Book Reviews

Volcanological Observations. Frank Alvord Perret. Washington, D. C.: Carnegie Institution of Washington, 1950. 162 pp. $5.00 paper; $5.50 cloth.

Frank Alvord Perret's last publication is obligatory reading for anyone wishing to learn about volcanoes and volcanism. It amounts to a textbook on the many aspects of volcanism, though written in a readable style and recounting mainly personal observations. Perret's experience with volcanoes was very wide. Though largely self-educated in the field of geology (he was an electrical engineer before he shifted his affections), no other American has visited so many active volcanoes and made observations during their periods of violence.

The Carnegie Institution has done a great service to students of volcanology by publishing this volume of Frank Perret's memoirs and observations. These are arranged according to the different aspects of eruptions, with, first, descriptions of the volcanoes themselves and their various types; next, various types of lava and their variations in behavior. The gases, the electrical phenomena, the bombs, and the ashes all are discussed and documented from Perret's personal experiences. His equipment, primitive in many respects but nevertheless practical, is described and will suggest modifications and improvements to today's observers. The final chapter sums up the value of such work in relation to man and discusses the possibility of predicting eruptions and of discounting the apparent danger of abortive activity.

Although the author claims that the work is largely one of observation, with little place for theories and hypotheses, we find on careful reading that it is filled with suggestions that may help to explain volcanic mechanisms. Some of them, such as the rhythmical uplift of the lava with periodic compressional heating of the trapped gas, seem very reasonable; far more reasonable than an idea that the lava of the old Kilauea lake was made even hotter by oxidation reactions at the surface. All through the work we find many ideas that Perret's successors might well investigate. He remarks somewhere that each volcano and each eruption are unique, that what one observer may see on a given spot is not necessarily what another observer will see at the same place a few days later.

Nevertheless, there is a remarkable continuity and likeness among eruptions. Parícutin has shown, at one time or another, nearly all the phenomena described as typical of volcanoes studied by Perret throughout the world for forty years. With one observation we must take issue—one who has seen the skyrocket bursts from Parícutin, spearheaded by great bombs that eventually fall out trailing clouds of dust, could not agree with Perret's suggestion that volcanic bombs are dragged out by the upward suck of the rising gas and dust explosions. In the case of Parícutin there seems little doubt that they are projectiles. It is a pity that Perret's death only a month before the birth of Parícutin prevented his studying that eruption too.

One must agree with Leason H. Adams, of the Geophysical Laboratory, that this publication of the Carnegie Institution will stand with Perret's earlier ones "as an enduring monument to a great volcanologist." It is filled with personal observations and anecdotes that reveal much about the writer. It is a beautiful job of writing and assembling and it is a thoroughly worthwhile publication, the reading of which will well repay the student and the interested layman.

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Steroid Hormones and Tumors: Tumorigenic and Antitumorigenic Actions of Steroid Hormones and the Steroid Homeostasis. Alexander Lipschutz. Baltimore, Md.: Williams & Wilkins, 1950. 309 pp. $6.00.

This volume is primarily a résumé of the investigative work reported by the author and his associates in widely distributed journals (Chilean, American, British, French, and Canadian), and secondarily a review of related work undertaken in other laboratories throughout the world. Most of the illustrations are microphotographs or photographs of materials from experiments in which guinea pigs were used.

The influence of different estrogenic chemicals, in difference doses, and applied by different methods, on the formation of fibroblastic or myofibroblastic proliferations of the abdominal serosa and subserosus tissues is well illustrated and discussed in detail. Quantitative aspects are not presented in tabular form, but reference is made to the original publications. The antifibromatogenic action of steroids with progestational, androgenic, or adrenal cortical activity is presented. The "fibrous reaction" occurs specifically in guinea pigs given estrogenic chemicals and is reversible subsequent to discontinuance of treatment or the administration of adequate amounts of antifibromatogenic chemicals. The greater part of the work thus deals with hyperplastic or proliferative rather than malignant responses.

In addition to the fibrous reaction or fibromatogenic response, hyperplastic and metaplastic changes in other tissues and organs of estrogen-treated guinea pigs are described in detail.

Several experiments are described in which the hormonal balances (hormonal homeostasis) have been modified in guinea pigs by partial ablation of the gonads or by gonadal transplantation. Dr. Lipschutz' many years of experience in experimental endocrinology add interest to the interpretation of the data.

Researches undertaken on other animals are extensively reviewed incidental to the presentation of the investiga-

tions undertaken on guinea pigs. The literature is reviewed as adequately as in any recent review, except for the clinical studies, and the bibliography probably contains a more extensive citation of papers (40 pp.) reporting abnormal hyperplastic and metaplastic responses.

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Histology. Arthur Worth Ham. Philadelphia: Lippincott, 1950. 756 pp. $10.00.

This newcomer to the field of books on histology represents a carefully executed attempt to combine essential histological facts with various pedagogical devices in order to assist the student in learning and comprehending the subject matter.

Much space is given to introductory remarks, whereby the student becomes acquainted with the field of histology and with its relation to the closely allied sciences of physiology, biochemistry, and pathology. The materials, methods, and tools of the student of histology, are discussed, and the student is instructed in interpreting microscopic images and in evaluating artifacts in histological preparations.

In the body of the book the manner of presentation differs somewhat from the usual one. Emphasis has been placed on topics of special interest at the present time. The nature and integrity of tissues and their components, cells and intercellular substances, are admirably treated and reflect the widespread interest in the cancer problem. A chapter on tissue fluid and its role in body function is of marked value. Current interest in the cardiovascular system is reflected in the author's generous consideration of blood vessels and the clotting of blood.

The interest of the medical student is continually stimulated by the addition of obvious applications of the subject under description to its later use and need by the practitioner of medicine. This is especially well done in the sections on skin and the circulatory system.

The 445 illustrations are well conceived. No doubt in later editions more of the described structures will be illustrated, as, for example, the degeneration and regeneration of peripheral nerve fibers. Human material has been employed in a good percentage of the figures. A consistent method of labeling, in size and character of type, and a more generous use of colored illustrations would have improved this important portion.

The teacher must bear in mind when reading this book that it is written primarily for the student. With an easy, informal, conversational—at times "popularized" —approach the author has attempted to lead the student through an orderly progression of histological facts, pausing now and then to develop concepts, to draw helpful comparisons, to indicate functional significance, and to stimulate the curiosity. The book seems oversimplified, although many students find their way better through such simplification. One feels that, in places, the book contains unnecessarily lengthy physiological and speculative considerations. It is regrettable that such a procedure has required the omission of pertinent histological details in order to avoid a volume of too much bulk.

Professor Ham has succeeded in his attempt to make this a unique and thoroughly new book. The convictions that motivated this new approach are commendable.

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Nuclear Physics: A Textbook. Francis Bitter. Cambridge, Mass.: Addison-Wesley, 1950. 200 pp. $5.50.

This text of some 200 pages has been written, in the author's words,

> . . . for students who have had a course in atomic theory in addition to the usual introductory physics courses. Since it is often impossible to give separate instruction to students intending to continue the study of nuclear science and to those intending to specialize in some other field, an attempt has been made to write a book suitable for both groups.

The "attempt," in the opinion of the reviewers, has been successful. The presentation is direct and simple and shows an understanding of the problems met by students of a first course in nuclear physics. Although the book will serve to stimulate rather than satisfy the student's interest in the topics discussed, it should give those in other fields a reasonably complete and accurate picture of the present status of nuclear physics.

One of the most attractive features of the book is the large number of lucid diagrams. The time and effort that have clearly been spent in their preparation and in the selection of exercises at the end of each chapter should add greatly to the ease of assimilating the material.

The presentation starts out with an inspiring chapter on the evolution of nuclear physics. It emphasizes the fluid state of the subject—an attractive aspect in the eyes of the young. Subsequent sections briefly treat such topics as the mass defect curve, collision theory, properties of nuclei (radii, spins, magnetic moments), radioactivity, and nuclear reactions in a very clear manner. The general viewpoint is that of an experimental physicist, and the more deeply speculative and troublesome parts of the theory are subdued.

The last two chapters are largely concerned with chain reactions and the consequences of fission, such as administrative questions for nuclear power, health considerations, and the control of atomic energy. Although these problems are admittedly of primary concern, it is felt that their purpose would be better served in other than a physics textbook.

This text should adequately fulfill its purpose, and it is recommended that those teaching an introductory or descriptive course in nuclear physics give it serious consideration.

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