In part 3, the principles of pharmacokinetics — exposed in the former issues — are applied to the problems of clinical pharmacology and toxicology. The materia is presented under the following headings. (1) Determinants of drug concentration and activity with special attention to the development of pharmacokinetic models, to drug latency, importance of biologically active metabolites, routes of administration, entero-hepatic circulation, effects of aging, pathological and physiological factors affecting drug activity, including the special situation of renal failure, as well as the genetically determined aberrations of drug response. (2) Drug interactions and adverse reactions: theoretical considerations, interactions of cardiovascular drugs at the receptor level, special problems of interaction in cancer therapy and antimicrobial treatment. (3) Importance of drug disposition in therapy and toxicology, actions and interactions of parent drug disposition in therapy and toxicology, actions and interactions of parent drugs and metabolites, toxic drug reactions including the problem of drug-induced neoplasia and drug allergy. The 3 parts of the Concepts, elaborated by eminent authors delineate in a most successful manner the theoretical basis and the clinical relevance of biochemical pharmacology and provide fundamental and indispensable information for the understanding of drug action and hazards.

R. Domenjoz, Bonn


This booklet which is addressed to students of medicine during their 1st year of medical education attempts to facilitate the understanding of the complex matter of nerve cell functions. In the first chapters, the structure of nerve cells, the electrical background and the bioelectrical phenomena, such as membrane resting and action potential, are discussed. Further chapters deal with transmission of information, with communication between nerve cells and with basic patterns of organization within the nervous system. This book is written in an easily understandable form and it is illustrated by instructive figures; it can be recommended as a useful aid to the above-mentioned readers.

K. Karzel, Bonn


This is the second edition of a book on sequential analysis, particularly regarding its use in clinical pharmacology. The author, a pioneer in this field, has evaluated the experiences and advances which have been made during the last 15 years, i.e. since the appearance of the first edition. As he writes in the preface, he has attempted to preserve the basic character of the book,
namely to present a well-readable introduction to sequential methods, without including too much mathematics. This aim appears to have been reached. An introductory chapter on general aspects of controlled medical trials is followed by chapters describing the medically important techniques of sequential analysis. In a final chapter, the limitations, difficulties and dangers of sequential methods are discussed. The statistical theory is summarized in a short appendix. The text is illustrated by numerous statistical tables and figures.

This book is a useful supplement to statistical textbooks in many of which sequential analysis is treated only marginally. The book will be therefore, a welcome aid to many readers confronted with statistical problems.

K. Karzel, Bonn


This textbook on drug therapy and clinical pharmacology is addressed to students of medicine in the 4th to 6th year of their medical education and it tries to fulfill particularly the requirements laid down in the German regulations for the medical examinations. The user of the book is expected to possess basic knowledge in general (theoretical) and special pharmacology. In this book, therefore, emphasis is put on practical and clinical aspects of drug therapy. The 30 chapters compiled by 28 authors are devoted to drug therapy of cardiovascular, renal, gastrointestinal, respiratory, neurologic, psychiatric and blood disorders, to the management of pain, rheumatic diseases, gout, infections and intoxications; further chapters deal with problems of drug legislation, with drug prescriptions, drug allergy, drug interactions and with some aspects of drug therapy during childhood and old age. In an appendix, the drugs mentioned in the book are matched with their international non-proprietary names against the trade names and vice versa.

The book treats the most important topics of practical drug therapy in a synoptical form and it can be recommended as a useful guideline to the readers mentioned above.

K. Karzel, Bonn


This is the third part of a multivolumed work dealing with methods which are used in pharmacological research. The present volume is devoted entirely to smooth muscle techniques. The matter is treated under multidisciplinary aspects and the 41 contributions by 44 authors describe morphological, physiological, biochemical and biophysical methods. 5 chapters deal with electron-microscopical, light-microscopical and fluorescence-microscopical techniques used in investigations of smooth muscle and attached tissues, particularly nervous tissue. 12 chapters are devoted to the recording of electrical and mechanical activities (including microelectrode, sucrose gap and voltage clamp techniques) and to the electrical, mechanical or chemical stimulation of smooth muscle. In the 8 following chapters nerve-muscle preparations of various organs (e.g., small and large intestine, vas deferens, blood vessels) are described. 2 chapters discuss the evaluation of dose-response and time-response curves with particular consideration of smooth muscle, and in a further chapter, models of smooth muscle electrical activity are presented. The remaining 12 chapters are devoted to biochemical methods, such as homogenization techniques or measurement of energy
metabolism, adenylcyclase and cyclic AMP, catecholamines, acetylcholine, adenine nucleotides, and to ion flux analysis.

The individual articles are illustrated by diagrams, figures, etc., and the various techniques are usually described with all details, as for example electrical circuit diagrams of electrical apparatus, composition of solutions, preparation of organs, etc. This means that most of the methods described can be set up and used without the consultation of the original literature. Many of the contributions discuss also the theoretical background of the methods. This book will be very welcome not only to pharmacologists but also to experimentalists belonging to other biological disciplines.

K. Karzel, Bonn


This volume of Advances in Cyclic Nucleotide Research contains five articles on aspects of the presence and function of cyclic nucleotides in cellular systems not previously covered in comprehensive reviews. Berridge describes the interactions between cyclic nucleotides and calcium in the control of cellular functions such as secretion, photoreceptors, smooth and heart muscle contraction, growth of cultured cells or tissue regeneration. Halkerston and Marsh summarize the current state of knowledge on the role of cyclic nucleotide in the regulation of adrenocortical, respectively, gonadal function. Montague and Howell report on the possible role of cyclic AMP in the regulation of insulin secretion in the islets of Langerhans and discuss the interactions between agents affecting insulin release and cyclic AMP in the islet cells. Chlapowski, Kelly and Butcher review the current state of knowledge on the presence and function of cyclic nucleotides in the control of specific or pleiotypic responses of cultured cells, indicating the advantages and disadvantages of the use of cell cultures in studies on the role and mechanism of action of cyclic nucleotides.

Like other volumes of this series, the book keeps the high standard of information and ideas contained in all reviews of the advances, closely following the developments in the cyclic nucleotide field. Therefore, the emphasis of this volume is markedly shifted from reports on the presence of cyclic AMP and cyclic GMP in cellular systems to the discussion of the functions of cyclic nucleotides and the interactions with other regulatory systems in cell metabolism. The comprehensive bibliography supplied with each review and the detailed author and subject indices at the end of the book are very helpful for the search on specific topics.

P.S. Schönhöfer, Hannover


The present book is the Proceedings of the ‘Conference on Clinico-Biological Psychiatry’ held in Kyoto, Japan, in May 1973, and contains 32 papers from outstanding scientists.

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The main topics of this conference were: (1) biological correlations of the endogenous psychoses, and (2) biological mechanisms of schizophrenia and schizophrenia-like psychoses. Each contribution is printed in full detail including all comments and following discussions. Also, the panel and general discussion at the end of this meeting is presented here in extenso. Therefore, this book is certainly a very competent mirror and indicator for the current status of research on endogenous psychoses, especially schizophrenia. The contribution also reflects the modern trend of schizophrenia research as well as the general trend in modern psychiatry.
Genetic, endocrinological, neurochemical, histological aspects are very well integrated in the research for cause, development and treatment of these mental diseases. This excellently edited publication is a very valuable reference and gives information on up-to-date interdisciplinary research on schizophrenia. It will be of interest to psychiatrists, neurochemists, pharmacologists and psychologists as well.

D.A. Kalbhen, Bonn


Pre- and perinatal pharmacology is one of the most rapidly developing disciplines. The enormous differences detected between pharmacologic and toxicologic effects of drugs in embryos, the newborn, the developing child and the adult are of considerable clinical significance. The present collection of 41 short articles, papers delivered at a 1974 symposium held at the Mario Negri Institute for Pharmacological Research in Milan, give an excellent overview of the present state of knowledge in this field. Many of the contributions deal with metabolic differences between adult organisms and embryos; others discuss the pharmacokinetic consequences of these differences using examples from experimental animals and humans. Other topics include drug effects on uterine and fetal circulation, postnatal behavior and myocardial function of the embryo. The volume is highly recommended for toxicologists and pharmacologists and will certainly also provide useful information for clinical pharmacologists, neonatologists, and pediatricians.

G. Zbinden, Zurich


Due to the wide use and abuse, ethanol has been the topic of numerous research projects and of many publications. Nevertheless – as may be seen from this book – ethanol is still subject of further interest and research. Especially in the field of biochemical pharmacology this alcohol is until now not fully investigated. It is the merit of the editor Majchrowicz to bring together 19 different scientific contributions from outstanding experts on the pharmacology of ethanol. Therefore this book is certainly a comprehensive and up-to-date compendium about the effect on and fate of ethanol in animals and man. It contains not only the different pathways of alcohol degradation but also chapters on the effect of alcohol on liver and brain metabolism and on interactions with biogenic amines and drugs. Alcohol dependance, genetic and endocrine factors are extensively presented and discussed. The wide range aspects of ethanol effects are demonstrated and will stimulate further research on the pharmacology of ethanol. Not only pharmacologists and toxicolo-gists but also biologists, psychiatrists and researchers in forensic medicine will certainly welcome this scientific monograph. D.A. Kalbhen, Bonn


Toxicology is concerned with a wide array of problems stemming from the interaction of chemical substances with living matter. It is part of the basic biological sciences, heavily committed to pharmacology and pathology, and totally dependent on biochemistry. It plays an
important part in human and veterinary medicine, ecology, industrial hygiene, nutrition, forensic medicine, and the agricultural sciences. It is no wonder, therefore, that no one has so far been able to cover all these aspects adequately in a textbook of toxicology. The latest attempt, a book written by 35 North American authors, bears the misleading subtitle ‘The Basic Science of Poisons’. Basic aspects of toxicology are limited to a few chapters presented as unit I, general principles of toxicology. It contains concisely written chapters on absorption, distribution, and excretion of toxicants, and almost 100 pages summarizing the metabolism of a large number of air contaminants, pesticides, and selected drugs. Unit I is concluded with an excellent chapter on factors influencing the toxic effects of chemical substances.

Unit II explores organ specific toxicity. Various authors describe the action of chemical substances on the central nervous system, liver, kidney, respiratory system, the formed elements of blood, skeletal system, reproductive system, and the eye. These chapters provide excellent summaries on organ damage induced by selectively toxic substances. One wonders why other organs such as the cardiovascular system, the endocrine glands, the skin, the urinary bladder, the gastrointestinal tract, to name only some of the more important ones, were left out of this unit.

Unit III attempts a systematic description of toxic chemicals subdivided by chemical classes, e.g. teratogens, carcinogens, radioactive materials, pesticides, metals, solvents, air pollutants, food additives, toxins of animal origin, phytotoxins, plastics, and social poisons. With its 341 pages this part of the book monopolizes almost half of the available pages. It contains much and up-to-date information, and will therefore be welcome to those who do not have access to the voluminous handbooks on poisonous substances. Because of the concern with the effects of a large number of substances many more basic aspects related to their toxic action are only mentioned in passing. Mutagenesis, for example, is treated on half a page. The same space is devoted to another important problem, the relationship between mutagenesis and carcinogenesis.

Unit IV finally explores some practical applications of toxicology in the clinic, in the veterinary practice, and in the industrial plant. It also contains a survey of the complicated regulatory and legal system which controls the manufacture and use of various chemicals in the United States. The new textbook contains much information on many aspects of toxicology. It is well written and contains a large number of literature references. The book is highly recommended for toxicologists and pharmacologists. It should also find a place in hospital libraries and industrial laboratories.

G. Zbinden, Zurich

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Our knowledge of the physiology and biochemistry of the nervous system has been advanced rapidly over the past two decades. Therefore it is quite essential that scientists engage in frequent and detailed exchange of knowledge and ideas. This book records such an exchange: the proceedings of a conference held in Göteborg, Sweden, in July 1975. The conference consisted of two different symposia, namely ‘6-Hydroxydopamine as a Denervation Tool in Catecholamine Research’ (which is the topic of this volume) and ‘Regulation of Catecholamine Turnover’ (which will be published separately). The present book contains 47 contributed papers.
under the first general topic. The different chapters concern: (1) mode of action of 6-hydroxydopamine; (2) specific and nonspecific effects of 6-hydroxydopamine; (3) effects of 6-hydroxydopamine during development, and (4) 6-hydroxy-dopamine as a tool for the functional analysis of catecholamine neurons.

The complete coverage of the effect of 6-hydroxydopamine on the adrenergic nervous system opens a broad spectrum of information on the functional physiology and pathology of catecholamines as well as on the mode of action of certain drugs. This most interesting and stimulating book is recommended to experimental pharmacologists, neurologists and biochemists.

D.A. Kalbhen, Bonn

This set of 6 volumes contains the proceedings of six symposia which were held during the Second Congress of the Hungarian Pharmacological Society in Budapest in October 1974. The original manuscripts including figures, tables and references have been printed by means of a photocopying process. Most of the papers report recent experimental results in the form of short communications. The authors are not only from Hungary; a considerable part of the lectures was given by scientists from many other eastern or western countries.

Volume 1 on analgesics contains 27 contributions, a considerable part of which is devoted to azidomorphines, a group of semisynthetic isomorphine derivatives with strong analgetic potency which have been synthetized a few years ago. The papers deal with the chemistry, the experimental and clinical pharmacology, and the pharmacokinetics of azidomorphines. Further topics in this volume are dependence and withdrawal, and pain and analgesia.

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The 40 contributions in volume 2 report new results in the field of prostaglandin research. There are papers on the effects of prostaglandins on the cardiovascular, respiratory and gastrointestinal systems, on their role in fever, inflammatory processes and allergic diseases, on clinical aspects of prostaglandins and on a number of further themes.

Volume 3 dealing with the pharmacology of catecholaminergic and serotonergic mechanisms is a cross section through present research activities in this fairly wide field. The 38 papers in this volume discuss as different problems as the role of biogenic amines in learning processes and behaviour or in peripheral organs, and the determination of biogenic amines or their relation with cyclic nucleotides.

Volume 4 is devoted to problems of drug metabolism and the 20 papers in this volume again deal with quite different topics, such as postnatal development and age-dependent changes of the
metabolism of certain drugs, biliary excretion of drugs or drug metabolites, with the
biotransformation of various drugs in health and disease or with new methods for the evaluation
of metabolic processes.
The 21 articles in volume 5 deal with the chemistry, pharmacokinetics and pharmaco-dynamic
activity of vinca alkaloids, particularly with the effects of these compounds on the blood
circulation.
The last volume finally (51 contributions) gives an account on present research trends in the field
of cardiac pharmacology. In the section ‘experimental studies’, among others, the following
topics have been discussed: electrophysiological processes at the cell membrane, electrolyte
metabolism, pathophysiology of arrhythmias and effects of anti-arrhythmic drugs, potential toxic
effects of anaesthetics on the heart, effects of drugs on metabolic processes in the heart, mode of
action of cardiac glycosides, and effects of various drugs on cardiovascular function. The section
on ‘clinical aspects’ deals mainly with anti-anginal, antihypertensive and antiarrhythmic drugs.
These 6 volumes cover a wide field of pharmacological research. They might be of interest not
only for pharmacologists and other experimental workers but also for clinicians.

K. Karzel, Bonn

M. Kessler, L. C. Clark, jr., D. W. Lubbers, I. A. Silver and W. Simon (eds.): Ion and Enzyme

This book contains nearly 50 lectures which were presented by authors from various disciplines
and from many countries at an international workshop at Schloss Reisensburg (Germany). The
symposium was devoted solely to selective electrodes, particularly microelectrodes suited for
intracellular measurements or for measurements in tissues. In the first section (7 papers) mainly
theoretical aspects of ion-selective electrodes are discussed. The eight contributions of the
second session deal with technical aspects regarding the design and manufacturing of various
types of micro-electrodes (pH-microelectrodes, ion-selective microelectrodes, multi-parameter
microelectrodes). The 9 papers of the following section are devoted to technical problems of
enzyme-sensitive electrodes. Thus, for example, the measurement of cholesterol, of oxidase
reactions, of glucose or of cholinesterase activity with enzyme electrodes is described. Two
papers treat the consequences of the use of microelectrodes for the punctured cells or tissues. The
remaining contributions are devoted to the application of selective electrodes in experimental
research or discuss possible clinical uses of microelectrodes.

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Selective microelectrodes may be able to open new interesting approaches to the solution of
many problems in medicine or biology. The appearance of a book treating the theoretical and
technical background as well as practical experiences with this research tool will be therefore
welcome for many readers.

K. Karzel, Bonn

M. H. Briggs and G. A. Christie (eds.): Advances in Steroid Biochemistry and Pharmacology,

The fifth volume of this series is introduced for the first time by an editorial dealing with the role
of steroid hormones and prolactin in human cancer. Similar editorials are planned for future
volumes, too. The purpose of these editorials is to draw attention to recent significant findings or
to promising areas of research. The main part of the book contains five articles as usual with the
character of reviews. The first contribution (64 pp.) by T. J. Vecchio reports experimental and
clinical findings with long-acting injectable contraceptives. The second article on biochemical aspects of oral contraceptives (95 pp., by Maxine Briggs) is the continuation of a previous review on this topic in volume 2 of this series and summarizes in 97 tables numerous observations in this field published between 1969 and 1973. J.R. Stockigt reviews, in about 80 pp., the mineralocorticoid hormones, including the regulation of aldosterone secretion and its metabolism, its actions on cells and tissues and the role of aldosterone in pathologic conditions. A shorter contribution (23 pp.) by H. Watanabe discusses some factors in the biliary excretion of estrogens. The last article (70 pp., by J. Hicks and A. Rosado) deals with steroid hormones and spermatozoa metabolism. This newest volume of this well-established series will be of interest to all experimental workers in the field of steroid research and also for clinicians confronted with steroid problems.

K. Karzel, Bonn

M.C. Griffiths, M.J. Dickerman and L.C. Miller (eds.): USAN and the USP dictionary of drug names. United States Pharmacopeial Convention, Inc., Rockville 1975. 347 pp.; US $ 18.50. This book is a compilation of the United States Adopted Names (USAN) selected and released from June 1961 (when the USAN program began) through June 1975. The main part of the book (about 300 pp.) consists of an alphabetic list of drug names, in which the US adopted names are printed in bold face. Each USAN entry usually includes in addition to the name the year of publication as a USAN, a pronunciation guide, molecular formula, systematic chemical name, Chemical Abstracts Service (CAS) registry number, pharmacologic and/or therapeutic activity claim, brand name, name of manufacturer or distributor, code designations which have been used during the investigational phase before a USAN was selected, and finally the structural formula of the compound. The alphabetical list contains, besides the USAN entries, current USP and NF names, other nonproprietary names, brand names, code designations, CAS registry numbers and NSC (National Service Center) numbers as well as cross references. In the following part of the book (28 pp.), the USAN and USP and NF names are listed by categories. Three appendixes contain guiding principles for coining of USAN for drugs, molecular formulas and corresponding USAN, and names and addresses of firms concerned with compounds for which USAN have been selected. This compilation will be welcome as a valuable and distinct collection of material to everybody working with drugs.

K. Karzel, Bonn

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B.W. Agranoff and M.H. Aprison (eds.): Advances in Neurochemistry, vol. 1. Plenum Press, New York 1975. 309 pp. ISBN 0-306-39221-6. This new series starts with the first volume containing chapters on (1) possible roles of prostaglandins in the nervous system, (2) hydrolases of simple sphingolipids, (3) basic proteins in nervous tissue, (4) brain-specific proteins, (5) actomyosin-like protein in brain, (6) biochemical markers of the olfactory pathway, and (7) apomorphine and its relation to dopamine. This list of contents mirrors the intention of the editors to provide both general reading and specialized information. The pharmacologist will read with interest chapters 1 and 7, both written by non-pharmacologists. Some articles present technical details of possible importance for laboratory work. It is worth mentioning that large bibliographies close the chapters.

F. Zetler, Lübeck

Within the past 30 years, research in psychiatry was mainly directed and connected to psychodynamic and sociological investigations. Sociological and environmental factors were believed to be most important for the origin and development of various mental diseases. Only within recent years was the biological and psychological unity of human beings again recognized in psychiatric research. Under the term ‘biological psychiatry’, we now understand the close correlation of somatic and mental reactions and the interference of pathological alterations within both units. The present book contains the contributions of twelve scientists, which represent and demonstrate the temporary trend in biological psychiatry. It points out the importance of close cooperation and integration of different disciplines such as neuropathology, neuropharmacology, neurochemistry, neurobiology and neurohistology. It also becomes obvious that biological psychiatry can only exist if there is an interdisciplinary participation of experimental and clinical research. For all scientists interested in the wide field of psychiatry, this book will be a great stimulation not only to reconsider traditional psychiatry but also to enlarge further experimental approaches to basic psychiatric research.

D.A. Kalbhen, Bonn