yielding or synthetic reactions, but that these reactions supply the over-all potential for the very rapid ion-transport events that are probably responsible for its characteristic electric activity.

For this reason, perhaps, the interested reader is bound to feel some disappointment on reading any book of this type. It seems that, as yet, research at this level falls short of a biochemical "explanation" for psychological, or even neurophysiological, phenomena.

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Androgens. Biochemistry, physiology, and clinical significance. Ralph I. Dorfman and Reginald A. Shipley. Wiley, New York; Chapman and Hall, London, 1956. 590 pp. Illus. $13.50.

Experimental endocrinologists, biochemists, and clinicians will enjoy this reference volume as a source book of information on the androgens. There are 1852 references in this medium-sized book, which consists of four parts: (i) "Introduction," (ii) "Biochemistry," (iii) "Physiology," and (iv) "Clinical aspects."

The arrangement of the textual material is clear, concise and presented in an interesting manner. The four sections are further subdivided into 20 chapters: (i) "General aspects" and "Historical background"; (ii) "Sources of androgens," "Isolation and chemistry of androgens and related compounds," "Preparation of urinary extracts," "Assay of androgens and 17-ketosteroids," "Metabolism of the androgens," "Relative activities of androgens," and "Biological actions and interactions of androgens"; (iii) "Androgens and the embryo, intersexuality," "Actions of androgens on sex structures of animals," "Androgens and behavior," "Influence on endocrine glands, other than gonads, and various non-endocrine glands," and "Influence of androgens on metabolism and enzymes"; (iv) "Normal puberal development in boys," "Conditions of androgen excess," "Androgen deficiency—hypogonadism," "Androgen therapy," "Androgen preparations and methods of administration," and "The excretion of androgens and 17-ketosteroids in various clinical conditions."

Immediately following a very comprehensive review of the clinical aspects of the androgens is an appendix containing "Names and structural formulae of compounds," "Preparation of urinary extracts for 17-ketosteroid and androgen assay," "Androgen bioassay methods," and "Chemical assay methods."

It is apparent that the authors have an excellent appreciation of the literature on this subject, and their survey of the basic and clinical literature, collated in an interesting fashion, should prove useful to the busy investigator. The combination of a basic scientist and a clinician adds considerable merit to their unbiased treatment of the subject matter.

This reference book is so heavily laden with information that the two unqualified statements I observed should be cited only for academic reasons devoid of any tones of criticism. On page 4 it is stated, ". . . the adrenocorticotropic hormone (ACTH) is essential for the full function of the adrenal cortex . . ." Robert Gaunt [*J. Clin. Endocrinol. and Metabolism* **15**, 621 (1955)] states that "Although the mechanisms which regulate the secretion of aldosterone are not yet known, one important fact is all but certain: aldosterone is not under the complete and direct control of ACTH, as are the other major corticoids." Therefore, according to Gaunt, it seems inadvisable to say that "ACTH is essential for the full function of the adrenal cortex." Further evidence bearing on this point may be found in Gaunt's paper. On page 16 the authors refer to a "female prostate." The term is incorrect, and it is believed that they are referring to the urethral glands including paraurethral ducts, a structure in the female that is homologous to the male prostate [H. Morris, *Human Anatomy,* J. P. Schaeffer, Ed. (Blakiston, New York, ed. 11, 1953), pp. 1565, 1567–1568].

In the final analysis, it is my opinion that the authors should be congratulated in bringing 1852 references together on the androgens. They have used these references well in writing their volume. This book could be greatly improved by the inclusion of more photographic material and by the citation of reviews, both of which could serve to highlight information that is at present documented elsewhere.

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Immunology and Serology. Philip L. Carpenter. Saunders, Philadelphia–London, 1956. vi + 351 pp. Illus. $6.50.

This is the latest addition to a field in which, as the author points out, there is a shortage of textbooks. It will be the more welcome because knowledge of the subject is growing rapidly, and numerous significant advances have been made not only since the publication of the second edition of Boyd's book in 1947, but also since the publication of Raffel's book in 1953.

The book has many other virtues. For one thing, it is smaller than either of the other two books, and thus perhaps better adapted to the needs of students in the invariably abbreviated courses in immunology that are available in our medical schools. It shows throughout the signs of having been written to accompany a course that emphasizes laboratory serology. Among the attractive features are a clear discussion of the physical properties of the serum proteins that is liberally illustrated with electrophoretic and ultracentrifugal diagrams, a discussion of plasma fractionation, good accounts of the current theories of antibody formation, a rather full account of the phylogenetic applications of the precipitation reaction, and a good account of complement fixation.

The subjects that must be discussed in such a book are pretty generally agreed on, and it comes as no surprise that the chapter headings are, respectively; "Infection and immunity," "The immune reactions," "Antigens," "Serum proteins," "The production of antibody," "The antigen-antibody reaction," "Precipitation," "Agglutination," "Isohemagglutination," "Toxins and antitoxins," "Phagocytosis," "Cytolysis and complement fixation," "Antiviral immunity," "Allergy," and "Experiments in serology." This last chapter constitutes a brief laboratory manual.

Some omissions, doubtless deliberate, render the book less attractive for certain purposes. There is little account of the actual operation of immune mechanisms in disease; there is only fragmentary discussion of the use of serological methods in the diagnosis, treatment, and prevention of specific diseases; and the chapter on blood groups is rather incomplete. However, without these and other omissions the book could not have been kept down to its attractive size.

There are some debatable statements. On page 22, the discussion seems to ignore the abundant modern evidence that the "unitarian" theory is a great oversimplification; on page 46, old work on the role of lecithin and cephalin in precipitation, which has not been confirmed, is presented without comment; on page 84, the probably nonexistent nonspecific anamnestic reaction is presented as well established; and on page 179, it is stated that "most (Rh) typing serums in use today contain blocking antibodies, so saline must not be used as a diluent." The first part of this statement is true, but the second exactly reverses the consequences of this fact, which are that saline *must* be used as a diluent. Throughout the book, the author writes *haptene* instead of Landsteiner's actual (English) neologism *hapten,* which he meant to sound analogous to *antigen.* In this particular matter,