

## Advances in Modern Nutrition Vol. 2, Parts 1 & 2: Diabetes, Obesity and Vascular Disease

edited by H.M. Katzen,  
Merck Institute for Therapeutic Research,  
and R.J. Mahler,  
Eisenhower Medical Center.

Presents up-to-date reviews and studies of basic and clinical research ranging from a clinical understanding of food intake and its regulation to the metabolic and cellular alterations resulting from excess substrate ingestion. It interrelates the physiologic and biochemical principles that cause the frequent coexistence of obesity and atherosclerosis in individuals with altered carbohydrate metabolism. (*Advances in Modern Nutrition Series*)

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by E. Arrigoni-Martelli, Department of Pharmacology, Leo Pharmaceutical Products Ltd., Ballerup, Denmark

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## Laser and microwave techniques

*Laser and Coherence Spectroscopy.*  
Edited by Jeffrey I. Steinfeld. Pp. 530.  
(Plenum: New York, 1978.) \$54.

THE application of coherent transient techniques such as free-induction decay, optical nutation and photon echoes in molecular spectroscopy is providing new information and fresh insights into basic molecule-radiation interactions and collisional and radiative relaxation processes. This book contains five chapters by separate authors, mainly chemists, on laser and microwave techniques currently in use.

The opening chapter by Steinfeld and Houston concentrates on methods and devices used in double resonance and is followed by a chapter on coherent transient microwave spectroscopy by Schmalz and Flygare. The third chapter by Shoemaker on coherent transient infrared spectroscopy emphasises the Stark switching method he pioneered with Brewer. The fourth chapter by Harris and Breiland is concerned with coherent spectroscopy in electronically excited states, and the book concludes with a chapter by Novak Friedman and Hochstrasser entitled "Resonant Scattering of Light by Molecules: Time dependent and Coherent Effects".

## Cellular recognition

*Receptors and Recognition.* (Series A.) Vols 1-4. Edited by P. Cuatrecasas and M. F. Greaves. (Chapman and Hall: London; Halsted: New York, 1976-1978.) Vol. 1: £7, £4.50; vol. 2: £10, £6; vol. 3: £10, £6; vol. 4: £11.50, £7.50 (hardback and paperback, respectively).

CELLULAR recognition processes are now the subject of a vast research effort, but most of this is compartmentalised into rather narrow specialities. As pointed out by the editors of this series (a biochemist and an immunologist), any attempt to reveal underlying unities in the various types of cellular recognition should consider processes as diverse as "fertilisation, embryonic development, infectious interactions, the activity of the nervous system, the regulation of growth and development by hormones and the immune response... to antigens". Given this large canvas on which to work, it is inevitable that any editors' choice of topics will be somewhat personal, but one hopes for a balance to be struck between descriptions of biological phenomenology and of molecular mechanisms and for each constituent subject to get fair representation.

Two chapters are worth singling out for special mention. Shoemaker's lengthy chapter contains a quite outstanding analysis of the optical Bloch equations using Jaynes' elegant matrix method of solution, and all his theoretical arguments are prefaced by useful pedagogical or heuristic explanations. I particularly liked his discussion of phase interruption and velocity-changing collisions.

The chapter by Novak, Friedman and Hochstrasser is noteworthy for other reasons: the authors seem unaware of some of the advances made in quantum optics in the past 20 years and step into traps I thought had rusted away years ago. They use concepts such as a "nearly monochromatic photon", and "photons of variable extents in time", and make mis-statements (p 457) on the preservation of coherence when a molecule interacts with a coherent state field, and on the nature of chaotic light (p 473), and so on.

Altogether, the book is an odd mixture. Specialists should read it, if only for Shoemaker's article. Textual evidence suggests the manuscript was completed in 1976. Given this delay and the extravagant price, the authors would have been better advised to publish their work in existing review journals or in an *Advances* series.

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Based mainly on these four volumes, but also on the titles of contributions to two further volumes which will appear this year (due June and September), I feel that the editors of this multidisciplinary series are to be congratulated on progress so far. However, they do not seem to have yet achieved quite the necessary balance between different areas, perhaps because they have allowed too much 'background' material to occupy valuable space which could have been better used.

This imbalance in the first four volumes tends to favour immunological topics and discriminate against topics related to mammalian homeostasis and tissue function. The immune system is the central topic in *The Evolution of Receptors and Recognition in the Immune System* (F. M. Burnet, Vol. 1), *A Structural Basis for Molecular Recognition: The Antibody Case* (D. Givol, Vol. 2), *Cell Traffic* (M. A. B. de Sousa, Vol. 2) and *The Cellular Receptor for IgE* (H. Metzger, Vol. 4). In addition, it features prominently in *Membrane Associated Events in Lymphocyte Activation* (K. Resch, Vol. 1), *Specificity in Host-Parasite Interactions* (K. N. Brown, Vol. 1), *Calcium and Cell Activation* (B. D. Gomperts, Vol. 2), *Antibodies to Receptors for*