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**Sensory Reception**

Y.A. Vinnikov 2012-12-06 This book presents a distillation of many years of investigation by the author and his associates on the problem of sensory
reception. Both our own data and data from the scientific literature on the electron microscopy, cytochemistry, biochemistry and electrophysiology of the organs of vision, taste, smell, hearing and gravitation, are presented to show that the evolution of the sense organs of all animals on our planet is based on a receptor cell equipped with a motile antenna, a biological recorder of information concerning certain types of energy reaching the animal from the environment. The conversion or encoding of this energy into information is effected with the aid of special protein molecules positioned in the plasma membrane of the antennae. The action of the unit of energy of a stimulus on such a specific protein molecule causes a change of shape, and this is the basis of the trigger mechanism of reception, leading to the stimulation of the receptor cell and the transmission of the information encoded in this cell in the form of nerve impulses to the central nervous system. The present monograph summarizes over 30 years of working experience by the author and his associates in the field of evolution of sense organs. Material is used here from his earlier monographs: The Retina of the Eye Vertebrates, 1947, The Morphology of the Organ of Smell, 1957, The Organ of Corti: Its Histophyiology and Histochemistry, 1964, written jointly with L. K.

**Sensory Reception**- 1974

**Sensory Reception**-IA. A. Vinnikov 1974

**Sensory Reception**-Iakov Abramovich Vinnikov 1974

**Comparative Physiology and Evolution of Vision in Invertebrates**-H. Autrum 2012-12-06 In the comparative physiology of photoreception by the Protista and the invertebrates two aspects are emphasized: (1) the diversity of visual processes in these groups and (2) their bearing upon general mechanisms of photoreception. Invertebrates
have evolved a far greater variety of adaptations than vertebrates modifications aiding survival in the remarkably different biotopes they occupy. The number of species in itself suggests this multiformity; each of them has peculiarities of its own, in morphology as well as in physiology and behavior. But these special adaptations are variations on a few great themes. Although the catalogue of invertebrate species is immense, the literature concerning them nearly rivals it in extent—even if one considers only that fraction dealing with visual physiology. Taxonomy proceeds by grouping the species, categorizing them in genera, families, orders, and progressively larger units. Similarly, comparative physiology aims at an analogous, more or less comprehensive, classification. This Part A of Volume VII/6, like Part B that follows it, emphasizes the broad questions that concern groups larger than the individual species; in some cases these questions have general applicability. The middle course between approaches that are too specialized and those that are too general is often elusive, but here we attempt to follow it. The vast number of special adaptations—probably, as we have said, as large as the number of species—is beyond the range even of a handbook.


Quantitative Aspects of Allosteric Mechanisms—A. Levitzki 2013-11-11 The aim of this monograph is to summarize the essential features which characterize the behavior of regulatory systems. Firstly we discuss the laws which govern ligand binding in thermodynamic terms. The basic cooperative and allosteric phenomena are described in thermodynamic terms without assuming any particular model. Then the molecular models developed by Monod, Wyman and Changeux and by Koshland, Nemethy and Filmer are
presented in detail. Special emphasis has been given to the analysis of the Hill coefficient and its meaning both in thermodynamic terms and in terms of the two allosteric models: the concerted model of Monod, Wyman and Changeux and the sequential model of Koshland, Nemethy and Filmer. Special types of cooperativities are discussed in some detail namely, cooperativity stemming from ligand coupled protein association or dissociation, negative cooperativity and half-of-the-sites reactivity. A slightly extended space was devoted to the discussion of negative cooperativity and half-of-the-sites reactivity, since the existence of these phenomena and their possible biological importance is less of a common knowledge than positive cooperativity. This monograph does not attempt to be a review of specific examples analyzed according to one model or another. Rather, an attempt is made to provide the reader with the quantitative tools to analyze any specific regulatory system. Last but not least, I would like to thank Prof. F. W. Dahlquist from the Institute of Molecular Biology, the University of Oregon (Eugene) and Prof. D. E. Koshland, Jr.

Chemical Relaxation in Molecular Biology-I. Pecht 2012-12-06 The development of an area of scientific research is a dynamic process with its own kinetic equations and its own physical mechanism. The study of fast chemical interactions and transformations is such an area, and while it is tempting to draw analogies or to speculate about the simplest model system, the lack of adequately averaged observables is an annoying obstacle to such an undertaking. Sciences suffering from such conditions usually avoid quantitative models, be they primitive or complex. Instead, they prove their point by "case histories". Chemical relaxation kinetics started as an offspring of research in acoustics. In some aqueous ionic solutions anomalous acoustic absorption had been observed. A systematic study traced the cause of this absorption, showing that the covered frequency range and
the intensity of the absorption were related in a predictable manner to the rate at which ions can interact and form structures differing in volume from the non interacting species. The step from this experimental observation and its correct, non trivial explanation to the discovery that all fast chemical processes must reveal themselves quantitatively in the relaxation rate of a perturbed equilibrium state, and that perturbation parameters other than sound waves can be used for its exploitation, was made by MANFRED EIGEN in 1954. The foresightedness of K.F.

Progress in Molecular and Subcellular Biology-
2012-12-06

Advanced Methods in Protein Sequence Determination-Saul B. Needleman 2012-12-06
Confusion now hath made his masterpiece Macbeth II iii 72 Whence and what are those execrable shape? Paradise Lost Ib 1 681 Confusion worse confounded Paradise Lost Ib 1 995 When the manuscript for the first part of this book was proposed, it was anticipated that the discussion of the entire field of protein sequencing could be covered in a single volume - from purification and characterization of the protein through fragmentation by chemical or enzymic means and, finally, to reassembly of the identified individual peptides into the reconstructed total sequence. It soon became evident that this would not be possible. While the intent was to restrict the expose of procedures only to that information concerned with "hands on" wet chemistry, it became apparent that a thorough presentation would require, in addition, a discussion of certain instrumental and more theoretical approaches not included in the first volume. Furthermore, the entire understanding of the field of protein sequencing has advanced appreciably since the inception of this book. The purpose of the first volume was to provide practical information in sufficient detail
to permit the researcher to undertake the actual sequencing procedures in his own laboratory.

**Creative Psychotherapy**

Eileen Prendiville 2016-09-13

Creative Psychotherapy brings together the expertise of leading authors and clinicians from around the world to synthesise what we understand about how the brain develops, the neurological impact of trauma and the development of play. The authors explain how to use this information to plan developmentally appropriate interventions and guide creative counselling across the lifespan. The book includes a theoretical rationale for various creative media associated with particular stages of neural development, and examines how creative approaches can be used with all client groups suffering from trauma. Using case studies and exemplar intervention plans, the book presents ways in which creative activities can be used sequentially to support healing and development in young children, adolescents and adults. Creative Psychotherapy will be of interest to mental health professionals working with children, adolescents and adults, including play and arts therapists, counsellors, family therapists, psychologists, social workers, psychiatrists and teachers. It will also be a valuable resource for clinically oriented postgraduate students, and therapists who work with victims of interpersonal trauma.

**Transition Metals in Biochemistry**

A. S. Brill 2012-12-06

Transition metal ions in biological systems are of interest in biology, biochemistry, chemistry, medicine, and physics. Scientists with rather different viewpoints, employing many methods, have contributed to this area. A concise review of the current state of the field will, to some extent, reflect the special knowledge of the person writing it - in this case application of physical methods to the investigation of metal coordination. X ray diffraction is one of the most important of these methods,
but a useful treatment of X-ray structure analysis would be comparable in size with and beyond the scope of the monograph. Many results of X-ray diffraction studies are, of course, presented. Electron paramagnetic resonance spectroscopy has played a major part in the rapid advance in knowledge of the electronic structures of transition metal ions in biological systems. More generally, measurements involving light, microwaves, and magnetic fields are capable of producing much new information, and the required instrumentation is available at most research institutions. Therefore light absorption and paramagnetic resonance are treated in depth. The principles described in the latter discussions are broadly applicable, for example to the promising techniques of X-ray spectroscopy (utilizing synchrotron radiation) and lanthanide-perturbed, very high-resolution nuclear magnetic resonance spectroscopy.

Lampbrush Chromosomes

Harold G. Callan 2012-12-06

In 1965 I was asked by Dr. Konrad Springer whether I would consider writing a monograph on "Lampbrush chromosomes and their physiological meaning", and although I accepted in principle I refused to write there and then, or to meet a deadline. I wanted to continue with my own research, and I had other responsibilities that left me with little free time, but a much more important consideration was that in the 1960s the subject was beset by a host of unresolved questions. I felt that to write a review then would be premature, full of speculations many of which would be refuted, and indeed were refuted, within the next decade or two. Had I written at that time the only real advantage over the present would have been that few biologists were studying lampbrush chromosomes, and the published literature was therefore scanty. I am glad that I insisted on delay, and am grateful for Springer Verlag's patient acceptance of my decision. The first chapter of this monograph describes the history of research on
lampbrush chromosomes from their discovery towards the end of the 19th century until the early 1960s. By then several facts concerning their structure and chemistry had been firmly established, including the evidence that a lampbrush chromatin is unineme; it contains a single uninterrupted DNA duplex. This exposed a major problem, the C-value paradox; grades of complexity of organization in eukaryotes are unrelated to their genome sizes.

**Secondary Metabolism and Cell Differentiation**

Secondary Metabolism and Differentiation In addition to the primary metabolic reactions, which are similar in all living beings (formation and breakdown of nucleic acids and proteins as well as of their precursors, of most carbohydrates, of some carboxylic acids, etc.), a vast number of metabolic pathways lead to the formation of compounds peculiar to a few species or even to a single chemical race only. These reactions, in accord with CZAPEK (1921) and PAECH (1950), are summed up under the term "secondary metabolism", and their products are called "secondary metabolites." The wide variety of secondary products formed in nature includes such well-known groups as alkaloids, antibiotics, cardiac glycosides, tannins, saponins, volatile oils, and others. A considerable number of them are of economic importance in therapeutics or technology. Although secondary products are produced by microorganisms, higher plants, and animals (cf. LUCKNER, 1972), most of the substances are found in the plant kingdom. The lack of mechanisms for true excretion in higher plants may result in this unequal distribution, the "waste products" of metabolism in plants instead being accumulated in the vacuoles, the cell walls, or in special excretory cells or spaces of the organism ("metabolic excretion," cf. FREY-WYSSLING, 1935, 1970; MOYTHES, 1966a, b, 1972; LUCKNER et al., 1976. Many secondary substances have, however, a direct biologic
function. They can be regulatory effectors, e.g.

**Connective Tissue**-M.B. Mathews 2012-12-06 This book deals primarily with the principal extracellular macromole cules of animal connective tissues. It attempts to answer some general questions about the biological organization of the tissues: What is the nature of this organization at various dimensional levels? What functions does the organization serve? How has it evolved? I have given major emphasis to the structures and properties of the macromolecular components of extracellular matrices from a wide range of invertebrates and vertebrates. In doing so, however, I have treated cursorily many important aspects of connective tissue biology that appeared to be only indirectly relevant to the principal questions asked. On the other hand, I have not hesitated to search for broad biological principles outside the prevailing conceptual boundaries of animal connective tissues and the lower molecular dimensional levels. The numerous speculations presented will, I hope, stimulate the reader to further thought and investigation.

Acknowledgements My previously unpublished data that have been included in this volume could not have been obtained without the generous gifts of specimens and other assistance by a number of individuals and institutions. These are Dr. G. BERENSON of Louisiana State University, Drs. W. P. BRAKER and D. ZUMWALD of the Shedd Aquarium, Dr. S. H. CHUANG of the University of Singapore, Dr. L. G. CLARK and Mr. U. M. VARELA-DIAZ of the University of Pennsylvania, the Government of Nicaragua, Dr. E. CLARK of Cape Haze Marine Laboratories, Mr. C. E.

**Electrical Potentials in Biological Membrane Transport**-E. Heinz 2013-03-08 The material of this volume was originally planned to be incorporated in the preceding monograph Mechanics and Energetics of Biological Transport.
separate and coherent treatment of the variety of bioelectrical phenomena was considered preferable, mainly for didactic reasons. Usually, the biologist has to gather the principles of bioelectricity he needs from different sources and on different levels. The present book intends to provide these principles in a more uniform context and in a form adjusted to the problems of a biologist, rather than of a physicist or electrical engineer. The main emphasis is put on the molecular aspect by relating the bioelectrical phenomena, such as the membrane diffusion potentials, pump potentials, or redox potentials, to the properties of the membrane concerned, and, as far as possible, to specific steps of transport and metabolism of ions and nonelectrolytes. Little space is devoted to the familiar and widely used representation of bioelectrical phenomena in terms of electrical networks, of equivalent circuits with batteries, resistances, capacities etc. In order to elucidate the basic principles, the formal treatment is kept as simple as possible, using highly simplified models, based on biological systems. The corresponding equations are derived in two ways: kinetically, i.e. in terms of the Law of Mass Action, as well as energetically, i.e., in terms of Nonequilibrium Thermodynamics.

**Mechanics and Energetics of Biological Transport**

E. Heinz 2012-12-06 This book deals with energetics of transport processes, largely expressed in terms of the thermodynamics of irreversible processes. Since at the present time too little is known about the molecular mechanism of transport, the present treatment is based largely on hypothetical models. Care has been taken, however, to define the crucial features of these models as generally as possible, so that the equations do not depend too much on hypothetical details. Accordingly, most equations, though developed on the basis of a mobile carrier (ferryboat) model, should apply equally to a conformational model, with an appropriate reinterpretation of the symbols. To better
elucidate the essentials, the models are greatly simplified by special assumptions. Maximally, only two flows are assumed to be present in each model at one time: e. g., two solute flows, the flow of solvent and of one solute, the flow of solvent and of heat. The simplifying assumptions may often be unreal. Hence the equations should not be applied uncritically to actual mechanisms. They may at best serve as a basis on which the more appropriate equations may be developed. The book is not designed to give a complete kinetic analysis of the transport processes described. The kinetic equations are kept to the minimum required to describe the model concerned and to relate it to the corresponding thermodynamic equations. The intention is to stress the close relationship between bioosmotic (transport) and biochemical processes in metabolism.

Bibliography of Medical Reviews- 1976

Biochemistry of Taste and Olfaction-Robert Cagan
2012-12-02 Biochemistry of Taste and Olfaction examines the biochemical aspects of taste and olfaction and their relevance to nutrition, medicine, and food science. More specifically, it considers the biological processes that influence dietary habits, nutritional status, and enjoyment of food, as well as other important social and biological phenomena. It also describes biochemical mechanisms at the peripheral receptor level in taste and olfaction, with emphasis on the role of the cell surface, along with neurotransmitters and other neurochemical aspects of the olfactory system. Organized into five sections comprised of 24 chapters, this book begins with an overview of biochemical approaches used in studying the phenomena of taste and olfaction. It then proceeds with a discussion of olfactory receptor mechanisms, the accessibility of odorant molecules to the receptors, the role of cilia in olfactory recognition, and the involvement of receptor proteins in vertebrate
olfaction. Middle chapters focus on the chemosensation, major histocompatibility complex and olfactory receptors, taste receptor mechanisms, biochemistry of sugar reception in insects, intensity/time phenomena in sugar sweetness, and recognition of taste stimuli at the initial binding interaction. The reader is also introduced to the physicochemical principles of taste and olfaction, molecular mechanisms of transduction in chemoreception, biochemical mechanisms in vertebrate primary olfactory neurons, neurotransmitter biochemistry of the mammalian olfactory bulb, and chemical sensing by bacteria. Examples of chemical sensory systems are included. This book will be of interest to biochemists, physiologists, neurobiologists, neuroscientists, molecular biologists, food scientists, students, and specialists in psychology, neurophysiology, organic chemistry, and nutrition.

Foundations of Sensory Science-H. Autrum

2012-12-06 When seen from an outsider's vantage point, the development of knowledge in the sensory sciences must appear massive and the result of some carefully followed master plan. In reality, it is the result of numerous relatively independent human endeavors shaped by application of the scientific method. The comprehensive construction of quantitative theories of sense organ function has occurred only recently -but at an explosive rate prefaced by centuries of expansion in the physical sciences. Predicated on this growth, the twentieth century may become known as the age of the biological sciences. With the exception of a modest number of intellectual giants, there were few contributors to the foundations of the sensory sciences before the dawn of this century. At least 90% of existing knowledge has been produced by scientists working in laboratories founded since 1920. If any single scientist and his laboratory may be identified with the growth in the sensory sciences, it is EDGAR
DOUGLAS ADRIAN, First Baron of Cambridge and leader of the Physiological Laboratory at Cambridge University, England. Lord ADRIAN'S influence upon the sensory sciences was great, not only in terms of his contribution to knowledge itself but also through the influence which he exerted upon numerous young scientists who spent weeks or years at the Cambridge laboratory and who later returned to their homelands and colleagues with the seeds of vigorous research and quantitative inquiry firmly implanted.

Cumulated Index Medicus- 1985

International Review of Cytology- 1979-10-02
International Review of Cytology

Literature Search-National Library of Medicine (U.S.) 1970

Folia Histochemica Et Cytochemica- 1975

Inhibitors of Nucleic Acid Synthesis-H. Kersten
2013-11-11 During the last decade physical and chemical methods have improved rapidly - a fact which allowed the mode of action of antibiotics to be studied - and many biochemically-oriented scientists have devoted their research to the following questions: 1. What is the metabolic pathway that is inhibited selectively, and what are the target molecules within a sensitive cell? 2. What are the relationships between the chemical structure of an antibiotic and the physicochemical properties of the sensitive molecule(s)? 3. Why and how far is the action selective? 4. Is it possible to correlate the interaction with the target molecule(s) with the particular biological activities observed? This monograph deals with those antibiotics which interfere with the biosynthesis of nucleic acids. The idea was to provide an insight into how to investigate
the preceding questions experimentally and to solve as yet unresolved problems rather than to give a review of the current state of knowledge. Although the biochemistry of nucleic acid synthesis is known in general, the precise molecular mechanisms by which deoxyribonucleic acid is replicated or transcribed has still to be clarified. For this reason it is not yet possible to describe the molecular mechanisms by which the inhibitors of nucleic acid and protein synthesis exhibit their effects. The fact that the inhibitors of nucleic acid and protein synthesis themselves served as useful tools to obtain an insight into the mechanisms of replication, transcription and translation was one of the most exciting discoveries in this field.

Current Citations on Communication Disorders: Hearing and Balance- 1975

Evolution of Receptor Cells-Y.A. Vinnikov
1981-12-08 stimulating introduction to a school of thinking and a body of research that is not widely known or easily accessible to us. His attempt to provide a unifying theory of sensory receptor mechanisms based on evolutionary principles is unique and imaginative. Among the joys of a career in science is the opportunity to rub shoulders with people of outstanding intellectual power and, with luck, to have the privilege of their friendship. In May of 1979 I visited the U.S.S.R. as a guest lecturer in chemical senses. During the 8 days that I spent in the beautiful city of Leningrad I had the great good fortune to become acquainted with Yakov Abramovich Vinnikov, and we quickly became good friends. A dinner party at his apartment is among the warmest of my memories, and nothing could please me more than to have the opportunity to introduce him in person to my colleagues in Western Europe, the Americas, Japan, and Australia. That, I am sorry to say, is a most unlikely eventuality. For the time being, introducing his fertile mind through this book is the best I can do.
Evolution of Receptor Cells - IA. A. Vinnikov 1982

Nasal Tumors in Animals and Man Vol. I - Gerd Reznik 2017-11-22 This Monograph brings together within one cover the current knowledge about tumors of the nasal passages in man, in domestic and nondomestic animals, and in the rodents which are commonly employed in carcinogenesis studies in the laboratory.


Research Awards Index - 1989

Biosciences Communications - 1977

British Books in Print - 1984

International Books in Print - 1994

Acta Physiologica - 1975

Mechanisms of Taste Transduction - Sidney A. Simon 1993-07-23 Mechanisms of Taste Transduction introduces a number of topics essential to a complete understanding of taste. These topics range from the control of food intake to the biophysical mechanisms of transduction and the design of food flavors in the food industry. The responses and organization of special sensory pathways are described in regard to their development, morphology, composition, electrophysiological and biochemical responses. Details are presented at several levels to appeal to researchers in molecular biology, membrane biophysics, human psychophysics, neuroanatomy, and chemistry. Current research is described in the context of what preceding studies have revealed, and the
chapter authors are among today's most active and highly respected researchers in the field of chemical senses.

**Comparative Physiology and Evolution of Vision in Invertebrates** - Hansjochem Autrum 1979

**Comprehensive Insect Physiology, Biochemistry, and Pharmacology** - Gerald A. Kerkut 1985

**Nasal Tumors in Animals and Man: Anatomy, physiology, and epidemiology** - 1983

**Monthly Bibliography of Medical Reviews** - 1975