
BOOK REVIEWS

Annual Review of Medicine, vol. 40, 1989, pp. 535, (ed.) W. P. Creger, (Published by Annual Reviews Inc., 4139 El Camino Way, Palo Alto, California 94306, USA), Price: USA \$ 34, Elsewhere \$ 38.

The impact of science and technology on medical concepts and practice pervades the *Annual Review of Medicine* for 1989. Application of the techniques of modern biology vies with the use of sophisticated instrumentation in the topics, which have been carefully selected for the volume.

Recombinant DNA technology has found important applications in medical treatment. It has produced recombinant tissue plasminogen activator (rt-PA), which is used in early thrombolytic therapy for acute myocardial infarction. Simoons has covered the extensive literature on comparative studies using intravenous streptokinase, intracoronary streptokinase, anisoylated plasminogen-activator complex (ASPAC) and rt-PA, and has reported a reduction in early mortality by 20–50%. Thrombolytic therapy is particularly effective in patients treated early. While rt-PA has not been conclusively shown to be superior to streptokinase in the reduction of mortality or bleeding complications, it has the merit of not causing anaphylactic reactions. Simoons' review contains up-to-date recommendations on the post-thrombolytic management of patients with reference to angiography, coronary angioplasty and bypass surgery. Similarly Clark *et al.* have outlined selected aspects of molecular biology in a discussion of how *bcr* and *abl* oncogenes may be involved in the pathogenesis of chronic and acute forms of Philadelphia chromosome-positive leukaemias. The use of modern biological techniques is emphasized again by Glenner, who discusses the pathobiology of Alzheimer's disease, which has assumed troublesome dimensions in the Western world. Detection of β -protein, the major component of the amyloid fibrils of cerebral vessels in Alzheimer's disease, in aged Down's syndrome individuals has been followed by the localization of the gene on chromosome 21 by the use of gene probes. It is likely that further work along these lines may improve our understanding of this disease and its management.

The best example of advanced instrumentation is the implantable cardioverter-defibrillator, which

forms the subject of an excellent article by Furman and Mercando. Whereas life-threatening ventricular tachycardia is treated by medications, surgery and ablation, pacemakers and implantable defibrillators, the authors have pointed out that combining the automatic implantable cardioverter-defibrillator (AICD) and an antitachycardia pacemaker into a single device will make antitachycardia pacing an effective and more acceptable form of treatment. In another paper, Cribier and Letac have presented the current status of percutaneous balloon dilatation for the nonsurgical treatment of stenotic heart valves in children and adults. A third example of advanced instrumentation is ultrasound guidance for foetal blood sampling, which facilitates not only prenatal diagnosis of genetic disorders, infections, etc. but also foetal therapy by the administration of transfusion and drugs. Widespread use of instrumentation leading to overdiagnosis or diagnostic confusion is illustrated by Cheng in his discussion on the role of M-mode and two-dimensional echo cardiography in the detection of mitral valve prolapse.

Therapeutic advances continue to occur gradually over a wide range of diseases. Autologous bone marrow transplantation for acute leukaemias and lymphomas is an example. Santos *et al.* report disease-free survivals in 50–60% patients who fail in primary and secondary treatment regimens with this form of therapy. They have also claimed that the results of autologous bone marrow transplantation can be improved by 'purging' the marrow of tumour cells by immunological or pharmacological techniques. A more outstanding therapeutic advance is the evolution of liver transplantation as an established procedure, with over 80% survival rate at one year, thanks to cyclosporin, improved organ storage, better surgical techniques, more reliable means for detection and management of rejection episodes, and effective organization of transplant programmes (Roberts *et al.*). Advances in the understanding and management of diseases are also clearly brought out in the chapters on sarcoidosis (Johns *et al.*), non-Q-wave myocardial infarction (Gibson), chronic pancreatitis (Sarles *et al.*), prolactinomas (Molitch) and *in situ* carcinoma of the breast (Connolly *et al.*). There are also highly readable accounts on surfactants (Dobbs) and the role of neuropeptides in inflammation (Payan). The successes are however tempered by

the frightening reports on cocaine dependence (over 2 million addicts), which is both psychological and neurophysiological (Garvin and Ellinwood), and lesser evils such as septic shock, which has become the commonest cause of death in intensive care units in the United States (Parrillo).

Like its predecessors, the *Annual Review of Medicine* for 1989 features articles by authorities who have made substantial contributions to their subjects and maintained a high level of seriousness in their presentations. The book is valuable for physicians and students of clinical sciences who are as keen to update their knowledge as they are to spare time and effort liberally for the task.

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Radon and its Decay Products in Indoor Air, (eds) W. Nazaroff and A. Nero, (Published by Wiley, New York,) 1988, pp. 518, Price \$ 75.00.

Indoor Radon and its Hazards, (eds) D. Bodanky, M. A. Robkin and D. R. Stadler, (Published by University of Washington, P., Seattle,) 1987, pp. 147, Price \$ 9.95.

Environmental Radon, (eds) C. Richard Cothorn and J. E. Smith, (Published by Plenum, New York,) 1987, pp. 363, Price \$ 55.00.

Radon is practically unheard of in undergraduate physics and chemistry courses, where it is briefly introduced as the heaviest of the noble gases and as a member of the uranium series. Nevertheless, public awareness of the presence in indoor atmosphere of radon and its progeny in hazardous quantities has made radon a topic household talk. Radon gas is generated during the decay sequence of the ubiquitous, randomly distributed and naturally occurring uranium in the Earth's crust. It finds its way into indoor air through a dynamic interaction between the foundations of buildings and the soil. Once indoors, radon decays into other radionuclides. The decay of the radon progeny deposited on the lining of tissues is, on the average, the largest source of exposure to radiation the general public experiences — a surprising fact to many.

The science that has grown around the radon issue includes a variety of disciplines in physics. These are studies on the relationship between soil characteristics and radon availability, on the mechanisms of radon's entry into indoor environments, on the effectiveness of different radon mitigation efforts, and on epidemiology and the degree to which radon decay products in the air that we breathe actually pose a health risk. To date, however, this relatively young field can only measure indoor radon and cannot predict its presence; cannot relate a short-term measurement of radon to an annual average exposure; and has not completed any epidemiological study that would relate human lung cancer incidence to indoor radon exposure.

Radon and its Decay Products in Indoor Air is a well-organized compilation of technical articles covering all the major topics associated with the indoor radon problem. The chapters included in the book are divided into four foci of current research, viz. (i) sources and transport process, (ii) characteristics and behaviour of radon decay products, (iii) the basis for health concerns, and (iv) controlling indoor exposure. The topics covered contain in-depth scientific details accompanied by complete bibliographic details for the fresher. The lacuna in this book is that research on the radon problem is advancing so rapidly that some progress has been made on each topic discussed since the time the chapters were written. But the quality of the scientific content will secure the book's position as an essential starting point for any one who is interested in the radon problem for a few years to come. In a field where scientific rigour is sometimes lacking, this book is a welcome change.

Indoor Radon and its Hazards gives an overview of the radon problem. It assumes that the reader has only a little scientific background, much less than that required by the first book; for example, it begins by defining radiation and radioactivity. It uses a descriptive rather than an analytical approach to cover the same general topics as the first book, but in less detail and with less scientific rigour; thus it is not particularly useful as a scientific book. Proportionally more room in the book is devoted to dosimetry models and determining lung cancer risk due to radon exposure than to other topics. Even though a section is devoted to sources of indoor radon, the text has only one sentence on the major source, flow into the indoor air of radon-containing soil gas, driven by pressure differences between the soil gas and the indoors. The final chapter comprises

a comparison of indoor radon with other radiation hazards, and nicely points out the magnitude of the problem. But this chapter could be interpreted as misleadingly endorsing nuclear power plants as safe.

Environmental Radon falls somewhere between the previously reviewed two books in content. Although this book starts, like *Indoor Radon and its Hazards*, with a basic introduction to radioactive decay, it covers the subject in more scientific detail. The main topics covered in this book are similar to those in the other two books, although, as the title suggests, the discussion does not focus in particular on radon and indoor air. Instead the book discusses a variety of topics related to radon in the environment, like radon generated from uranium mining and milling activities and from fossil fuel combustion, which are

unrelated to the problems of radon and indoor air. Thus, although these are interesting topics, this book will be less useful than the other two to anyone interested in the many scientific problems associated with indoor radon. It is this specific topic that is of considerable current research interest, because of its public health aspects. In the section on sources of radon in indoor air, this book, like *Indoor Radon*, does not include a significant discussion of the dominant source, pressure-driven flow from soil gas.

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ANNOUNCEMENT

National Seminar on Recent Trends in Aquaculture

Place: Nagarjunanagar
Date: January/February 1990
Contact: Prof. Y. Radhakrishna
Centre for Aquaculture Research and
Education
Nagarjuna University
Nagarjunanagar 522 510

Course on DNA Analysis in Forensic Investigation

Place: Hyderabad
Date: 1-5 January 1990
Contact: Director In-charge
Central Forensic Science Laboratory
Ramanthapur, Amberpet P.O.
Hyderabad 500 013

National Symposium on Biophysics

Place: Calcutta
Date: 20 to 22 February 1990
Contact: Prof. S. N. Chatterjee
Convener, NSB
Saha Institute of Nuclear Physics
37 Belgachia Road
Calcutta 700 037

Topics to be covered are: biocrystallography; NMR in biophysical research; IR, Raman and electronic spectroscopy applied to biomolecules; quantum biology and other theoretical aspects; computer graphics and simulation of biological systems; biomolecular interactions; radiation and photobiology; membranes; medical and clinical biophysics and related studies; analytical microscopy; microbial and cellular biophysics; and biosensors. Abstracts before 20 November, registration before 15 December.
