar nerve trunk is more frequently affected than the median or radial, and the external popliteal more frequently than the posterior tibial. Despite modern anti-leprosy treatment, peripheral nerve lesions either appeared or became worse in about half the patients. Dissociation of sensory modalities is held to be early and transitory. The role of compression of the nerve trunk in osseous or fibrous canals is emphasized.

(The outstanding clinical sign in the nerve trunk itself, at the sites of predilection, is said to be "enlargement." No indication is given of the diameters of the trunks in relation to the pathological changes within the nerve, and in its sheath, changes that are determined by the form of leprosy and its duration.)

S. G. Browne

26. KREISLER, M., ARNAIZ, A., PEREZ, B., CRUZ, E. F. & BOOTELLO, A. **HL-A antigens in leprosy.** *Tissue Antigens*, 1974, v. 4, No. 3, 197-201.

"HL-A phenotype frequencies were studied in 30 patients with leprosy and in 149 healthy controls. Leprosy patients had a significantly higher frequency of HL-A14. In addition, a majority of the HL-A14 patients gave a negative response to leproma antigen using the Mitsuda test."

27. PETERS, J. H. *ET AL.* **Metabolic disposition of dapsone in patients with dapsone-resistant leprosy.** *Am. J. Trop. Med. Hyg.*, 1974, v. 23, No. 2, 222-30.

"To investigate the question of whether dapsone (DDS) resistance in leprosy patients is related to the metabolic disposition of DDS, we studied a group of 22 patients who had relapsed with DDS-resistant disease after approximately 19 years of sulfone therapy. Tests for acetylator phenotype with sulfamethazine (SMZ) showed that this group of patients contained a lower percentage of slow and a higher percentage of intermediate and rapid acetylators than had been observed previously in other populations. Acetylation of SMZ and DDS were directly related. In addition, plasma clearance of DDS for the DDS-resistant group was significantly faster than that found previously in any other population. These observations suggest that the emergence of DDS resistance may be associated with the rapid or intermediate acetylator phenotype and an ability to clear DDS from the circulation at a fast rate. Combining the two parameters into a multirisk factor yielded a significantly higher mean value in DDS-resistant patients than that of any other group studied previously. The implications of these findings for the large-scale treatment of leprosy patients are discussed."

28. PATTYN, S. R. **Conservation of *Mycobacterium leprae* in liquid nitrogen.** *Ann. Soc. Belg. Méd. Trop.*, 1973, v. 53, No. 6, 645-50.

"Suspensions of *Myco. leprae* can be successfully preserved if they are slowly frozen in buffered dimethylsulfoxide 7.5% final concentration, and maintained in liquid nitrogen."

29. STORRS, E. E., WALSH, G. P., BURCHFIELD, H. P. & BINFORD, C. H. **Leprosy in the armadillo: new model for biomedical research.** *Science. Washington*, 1974, March 1, v. 183, 851-2.

About 40% of armadillos captured from the wild and inoculated by various routes with suspensions of *Mycobacterium leprae*, developed disseminated leprosy which was confirmed by histopathological examination after necropsy. These animals died of leprosy and its complications after widely differing intervals following infection, from 15 to 41 months. Noteworthy features of the disease included the enormous numbers of bacilli present, the frequent involvement of the central nervous system and the lungs, and massive invasion of the bone marrow. This latter finding may be related to the severe depression of immunological competence.

From the dead armadillos, 988 g of highly bacilliferous tissue was obtained, containing minimal amounts of stroma. This tissue contained probably 15 to 20 g of *Myco. leprae* at a concentration of about 10^{10} /g. The store of bacilli is now available for immunological and chemotherapeutic research.

S. G. Browne