

BOOK REVIEWS

Juscenko, A. A. and Terescenko, R. G. *Armadillos (Dasypodidae). Ecology, Biological Characteristics, Experimental Model in Biomedical Research. Bibliography (1830–1983)*. Astrakhan, USSR: Leprosy Research Institute, 1983, 88 pp. (Russian and English)

This booklet contains a list of publications on armadillo distribution, habits, biology and the results of biomedical investigations using the armadillos as laboratory animals from 1830 to date. The issue is supplied with a subject index (in Russian and English) and an author index. A total of 669 publications are listed. The subject and author indexes are invaluable.

The booklet is available without cost by contacting Dr. A. A. Juscenko, Leprosy Research Institute, Astrakhan, USSR.—RCH

Leisinger, Klaus M. *Health Policy for Least Developed Countries. Social Strategies. Monographs on Sociology and Social Policy, Vol. 16*. Trappe, P., ed. Foreword by Carl E. Taylor. Basel: Social Strategies Publishers Co-operative Society, 1984, 440 pp., softbound.

Health policy for least developed countries or for the people living under conditions of absolute poverty is an issue of ever-growing importance for science and practice. Dr. Leisinger has shown an excellent capacity to bring balanced judgment to a very complicated set of issues. He has reviewed thoroughly the wide-ranging literature on nutrition, infections, population growth and socioeconomic development. The relevant articles are in a discouragingly diverse set of publications but he has tracked them down. In a constructive way he has analyzed the strengths and weaknesses of the various arguments that have been presented. He has done especially well in balancing the facts that have come out of various studies and in providing a solid but innovative set of interpretations. The new knowledge in this volume is of great importance for policy issues and practice. He has mobilized a large amount of scientific data drawn from multiple sources in a logical and well-formu-

lated conceptual design. The synthesis of information for different disciplines is an important contribution, especially because the data are focused on important questions relating to development in poor countries. He showed good scientific judgment in how these data were handled and in putting together analyses of diverse source material.

Some of the important policy questions that are specifically addressed relate to how information on the interactions between economic development, health and poverty can be understood to help decide what should be done. A strong case is made for development from below and arguments for redistribution to those in greatest need, not only of income, but also of direct services for health and family planning. The recommendations and conclusions are built on a solid base of information. I am convinced that if we could get countries to follow the policies outlined, it would accelerate the rate at which both death and birth rates would decline. This is surely one of the most important social objectives of our time.—*(From the Foreword)*

Leprosy and Primary Health Care. Lepr. Rev. 53 (1982) 161–242.

In an introductory editorial to this special issue (pp. 161–163), A. C. McDougall sets the scene by recalling that primary health care (PHC), although popularized only recently through the WHO and particularly since the Alma Ata Conference of September 1978, has been practiced in various countries for some time, but he issues a salutary warning that careful planning is necessary before leprosy is integrated into PHC programs now being advocated by many governments in Third World countries. The undoubted theoretical advantages of a “horizontal” health service catering for all the people and all their diseases will be impossible to attain in the absence of well-trained and well-supervised medical auxiliaries.

From Tanzania, S. J. Nkinda (pp. 165–173) emphasizes the necessity for a political commitment to the idea of PHC; otherwise reallocation of resources, the rethinking of

training programs, and the adequate provision of suitable drugs will not be forthcoming. In Tanzania, the requisite change of attitude among health workers and administrators accompanied a general reorganization of the health services, but the involvement of the villagers in the recruitment and training of the voluntary health workers (VHW) ran into difficulties of various kinds. Nkinda is convinced that PHC can—and should—provide the ideal setting for attaining the WHO goals in leprosy control by ensuring early case-finding through heightened awareness of leprosy, adequate chemotherapy and increased patient compliance. The results will be seen in the breaking of the cycle of transmission and the prevention of deformity. The effectiveness of the VHW depends on good supervision and a functioning referral system. In Tanzania, regional tuberculosis/leprosy coordinators have played a key role in supervising auxiliary workers.

The Sudan has already established PHC units, according to A. H. Haydar (pp. 175–180), each of which is responsible for about 4000 people. Each unit is staffed by a local citizen who is selected by the community and paid by the local council. Groups of five units are linked to a dispensary in the charge of a trained medical assistant. Specific training in leprosy is given to all professional staff at a training center at Wau. The risks of delegating leprosy care to undertrained auxiliaries are recognized.

The excellent article by a sociologist, I. Bijleveld (pp. 181–192), provides a series of salutary reflections on some of the glib and over-optimistic assumptions current wherever PHC is discussed. Because of these assumptions, and the superficial thinking behind them, he casts some doubt on the capacity of PHC to provide adequate answers to the diverse public health needs of socially disparate communities. If PHC is more strictly reserved, as a conception, to the active participation of the community in identifying and meeting its health needs, then Bijleveld has some reservations, despite the initial attractiveness of PHC to provide adequate answers to the diverse public health needs of socially disparate communities. If PHC is more strictly reserved, as a conception, to the active participation of the community in identifying

and meeting its health needs, then Bijleveld has some reservations, despite the initial attractiveness of PHC on grounds of economy, fashionable sociological presuppositions, and the failure of previous health care systems in Third World countries. He stresses that in reality PHC may prove to be not so deceptively simple and easy as some imagine: villagers still demand curative facilities, and are not impressed with preventive measures. When it comes to including leprosy programs in PHC, Bijleveld sets out his serious reservations—attitudes are difficult to change—and he doubts if inadequately trained VHWs are really capable of implementing multidrug therapy regimens.

In Sri Lanka (D. S. P. Sabapathy, pp. 193–194), it is the responsibility of public health inspectors (1 per 30,000 population) to supervise the leprosy control activities in each area. With a total of over 11,000 registered leprosy patients in a population of 15 million, difficulties arise mainly because of the continuing stigma of leprosy and the conflict between Ayurvedic and Western medicine.

From Dichpalli (India) comes a factual report by L. M. Hogerzeil and P. Kesava Reddy (pp. 195–199) that compares provisional results in a community health project (CHP), characterized by intensive health education, and a conventional SET (survey, education and treatment) program. Although new cases appeared to be more readily discovered in the SET program, their numbers eventually more than doubled in the CHP program.

From India also comes a description of another project. H. H. Antia (pp. 205–209) points out that the nonmedical component of leprosy control programs must be emphasized if stigma is to be reduced, and patients' cooperation must be assured at every level. Many theoretically praiseworthy integrated programs are doomed to failure because of prejudice on the part of doctors and medical auxiliaries.

W. F. Ross (pp. 201–204) analyzes the various competencies that are required of the PHC worker, and emphasizes the clinical knowledge and the personal motivation necessary.

H. Buchmann (pp. 211–220) underlines the deficiencies of many leprosy programs

and their failure to make any real impact on the prevalence of leprosy in the world. He considers that an alliance with the now fashionable PHC offers better prospects for ultimate success.

T. P. Cullinan (pp. 221–226) provides much useful information and observations of a general nature. He makes much of the continuing gap between the acquisition of knowledge and its application, and considers that PHC offers at least a reasonable expectation of leprosy control.

The section "Letters to the Editor" contains some interesting comments. Sir John Wilson (p. 230) writes of the prevention of blindness in leprosy by early diagnosis and adequate treatment. I (pp. 230–232) describe the complete integration of leprosy, back in the late 1940s and 1950s, into a basic health service that covered the whole population in an area of 10,000 square miles in the former Belgian Congo. The transformation of a good leprosy service into a program for PHC is beset by many difficulties, as J. Eldon (pp. 232–234) explains from his experience in Malawi: in-service training of medical auxiliaries is essential if the care of leprosy patients is not to suffer, even collapse. From Ghana, H. Lovel (p. 235) makes some useful practical observations. S. Baldwin (pp. 236–238) writes of her experiences in Bangladesh, and emphasizes the advantages that should accrue from the incorporation of leprosy into PHC. The control of leprosy in Papua New Guinea (M. Kennedy and G. H. Rée, pp. 238–239) is slowly and with difficulty being transformed from a reasonably successful vertical program into one in which aid post orderlies are applying standard management drug regimens to leprosy within the context of general health care.—S. G. Browne (Trop. Dis. Bull.)

Ramalingaswami, V. *Annual Report of the Director-General 1982, Indian Council of Medical Research.* Satyavati, G. V., editor. New Delhi: ICMR Offset Press, n.d., 101 pp.

[The following is that portion of the report dealing with leprosy.]

The ICMR continued its research on various aspects of leprosy through its Central Jalma Institute for Leprosy (CJIL) at Agra and other centers in the country. Studies on

chemotherapy, operational research and immunology of leprosy were intensified through the Task Force approach. During the year, the ICMR also played an active role in the deliberations as well as formulation of recommendations and preparation of the Report of the Working Group of the Government of India on Leprosy Eradication.

Chemotherapy of Leprosy

Chemotherapeutic trials using the newer anti-leprosy drugs in different combinations with DDS, are in progress at the CJIL, Agra, on several groups of patients. These studies are being carried out with a view to supporting the National Leprosy Control Programme in which inexpensive and operationally feasible chemotherapy needs to be applied on a mass scale. These trials have suggested that "pulsed" rifampin therapy, i.e., rifampin 600 mg on two consecutive days a month plus dapsone and clofazimine administered continuously, is quite effective. Trial of "fixed" regimen therapy in TT and BT types of leprosy has shown that effective treatment for one year could be adequate for TT and BT cases.

Chemotherapeutic trials with rifampin are also in progress at the Central Leprosy Teaching and Research Institute (CLTRI), Chingleput, and the Government Royapettah Hospital, Madras.

Studies at the CJIL, Agra, to assess the usefulness of the solid, fragmented and granular (SFG) index as an effective parameter in drug trials, have shown that the SFG index, together with the bacterial index (BI), is a superior parameter to evaluate the efficacy of drugs especially in patients in whom the morphological index (MI) is very low.

Drug Resistance

Studies on sulfone resistance, using the mouse footpad model, are in progress at CJIL, Agra and CLTRI, Chingleput, while at the AIIMS, New Delhi, the radio-labeled macrophage culture method is being used for detection of sulfone resistant *M. leprae*.

Clinical Studies

Involvement of the cardiovascular and central nervous systems in leprosy patients,

is being assessed at the CJIL. Preliminary results show that most of the lepromatous leprosy patients had brisk reflexes, as compared to diminished reflexes seen in other peripheral neuropathies. Loss of temperature sense was higher in most of these cases as compared to pain and touch. Cerebrospinal fluid proteins were found to be raised in a few patients and IgG was detected in the CSF in most of the patients. *M. leprae*-specific fluorescent antibody was seen in the CSF in several patients. Cardiovascular involvement was found to be highest in lepromatous leprosy patients, followed by borderline and tuberculoid groups.

Treatment of Painful Neuritis

Attempts are being made to optimize the dose and duration of microwave diathermy treatment for painful neuritis in leprosy. Preliminary results of therapy in 20 cases are encouraging. It appears that this mode of therapy could be useful for recurrent painful neuritis in cases where paralysis has already been established.

Correction of Deformities

Apart from routine correction of deformities, new procedures are being adopted at CJIL, Agra, to overcome some of the deficiencies of the earlier operative procedures. Decompression of the posterior tibial nerve is being tried for its possible beneficial effect on healing of plantar ulcers, and prevention of their recurrence. A successful procedure has been devised to correct the damaged extensor expansion over the fingers which is a very common disability in long-standing cases of claw hand. Correction of the "Z" deformity of the thumb (due to paralysis of the flexor pollicis brevis) has been successfully carried out by the transfer of the radial half of the flexor pollicis longus tendon.

Immunological Studies

With the major emphasis on evolving new methods of immuno-diagnosis and immuno-prophylaxis for leprosy, the ICMR has continued its studies with an aim to achieve a better understanding of the immunological disturbances occurring in leprosy. Ongoing ICMR projects on the immunological aspects of leprosy involve studies on anti-

genic analysis of *M. leprae*, immune complexes, circulating complement and their role in tissue damage, cell-mediated immunity in leprosy, production of monoclonal antibodies against lepra bacilli and also a study on the role of BCG vaccine in protecting against leprosy.

Studies on the Dharmendra antigen were extended to isolation of the skin reacting DTH (delayed type of hypersensitivity) component. Attempts were also made to study the pathogenesis of leprosy reactions on the basis of complement analysis. Functional properties of complement as well as quantitative profiles are being studied before, during and after lepra reactions. Preliminary results of HLA studies in leprosy patients and their families revealed that the frequency of HLA-28 was higher while A-9 frequency was lower in leprosy patients as compared to controls. Frequency of B-12, B-40 and BW-15 was also decreased in patients. Immuno-epidemiological studies using the fluorescent antibody absorption (FLA-ABS) test and the lepromin test for the identification of the high risk group among those exposed to leprosy were continued.

Role of BCG Vaccine in Leprosy

The ICMR has launched a study to investigate the role of BCG against leprosy in the population being covered by the Chingleput study on tuberculosis. A baseline survey was carried out on all subjects who had been vaccinated with either BCG or placebo 5 years earlier. By examining these cases clinically and bacteriologically, new cases of leprosy occurring in the study population were detected and recorded by a re-survey after an interval of 2½ years. The results of 2 such leprosy resurveys have shown that during 5 to 10 years after BCG vaccination, the vaccine could afford 23% protection against nonlepromatous leprosy as compared to the controls. This study has thus revealed a fringe benefit of BCG vaccination in conferring a certain degree of protection against leprosy in those who are living in areas endemic or hyper-endemic for leprosy. This investigation has been extended to incorporate a follow-up study up to 15 years from the time of initial vaccination.

Rawlinson, W. D. *The HLA System and Leprosy*, thesis, Sydney, c1983.

This book is a thesis submitted for the degree of Bachelor of Science in Medicine in the University of Sydney. It is the result of 12 months' research at the East Arm Leprosy Hospital in Darwin in the Northern Territory of Australia. The study was done also in conjunction with the Department of Immunology of the University of Sydney. HLA serological markers were performed at the John Curtin School of Medical Research, Australian National University, Canberra, and HLA typing was done at the New South Wales Red Cross Blood Transfusion Service. The majority of the experimental work was carried out in the Northern Territory. The study was undertaken to assess the cell-mediated immune function and genetic susceptibility to infection with *Mycobacterium leprae* among individuals with leprosy and ten Aboriginal families with leprosy present in two generations. Absence of a cell-mediated immune response using the *in vitro* assays: lymphocyte transformation test (LTT) and two-stage leukocyte migration inhibition factor agarose assay (TSLIFAA). Nonspecific disturbance of the cell-mediated immune function was also studied using the blastogenic response to the mitogen Concanavalin A, T cell, and total lymphocyte quantitation. Most individuals' serum immunochemistry was also studied.

Genetic analysis of the families was undertaken using formal assessment of linkage between the HLA haplotype and putative marker loci coding for susceptibility to leprosy, inability to respond to *M. leprae*, and purified protein derivative antigen on the *in vitro* assays—LTT and TSLIFAA. This was performed using the LIPED 3 of Ott which calculates the maximum likelihood of segregation of the putative marker locus and the main locus (the HLA haplotype in the current study).

The author argues that results presented suggest significant linkage between a marker locus on chromosome 6 coding for the inability to produce the lymphokine-leukocyte migration inhibition factor (LIF) in response to *M. leprae* antigen among the Aboriginal families studied.

He also confirmed previously observed findings that LL leprosy patients are unable

to mount a cell-mediated immune response to leprosy, but he was unable to confirm or reject the view that susceptibility to leprosy is coded for by a marker locus on chromosome 6, in linkage disequilibrium with the HLA haplotype. He also found no linkage between the HLA haplotype and the individual's inability to mount a blastogenic response to *M. leprae* and the LTT. He recognizes that the TSLIFAA does not reflect the entire host response and observed, as others have, that there was a lack of correlation between *in vitro* assays and the lymphokine production capacity of individual cells.

Overall this is a well-researched project which includes widely reviewed current literature. As expected, clinicians and epidemiologists would both have differences of opinion with the author about the disease itself, its manifestations, and its epidemiology. There are also a few important references quoted in the text which cannot be found in the reference listing. The abstract, most of which is quoted verbatim in this review, is an accurate but incomplete account of the author's results and observations and the monograph deserves close study by those interested in the immunology of leprosy epidemiology.—J. C. Hargrave

Vocational Rehabilitation of Leprosy Patients. Geneva: International Labor Office Publications, 1982, 126 pp., in English, price = FS15.

Bombay, a city whose industrial area possesses one of the world's worst urban leprosy problems, was the venue of a conference from 26 October to 6 November 1981. There were 22 participants from India, Pakistan, Burma, Nepal, Sri Lanka, Bangladesh, Thailand, Vietnam and the Philippines: S. G. Browne attended from the UK and J. Korn from Denmark. The conference was held under the auspices of the International Labour Organization and DAN-AID (Danish Agency for International Development). Almost all the 23 lectures were given by Indian experts, and the greatest relevance was to the Indian situation, but this book is also valuable for other parts of the world.

S. G. Browne opened (p. 3) with a dis-

discussion of the need for education and demonstration of the right attitudes in social rehabilitation, and (p. 13) gave a description of the work of the International Leprosy Association. N. K. Shah (p. 8) indicated the scale of Asian epidemiology, 200,000 registered patients in China (population 1000 million), 8500 in Japan (119 million), 24,666 in Nepal (14 million), 10,575 in Sri Lanka (15 million), but only 30,355 in Bangladesh (89 million), which, however, was recognized as being some 22% of the real prevalence.

K. C. Das (p. 14) describes India's national program, and S. D. Gokhale (p. 17) describes social aspects of rehabilitation, as does J. M. Mehta (p. 25) from the Poona area. Psychological barriers to rehabilitation are considered by C. Torriani (p. 31) who enthuses over the worldwide value of the work of the French journalist R. Follereau. Several other Bombay projects are described (pp. 46, 53, 83) as well as the Dattapur Institution, Wardha (R. S. Sharma, p. 61), a financially successful sheltered workshop employment scheme at Katpadi, Vellore (p. 73), the German Leprosy Relief Association Cooperative loan schemes (p. 77), and the Gandhi Memorial Leprosy Foundation (p. 88).

Perhaps the two most interesting papers are those by M. V. Yellapurkar (p. 41) and V. V. Dongre (p. 99). M. V. Yellapurkar

estimates there are 5000 beggars with leprosy in Bombay, and only 150–350 a year are "helped" by arrests and placement in beggar homes which give vocational training, a procedure which is often unsuccessful because begging remains more lucrative. Certain voluntary institutions actually prefer to accept long-term convicts sentenced for murder rather than leprosy patients, as the former are more amenable to rehabilitation. V. V. Dongre gives a paper on legal aspects of the disease over a wide range of life situations: marriage, succession, schooling, housing, employment, begging and travel. Until recently leprosy patients were not allowed to use the railway, but travel concessions for train journeys to receive treatment have now been introduced. However, no leprosy patient is yet allowed to qualify for a driving licence, although of course a great many do not have physical disability of such a kind as to prevent them driving safely.

There are a few annexes and useful addresses but no index. Twelve million persons are still suffering from leprosy throughout the world, and almost half this number live in Asia. Anyone working with such patients in treatment or control will benefit from this report, and it will be useful in Africa and Latin America.—R. Schram (*Trop. Dis. Bull.*)