others of their kind have not been throwing paradigm shifts in our faces for years, if only as types to avoid, then Dunn has not made clear what he means by the term.

Having completed his main theme, in his final chapter Dunn reviews numerous lines of thought that seem to converge into the central proposition of his book. The essential sensibleness of this chapter clarifies why, whatever the reservations, the book has a place in contemporary developmental social science.

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References

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Renal Agents

Kidney Hormones. J. W. FISHER, Ed. Academic Press, New York, 1971. xviii, 666 pp., illus. $25.

The kidney was for a long time considered to be only an excretory organ; its function as a source of humoral agents acting inside and outside the kidney was only partially known or hypothetical. There are only a few renally produced chemical substances with well-defined biological activities, but the clinical implications of a better understanding of them are important in such common conditions as hypertension, renal insufficiency, and polycythemia.

This book is an evidence of how far the isolation, physicochemical characterization, assay, standardization, physiology, pharmacology, and pathology of renal hormones have progressed in recent years. It gives an up-to-date general review on renin, erythropoietin, prostaglandins, and other, still hypothetical, renal hormones. Although the review is not complete in every respect it covers the main topics. Composed of 25 chapters by 45 contributors, the book deals with the subject in a markedly well coordinated way, although some overlappings inevitably occur. The first two chapters, on renal blood flow and oxygen utilization, are less organically integrated into the main part of the book. The chapter on oxygen utilization is too general and the subject is presented in such a way that so important an aspect as the effect of hypoxia on renin release is not taken into account; the chapters on renin-angiotensin describe the main well-established and also some still controversial data (concerning renin inhibitors, for example) in an informative way. The most comprehensive and best coordinated are the chapters dealing with erythropoietin. The chapters on the prostaglandins reflect well all the controversies concerning these substances but also reveal their potential important practical implications. It is always difficult to coordinate a collection of articles written by different authors and to maintain a general line. This book has done it remarkably well. A more general style in writing the individual chapters should have been maintained, however, and the reader would have appreciated a short summary accompanying each chapter. In some places, established facts and hypothesis should have been better differentiated.

It is not the purpose of this book to describe new discoveries but to give a good general review of our present knowledge. The writing of the book was a worthwhile undertaking; it offers a comprehensive view of all important new data on this subject for workers in physiology, pharmacology, biology, biochemistry, and pathology and for those interested clinically in cardiovascular and some endocrine, metabolic diseases and in polycythemia.

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Goal-Directed Endocrinology

Cortisone. EDWARD C. KENDALL. Scribner, New York, 1971. xiv, 176 pp. + plates. $7.95. Scribner's Scientific Memoirs.

This is an autobiography of a scientist beginning with insights into the determinants in early life which produced a career in scientific research and ending with an account of his being awarded a Nobel Prize in 1950. Though his parents and his home life were deeply religious and puritanical, Kendall early tested the concept of divine retribution by shouting a profanity and awaiting the response. From Kendall's own pen it is clear that his scientific career was characterized by intensity of purpose and dogged persistence. Early in his career, Kendall decided to limit his activities to studying those biological phenomena that he considered important. He tells of his disillusion with the scientific activities in a research department of a prominent pharmaceutical company. Later, because of this, he took a position as a research biochemist in a large urban hospital, where he continued studies on the isolation of the active hormone of the thyroid gland, which he had begun at Parke Davis and Company. He was able to concentrate thyroid hormone and demonstrate its activity in clinical patients, but, as often is the case, the hegemony of the physician in clinical research became obvious. Kendall did not permit himself to be diverted in his quest for the isolation of thyroid hormone and steadfastly refused to participate in biochemical research which he considered to be irrelevant to his stated goals. In 1913, at the Mayo Clinic and in a new laboratory, Kendall began the successful isolation of thyroxine, which was completed in 1914. This important accomplishment reinforced his belief that research should be goal-directed and not fragmented by following every lead. The Mayo Clinic provided the environment for Kendall's successful activities. In this environment, Kendall continued to be productive, elucidating the chemical structure of glutathione, with Mason and McKenzie, in 1929.

The major portion of this volume is dedicated to a description of the discovery of cortisone, its therapeutic application, and the reception of the Nobel Prize for his discovery. At about the time adrenocortical extract had been isolated by Swingle and Pfiffner and Leonard Rowntree was treating patients suffering from Addison's disease with this extract at the Mayo Clinic, Kendall and his group became interested in the adrenal cortex. By agreeing to separate epinephrine from adrenal glands obtained from slaughterhouses for one of the pharmaceutical companies, Kendall was able to extract nearly 900 pounds of adrenals per week. This activity went on for several years. Late in 1933, crystals were obtained which were thought to be the active substance from the adrenal cortex. With the help of chemists in his section, particularly Harold Mason, the biological activity and eventually the structure were established. Kendall acknowledges the important observations