

**Annual Review of Immunology 1995.** William E Paul, ed. Annual Reviews Inc., 4139, El Camino Way, Palo Alto, California, 94303-0139, USA. Price: USA \$ 48, elsewhere \$ 53. Vol. 13. 729 pp.

The first 'personal essay' in the first volume of the *Annual Review of Immunology* in 1983 was written by Elvin Kabat, who watched over the progress of immune phenomena from physiology to biochemistry. The first actual review in that volume was written by Gustav Nossal, who writes, a dozen years later, the personal essay for this volume, and documents the progress of immune phenomena from the cellular to the molecular level. The difference between those two transitions is central to what has happened in immunology over the past decade, as a shift from the organism to its cells, and from biochemical to molecular events.

However, before examining this volume further—what are the *Annual Reviews* supposed to do, anyway? According to the editors, they keep those not directly working in the area 'up-to-date'. This is meaningful only if the 'updating' involves concepts, since few who do not work in an area are interested in its experimental facts. But, since the existence of the *Annual Review of Immunology* was justified in 1983 for its editors [who are still at its helm] by the sheer bulk of work in immunology, it is more likely that the reviews would be collections of technical facts rather than ground-breaking conceptual arguments, which is what happens, albeit with rare honourable exceptions. The reviews are compendia more than commentaries, and they seem to be content to be that, especially given, one supposes, the number of other 'review' periodicals in immunology that are pithier, shorter and 'laity-friendly'.

One result of this is that 'comprehensiveness' has become a special virtue for these volumes. This has led to two things. One, they simply tend to document the changing faces of experimental systems or 'phenomena' in immunology. This is aggravated by the fact that immunology is still a science that is frequently shifting its basic paradigms as the result of major experimental discoveries of 'phenomena', so that 'theories' seem more ephemeral to immunologists than they do, perhaps, to professionals in other, more 'established' sciences, although the allure of

immunology also lies in that uncertainty. Two, this virtue of comprehensiveness has led the editors of the *Annual Reviews of Immunology* to declare [in the first volume itself] that appropriate scientists would be asked to write reviews on a broadly representative range of topics in immunology. This has meant that reviewed areas have not necessarily seen any major recent changes fundamental enough for the reviews to be anything but compendia of technical facts. All this makes the *Annual Reviews of Immunology*, and this volume no less than previous ones, boring to the casual reader from sister disciplines, and of utility mainly to workers looking for an easy survey of their field, with the pitfall that, since these are still reviews written by individuals, the 'comprehensiveness' may after all be idiosyncratic and less than all-embracing.

In judging the success of such a volume, therefore, all the poor reviewer can do for the lay reader is to survey what the volume does review, and, maybe, what possible lacunae there may be. But the latter is made difficult by the fact that the process of selecting topics and reviewers begins about two years before the publication of an Annual Reviews volume. Results of recent days that may, one thinks, merit a mention, such as the DM gene products, will therefore find space only in later years. This means that the wish of the editors of *Current Science*, that the book reviewer should essay a short review of the state of the art, would create an untenable situation where the book reviewer discusses issues that the volume itself does not mention.

After all this, what DOES this volume actually contain? Well, one can perhaps divide work that passes under 'immunology' into four broad areas: one, issues of interest uniquely to immunologists and for the moment to few other people, which usually means the generation and consequences of the clonally diverse recognition mechanisms that are the mainstay of the vertebrate immune system and are what classical immunologists mean by 'adaptive' immunity; two, issues that deal with a broader notion of 'defense' in eukaryotic organisms or what classical immunologists call 'innate' immunity; three, analyses that simply use the immune system to answer questions of general interest to all biologists such as in developmental regulation and signal

transduction; and four, what everybody is interested in, how immunology explains, treats, prevents, or cures diseases. The present volume has a reasonable selection of subjects representing this entire range, in the proper tradition of 'political correctness'. In fact, it is instructive to look at how much of the present volume is dedicated to diseases—almost a half of it as opposed to barely a fifth in the first volume in 1983. This reflects both the fact that immunology has matured enough to be able to look at diseases without looking foolish, as well as the changing political climate for research funding everywhere, which has, in this era of post-modern conservatism, come to insist on immediate delivery of usable value for every penny spent on research.

Thus, adaptive immunity is represented by discussions about selection of the T cell repertoire, the effects of deletion of the MHC class II molecules in engineered mice, the basis of immune reactivity to so-called type 2 T-independent antigens, interleukin-12, and the relevance of CD19 in generating B cell responses. Innate immunity is represented by peptide antibiotics of mammalian origin, by the transcriptional regulation of complement genes, by the interactions of bacterial lipopolysaccharide with the immune system, and more dubiously, by a discussion of the effects of the neuro-endocrine axes on 'autoimmunity'. Issues of general interest in biochemistry and molecular biology discussed include the role of the *bcl-2* gene product in cell survival and death, signalling through cytokine receptors in haemopoietic cells, and potassium and calcium channels in lymphocytes. Reviews that purport to deal with diseases in the context of the immune system cover a very wide range, from situations where the disease is simply a tool for fundamental questions in adaptive immunity such as the essay on retroviral superantigens, through 'softer' issues such as the immune responses to *Leishmania major*, hepatitis B virus and HIV, via a discussion of the genetics of a so-called autoimmune disease animal model in the non-obese diabetic mouse and an attempt to link another disease 'model', reactive arthritis, to a more baffling disease, rheumatoid arthritis, finally to pieces that deal with therapeutic possibilities. These last possibilities reviewed are mostly conceptual right now, and even there many

of them are vague. They range from cytokine adjuvants for cancer immunotherapy to T cell therapy for human viral diseases and the possibilities in xeno-transplantation of organs, and they could be said to end in a notable review of the politics and mechanics of immunodiagnostic tests, in the example of HIV. This is an eclectic collection by any standards, and as would be expected, the quality varies, although few fall below the minimum required for coherence and 'comprehensiveness'. There is, in fact, a reassuring air of 'solidity' about the latter virtue.

There is, however, a sense of rote about many reviews despite being well-written, because they do not seem to stem naturally from exciting new breakthroughs in their area, but rather come as though an *a priori* decision had been made to include them for extraneous reasons. The sterling exception to that, and arguably the best review in the volume, is the review by Bevan and his colleagues on the selection of the T cell repertoire. It provides a terse and succinct background, sets up the theoretical paradox—that T cells need to recognize something during their development in order to be identified as useful and allowed to survive, but if they do recognize anything in the body at this time they are killed off in order to avoid the dangers of autoreactivity. Having stated the dimensions of the problem, the review then looks at the periphery of the problem, so to say, and examines the current status of ideas and data on, for example, the role of co-receptors in such selection and how these co-receptors are regulated during selection, before plunging into the genesis and testing of the various possible hypotheses that can explain the interactions between T cell receptors and their ligands that has made this so fermenting a field in recent years. The demonstration that peptides have a significant role to play in positive selection rather than only in negative selection of T cells, of landmark value enough by itself, is thus set in context and taken further to bold predictions of what may be happening *in vivo*—a peroration that fits well at the end of a rattling good read. Would that more reviews in this commodious compendium were as riveting.

SATYAJIT RATH

National Institute of Immunology,  
Aruna Asaf Ali Marg,  
New Delhi 110 067, India

---

**Annual Reviews of Medicine 1995.** Cecil H. Coggins ed. Annual Reviews Inc, 4139, El Camino Way, Palo Alto, California 94303-0139, USA. Vol. 46. Price: USA \$ 47, Elsewhere \$ 52. 549 pp.

---

Medical literature has become a big jungle these days, what with more than 30,000 biomedical journals pouring in data at a phenomenal pace. A novice in the field will find it difficult, if not impossible, to get at the rose wood and the teak wood in the jungle, instead he may get lost in the midst of the dead wood. Books like the medical annual will go a long way in helping people to know the useful research data and the milestone developments in their respective fields. This kind of book also could give the distilled wisdom in the field. 'Where,' said T. S. Elliot, 'is the wisdom we seem to have lost in knowledge?' and 'where,' he asked, 'is the knowledge we seem to have lost in information?' To convert the whole lot of information from the ordinary journals one needs to have a system whereby the juniors could get at the truth.

The editors of the medical annual have a very difficult task to pick and choose only a small fraction of the new knowledge generated during the year under review. The chapters in this book will, perforce, have to be patchy and choosy. However, this edition has been more than fair to the subjects under review. They have also selected the right people to do the reviews. People like Norman Kaplan, Erik Mogenson and Mark Pfeffer are all giants in their own fields, to mention only a few whose work I have direct experience of.

Molecular biology, new face of tuberculosis, brain imaging in schizophrenia, newer viruses, ventricular remodelling and organ transplantations are all the hot topics of the day and have all been judiciously reviewed. The index is a pleasure for the reader.

As in the previous issues of the medical annual which I have been following ever since 1964, the present one has kept up its high standards of the contents and the contributors. I had the pleasure of reviewing this good book two years ago for the *British Postgraduate Medical Journal* where I had expressed similar sentiments.

The book has been produced well, the print and the paper are also good. Overall this book should get very high marks

and I have no hesitation to recommend it strongly. This must be compulsory reading for all the postgraduates and others in practice. I would have been happier if they had included a review of the newer problems in the field of tropical diseases, as some of them like malaria, have come back with a vengeance, and do not follow the old time pattern at all; as also the dangerous scenario of nosocomial infections.

The research into malaria and its molecular biology is more than just of practical importance. It has more to it than what meets the eye. An important current topic is the localization of genes implicated in the susceptibility to common chronic diseases. This has been greatly facilitated by the use of polymerase chain reaction. An interesting recent observation has been the apparent protection against autoimmune diseases like rheumatoid arthritis and systemic lupus erythematosus in areas of west Africa where malaria is endemic, in contrast to the high incidence of these in west African-origin Americans. If this is correct, it would be a good example of the old saying that 'autoimmunity is the price paid for eradicating infectious diseases'.

The book is highly recommended despite these remarks.

B. M. HEGDE

Kasturba Medical College,  
Mangalore 575 001, India

---



---

**Tropical Diseases: Molecular Biology and Control Strategies.** Sushil Kumar, A. K. Sen, G. P. Dutta and R. N. Sharma, eds. CSIR, New Delhi. 1994. 773 pp.

---

The prevalence of tropical diseases in India has some very impressive statistics: Forty million people are chronically infected with filariasis, 4 million with leprosy, 0.25 million with Leishmaniasis, 1.5 million tuberculosis cases, 1.0 million malaria cases and equally dreadful number of people with diarrhoeal infection in a year. Rough, probably conservative, estimates these are. As if these diseases are 'inseparable but terrible companion of man' in this country. The urgency to control these diseases cannot be over-