seems to be the rule rather than the exception; and, in contrast to previous assumptions, most of the observed genetic variation in man does not appear to be associated with measurable selective effects on the intact organism.

Giblett's *Genetic Markers in Human Blood* and *Human Blood and Serum Groups* by Prokop and Uhlenbruck are two excellent summaries of selected aspects of the genetics of human blood. The books differ in style and content. Prokop and Uhlenbruck maintain a fine historical perspective, and their book contains many interesting footnotes, quotations from early papers, and portraits of the "giants" in the field of immunohematology. Raven has rendered the German text into very readable English prose, but, although the authors claim to have revised the volume during translation, there are very few references to work published since 1965, the year in which the second German edition was completed. In contrast, Giblett's viewpoint is definitely toward the future, as is evidenced by the addendum she has appended to update each chapter with the relevant research developments published in 1968. The book is very fully referenced, and many useful details of methodology are included. Prokop and Uhlenbruck put major emphasis on the red cell antigen systems and their biochemistry, whereas Giblett deals with the electrophoretic polymorphisms in greater detail. The volumes overlap in the extensive treatment each gives to the haptoglobin and Gm systems, but generally the two books complement each other to a remarkable degree. Both have been carefully edited and well printed; taken together, these two volumes provide a very nearly complete survey of the present state of knowledge of human blood protein genetics.

WALTER E. NANCE
*Department of Medical Genetics, Indiana University School of Medicine, Indianapolis*

## Endocrinology

**Hormones in Blood.** C. H. GRAY and A. L. BACHARACH, Eds. Second edition. Academic Press, New York, 1967. Vol. 1, xviii + 578 pp., illus., $22.50; vol. 2, xviii + 686 pp., illus., $26.

It has become increasingly evident during the last decade that endocrinology is importantly related to every branch of human biology and clinical medicine. As is pointed out by Raymond Greene in the last chapter of *Hormones in Blood*, volume 2, "The clinical specialist, whatever may be his chosen field of interest, needs to use endocrinology in the attempt he must always be making to arrive at a greater understanding of his subject." Since the publication of the first edition of this book in 1961, rapid progress in both basic and clinical endocrinology has been clearly evident. The development of gas and thin-layer chromatography in the 1960's for the estimation of steroid hormones and the introduction of radioimmunoassay for measuring concentrations of protein and polypeptide hormones in the blood have greatly advanced studies on hormonal metabolism and biosynthesis. The rate of progress in regard to specific hormones is illustrated by the case of calcitonin, whose chemical synthesis was achieved only a few years after its discovery in 1961. To incorporate the many advances in the field, it was necessary for C. H. Gray and the late A. Bacharach to re-edit their popular monograph and to expand it into two volumes.

There are a total of 28 chapters with 41 authors reviewing present knowledge of the chemistry, biochemistry, metabolism, and assay of the following hormones: insulin, glucagon, oxytocin, vasopressin, MSH, ACTH, growth hormone, prolactin, human placental lactogen, gonadotropins, thyroid-stimulating hormone, the iodine-containing hormones, hypothalamic releasing and inhibiting factors, the estrogens, the androgens, progesterone, the corticosteroids, aldosterone, renin and angiotensin, adrenalin, noradrenalin, parathyroid hormone, and thyrocalcitonin. In addition, five chapters present useful information on general methods employed for the purification and analysis of protein and steroid hormones, including gel filtration, immunoassay, spectrometry, thin-layer chromatography, and gas chromatography. Many of these chapters give critical and comprehensive reviews of the current status of the field. Among these, the contributions by J. Robbins and J. E. Rall on the iodine-containing hormones and J. P. Coghlan and J. R. Blair-West on aldosterone are outstanding. The reviewer found these two chapters not only impressively thorough but also delightful reading. In fact, these chapters possibly merit publication as separate monographs.

It has come to my attention that the title of this book gives some investigators the impression that protein and polypeptide hormones have actually been isolated as distinct chemical entities from the blood. Such is not the case. Because these hormones are present in very low concentrations in the blood, it has not been possible to isolate them from this source. It should be further pointed out that certain methods for detecting the nonsteroid hormones in blood are based on the assumption that the chemical and biological properties of the circulating hormone are identical to those of the hormone isolated from a glandular source. This assumption is made, for example, in the recently developed radioimmunological methods. To test whether this assumption leads to error in hormonal assay, it is necessary to correlate a method of detection based on the chemical or immunological properties of a hormone with a method based on biological activity. When a future edition of this book is prepared perhaps the title could be made more explicit to indicate that the subject matter is oriented toward the estimation of hormonal concentrations in the blood and to prevent any misunderstanding that the blood has been a source of purified hormones. No criticism is made, however, of the content of the book, which furnishes valuable data on hormone concentrations in blood under both normal and pathological conditions.

CHOH HAO LI
*Hormone Research Laboratory, University of California, San Francisco*

## Books Received

**Adaptational Psychodynamics.** Motivation and Control. Sandor Rado. Jean Jameson and Henriette Klein, Eds. Science House, New York, 1969. xviii + 286 pp. $12.50.

**Advances in Lipid Research.** Vol. 7. Rodolfo Paoletti and David Kritchevsky, Eds. Academic Press, New York, 1969. xvi + 368 pp., illus. $16.50.

**Advances in Plasma Physics.** Vol. 2. Albert Simon and William B. Thompson, Eds. Interscience (Wiley), New York, 1969. viii + 216 pp., illus. $13.50.

**Aflatoxin.** Scientific Background, Control, and Implications. Leo A. Goldblatt, Ed. Academic Press, New York, 1969. xiv + 474 pp., illus. $21.50. Food Science and Technology, vol. 7.

**Air Pollution.** Proceedings of the First European Congress on the Influence of Air Pollution on Plants and Animals, Wageningen, The Netherlands, April 1968. Centre for Agricultural Publishing and

*(Continued on page 1420)*