
BOOK REVIEWS

Annual Review of Immunology, Vol. 5, 1987, (Published by Annual Reviews Inc. 4139, El Camino Way, Palo Alto, California 94306. USA) Price: USA \$ 31/-. Elsewhere \$ 34/-.

There are 25 reviews in this volume and author and cumulative title indices Vols. 1-5. This volume starts with an interesting peripatetic and personal view of molecular immunology for one third of this century by Michael Sela in an autobiographical vein. V. N. Schumaker, P. Zavodsky and P. A. Poon describe the structure, function and modes of action of the C1 component of complement. R. A. Clift and R. Storb survey the results of human marrow transplantation where the donor and the recipient are not genotypically identical for all detectable antigens of the major histocompatibility complex (MHC)—the human leukocyte antigen (HLA) system. C. W. Parker reviews the mediators derived from arachidonic acid emphasizing lipoxigenase products. The evidence that autoantibodies are derived from genes that encode protective antibodies rather than from genes uniquely qualified to autoantibody production is discussed by Anne Davidson, R. Shefner, A. Livneh and B. Diamond. D. A. Carson, P. P. Chen, R. I. Fox, T. J. Kipps, F. Jink, R. D. Goldfien, G. Silverman, V. Radoux and S. Fong summarize experiments from their's and other's laboratories concerning the genetic regulation of rheumatoid factor production and the physiological role of the autoantibody, the relation between rheumatoid factor and B cell malignancies and the significance of persistent rheumatoid factor production in autoimmune diseases.

Disorders of phagocytic function focussing on well-characterized and histologically important disorders, emphasizing on recent advances are reviewed by D. Robosen and J. I. Gallin. Ursula Storb reviews the major advances in the field of immunoglobulin genes using transgenic mice as experimental models. A discussion of current knowledge regarding transmembrane signalling mechanisms operating in regulation of quiescent B lymphocyte function by J. C. Cambier and J. T. Ramsom follows. Judith J. Wooddruff, L. M. Clarke and Y. Hon Chin review the properties of lymphocytes and high endothelium that play a role in their affinity and specificity for each other. The cell adhesion receptors of the immune systems LFA-1, CD-2 and LFA-3 are discussed by T. A. Springer, M. L. Dustin, T. K. Kishimoto and S. D. Martin while the role of CD4

and CD8 is reviewed by D. R. Littman. The role of chromosomal translocations in B and T cell neoplasia is described by L. C. Showe and C. M. Croce.

The novel concepts that have emerged from the study of virus-lymphocyte interactions are discussed by M. B. McChesney and M. B. A. Oldstone. B. Moss and C. Flexner review the use of the vaccinia virus as a general expression vector for stimulation of humoral and cellular immunity to specified proteins and for determination of target antigens of cytotoxic T lymphocytes (CTL). The protective effect of vaccination with live recombinant vaccinia virus and their potential for vaccines for veterinary and medical purposes are also discussed. The early events in T cell maturation are discussed by B. Adkins, C. Mueller, C. Y. Okada, R. A. Reichert, I. L. Weissman and G. J. Spangrude. Mutations of the mouse that cause impairments in the development or regulation of the immune system, stressing on generally determined murine immuno-deficiency disorders are dealt with by L. D. Shultz and C. L. Sidman.

The newly described I-J subregion of the MHC (major histocompatibility complex) is the subject of a review by D. B. Murphy. B cells stimulatory factor-1 (BSF-1) is described by W. E. Paul and J. Ohara and they propose that it be designated as Interleukin-4 (IF-4). Biophysical aspects of antigen recognition by T cells are the subject of a review by T. H. Watts and H. M. McConnell. The characterization of antigenic determinants seen by T cells is done by A. M. Livingstone and C. G. Fathman. J. P. Allison and L. L. Lanier summarize the current knowledge of the structure, functions and serology of T cell antigen receptor (TCR) complex. Recent advances in the molecular biology of HTLV-1, focussing on the activation of viral and cellular gene expression are reviewed by M. Yoshida and M. Setki. B Toyonaga and T. W. Mak summarize the current molecular biology of the T cell antigen receptor (TCR) genes. The last review in the volume is by M. Plant on the functional effects on lymphocytes, of receptors for a wide variety of hormones and autacoids.

R. ANANTHANARAYANAN

'Apsara'

Opp: Srikanteswaram Fort,
Trivandrum 695 023.

An Integrated Theory of the Earth by S. R. N. Murthy (Published by Kalpatharu Research Academy, P. B. 1857, Bangalore 560 018), 1987, pp. 127.

The contents of this text, with "A Comparative Study of Eastern and Western Theories", are as follows:-

(a) Historical development of geological science in the west with reference to the origin and evolution of the Earth (pp. 1-19); (b) Terminology and nomenclature of the Vedas and their esoteric descriptions (pp. 19-40); (c) Computation of the astronomical periods—*Kalpas*, *Manvantaras* and *Mahāyugas*, based on *Sūryasiddhānta* (pp. 41-52); (d) Five primordial elements (*Pancha-mahā-bhūtas*) described in *Upanishads* (pp. 53-58); and (e) Certain aspects of Varahamihira's *Brihat Samhita* dealing with the astronomical movements and configurations and their influence on the ecological and environmental features of the terrestrial region (pp. 62-110). Finally, the conclusion drawn is that the cosmic theory of the Earth can be formulated by the astrological phenomena related to "sociological, political and other biological settings" (pp. 111-126).

With a vague scope and objective, the text consists of random, scattered, and disjointed observations on cosmology drawn from the vedic texts, codified as geological aspects, lacking any system and rationale. It is not intelligible either to geologists or indologists. A glossary is essential for this type of work to make it understandable to the readers in either field. But, unusually, a few general references are given under the head of a glossary! (p. 59).

The Vedas are the revelations, evolved through the spiritual faculty of intuition, and hence are beyond the reach of human intellect and reasoning. In contrast to this, the ancient scientific Sanskrit texts, such as *Jyotiśśāstra* or *Āyurveda*, have been developed as *Vedāngas* (organs of Vedas), through *Rāja yoga* or Sovereign Science, based on the invariable concomitance of cause and effect. These texts, concerned with human ecology, expound the secular scientific laws of external nature to gain knowledge (*Jñāna*) for material progress and these universal laws (*Sarva-tantra-siddhāntas*) are symbolically superimposed on ethical and moral laws, leading to spiritual wisdom (*Vijñāna*), harmoniously integrating the six systems of Indian philosophy called *Darsanas* (Visions of Truth).

The primary objective of this intellectual and spiritual exercise is to counteract the 'duality' or

'pairs-of-opposites', involving the forces of attraction (*Tamas*) and repulsion (*Rājas*), to attain equilibrium (*Satva*) like the homeostasis of the human body and isostasy of the Earth. These essential aspects have to be borne in mind in any attempt to logically interpret the ancient Indian texts (*Śāstras*) in the light of modern developments, in both science and humanities, with a synthetic or holistic approach.

E. A. V. PRASAD

Department of Geology,
Sri Venkateswara University,
Tirupati 517 502.

Physiological Fluid Dynamics. II. *Proceedings of the Second International Conference on Physiological Fluid Dynamics* edited by L. S. Srinath and Megha Singh (Published by Tata McGraw Hill Publishing Co. Ltd., 4/12 Asaf Ali Road, New Delhi 110 002), 1987, pp. 377, Price: Rs. 45/-.

This book presents the Proceedings of the Second International Conference on Physiological Fluid Dynamics held at Indian Institute of Technology, Madras during August 10-12, 1987. The Proceedings of the first Conference held in 1983 and published as *Fluid Dynamics I* was also reviewed by the present reviewer in *Current Science*, Vol. 56, p. 857, August 1987.

The book under review contains 23 invited and 36 contributed papers by over hundred applied mathematicians, biomedical engineers and medical scientists from more than a dozen countries.

The topics covered include a good combination of the macro and micro level as well as theoretical and experimental investigations associated with the cardiovascular and other physiological systems in which fluid flow plays a significant role.

The papers dealing with blood flow are concerned with the flow of white and red blood cells in a capillaries, the flow of blood in viens and stenosed arteries, oscillating blood flow, pulsatile flow, peristaltic flow, flow through membranes, effect of viscosity on blood flow, flow in the heart valves, plasma separation and so on. There are related papers on blood rheology, influence of large aggregation of red cells, effect of blood flow in atheroscleroses, artificial thrombus, blood vessel walls and red cells trauma and cardio-vascular mechanics.

We have also papers on lung aerodynamics, lung dynamics at medium altitudes, uptake of soluble gases by the bronchial walls and trachea-noise feedback in asthma.

Special topics discussed include the study of the fluid dynamics of the eye, arteriovenous fistula of the brain, medical effects of magnetic fluids and the role of synovial fluids in knee joints.

A number of experimental investigations on rats and other animals of considerable biomedical interest have been reported. These include aggregate formation mechanisms by laser light, effect of feeding hydrogenated fat and cholesterol, effects of different drugs on circulatory system and clinical urodynamic study.

The book thus covers a wide spectrum of problems on physiological fluid dynamics such as blood flow in arteries, biotransport, haemodialysis, microcirculation, biorheology, haemorheology, hypercholesterolemia, lung aerodynamics, fluid flow through eyes and joints, elastic effects of muscles, effects of drugs, etc.

The book should be of great interest to all applied mathematicians, biomedical engineers and physiologists. It can be used for supplementary reading for courses on biomechanics and theoretical physiology. As in volume I, this volume also contains excellent as well as routine papers.

Even before these two International Conferences, a very successful International Symposium on Physiological Fluid Dynamics was held at IIT, New Delhi. It is hoped that these International Conferences will be held at least once in every four years so that research workers can benefit from these conferences and their proceedings which could represent distinct milestones in man's endeavour to understand the functioning of his own body.

J. N. KAPUR

Indian Institute of Technology,
New Delhi 110 016.

NEWS

WHO CARES?*

Sir Kenneth Durham, President of the British Association for the Advancement of Science (BA) and former Chairman of Unilever, is a worried man. Too few people care about science, so there is no incentive for politicians to take any notice of it, he told this summer's meeting of the BA in Belfast. During the recent election, he said, 'there was no talk about caring for science, just about "caring", whatever that might mean'. The impact of science and technology on the economy are not seen as important by the general public: 'frankly, they just don't seem to understand or care'.

Durham claimed that his belief in science was not coloured by emotion or by its cultural value, but his increasing conviction that new technology is the determinant for economic recovery and growth over the next decade and more. 'If the UK does not grasp the opportunities it will become a second- or third-

class nation', he said, despite the economic predictions of the politicians on the hustings. Durham observed that no political party talked of research except in general terms, 'although there were a few mentions of the need for more investment in development; missing entirely the point that development is dependent on fundamental research'.

Not surprisingly, Durham — like his predecessor Sir George Porter (now President of the Royal Society) — believes in increasing the public understanding of science as a defensive measure. If the public is interested, politicians will take notice — and they certainly should be taking notice of the technical elements in public issues: 'Awareness and, where possible, understanding of these elements is vital if, in our legislative bodies, proper debate is to be held and if sensible policy decisions are to be taken'.

Pride and prejudice

But the BA, along with other bodies, has been saying this for years. The realisation is growing that

* This article is published under the columns 'Talking Points' on p. 925, in the October 1987 issue of *Chemistry in Britain*; Published by the Royal Society of Chemistry (CET), Burlington House, London W1V 0BN, England.