

binaries. This discusses the statistics of formation and disruption of binary systems without, however, mentioning Chandrasekhar's work in this field.

Next is a polemic between Woronsow-Weljaminow and Ambarzumjan (*Astr. Zhur.* 27, 211, 228 [1950]) on the question of whether or not hot giants occur in so-called associations—which play such an important role in recent Russian cosmogonical theories.

The longest paper of the volume is one by Ambarzumjan (*Soob. Bjurakónskoj Obs.* 6, 3 [1951]) which summarizes his work and that of his group on fluctuations and their importance for apparent star distributions on the celestial sphere.

After an article by Hetmanzew and Ginsburg (*Zhur. Eksp. Teoret. Fiz.* 20, 347 [1950]) on the possibility of localizing radio sources by studying the diffraction of radio waves by the moon, the volume closes with an article by Woronsow-Weljaminow (*Astr. Zhur.* 27, 285 [1950]) on planetary nebulae.

D. TER HAAR

*St. Salvator's College, The University,
St. Andrews, Scotland*

The Manual of Antibiotics, 1954–1955. Henry Welch, Ed. Medical Encyclopedia, New York, 1954. (Order from American Pharmaceutical Assoc., 2215 Constitution Ave., N.W., Washington). 87 pp. \$2.50.

This book presents for the first time in one source a ready reference to antibiotics and their preparation. It lists the preparations, therapeutics index, trade and generic names, and the names and addresses of producers and manufacturers of all existing antibiotics and their preparations commercially produced and on markets at the time of publication.

It should prove valuable as a reference, because of the multiplicity of trade names for the same antibiotic, to members of the health profession, especially the physician, dentist, veterinarian, pharmacist, and others engaged in the use of these drugs.

The antibiotics and their preparations are alphabetically tabulated by their generic terms. The trade names given these products by each manufacturer are listed side by side with the generic equivalent. Under each of the generic terms is found the indication for each drug and preparation. The antibiotic preparations also, for ease of use, are alphabetically tabulated, both by trade and generic terms in separate indexes and in an index of all manufacturers with their addresses.

It is necessary to check only the trade-name index to identify a trade-name product. Opposite the trade name in question is the page number on which is the generic term, along with the active ingredients and indications for the preparation, in addition to all other trade names assigned to the products.

The author states that periodic revision of this manual is planned to keep up to date the ever-increasing list of antibiotics and their preparations.

HURD M. JONES, Jr.

School of Pharmacy, Texas Southern University

Formation des Continents et Progression de la Vie. H. Termier and G. Termier. Masson, Paris, 1954. 135 pp. Illus. + plates. Paper, Fr. 750.

Orogenesis and tectonics, stratigraphy and paleontology are carefully used to introduce the reader to the initial appearance and subsequent expansion of life on the earth. Little credence is put in phantom continents, or those that have had only a legendary existence, and the authors work toward an over-all synthesis that precludes acceptance of the continental drift theories of Wegener and Argand. The Termiers make a distinct contribution by giving present-day examples of phases of the geologic process, illustrated, for instance, by the photo of a group of starving hippopotamuses wallowing in a diminutive mud-hole left by the drying up of Lake Rukwa in Tanganyika in 1950. These huge mammals were unable to escape catastrophe by migrating in time to a more humid area.

Even the spectacular geologic phenomena obey regular laws, but a disconformity was experienced in the evolutionary process with the appearance of man who is capable of thought processes. The lack of specialization of his hands and the possession of a brain gave him superiority over all other animals. The authors regard as significant the fact that up to about 100,000 years ago man lived only in the hot and subtropical zones. During the first three glacial epochs man migrated equatorward with the other fauna. By the time of the fourth period of glaciation he could clothe and warm himself and was able to adjust to climatic extremes. Modern man has proved to be a powerful geologic agent, in such activities as mining coal, damming streams, reclaiming land from the desert and from the sea, and so on.

This succinct, well-written work is recommended to the general reader.

RAYMOND E. CRIST

Department of Geography, University of Florida

Pigment Cell Growth. Proc. of the Third Conference on the Biology of Normal and Atypical Pigment Cell Growth. Myron Gordon, Ed. Academic Press, New York, 1953. 365 pp. Illus. + plates. \$7.

It may be questioned whether or not the study of pigment cell growth is developing rapidly enough to justify publication of comprehensive reports every few years. Nevertheless, for anyone who wants to become familiar with current work and find a guide to that of the past, this volume forms an adequate introduction.

The papers consist for the most part of more or less extensive reviews of recent investigations in pigmentation. To a biologist, the coverage will seem to be narrow—that is, to be weighted on the side of human and mammalian pigment cells. Two papers are concerned with structure of melanins and melanin synthesis, three with lower vertebrates (fish, frog, axolotl), two with the chicken, five with the mouse, and ten with man. The emphasis is also heavy on disease:

there are eight papers on melanomas, two on carcinomas, and one on *acanthosis nigricans*, compared with five on biochemistry of pigment, two on embryology, two on genetics, and one on the relation of endocrine glands to pigmentation in the fowl. The invertebrate animals are not treated.

As is usual in publications of this kind, the papers vary in length and quality. The longest, as well as the most comprehensive, paper is that on the structure of melanins by H. S. Mason, a valuable review of the chemistry of melanin formation. The book is well printed on glossy paper and extensively illustrated with graphs and photographs. The reproduction of the halftones is first rate.

One gratifying outcome of the conference was an agreement on the terminology to be used for pigment cells. The definitions adopted for melanoblast, melanocyte, macrophage, and melanophore were also approved by the Subcommittee on Oncology, Division of Medical Sciences of the National Research Council and, hence, may be expected to have a more uniform use in the future.

GRAHAM DUSHANE

Department of Biological Sciences,
Stanford University

Explaining the Atom. Selig Hecht. Rev. by Eugene Rabinowitch. Viking, New York, 1954. xviii + 237 pp. Illus. \$3.75.

It is a well-known fact that the distinguished scientist, when writing a popular book on his special field, underrates the difficulty of the ideas he is familiar with and so produces a book for his colleagues but not for the general public. The outstanding popular book on the atomic bomb has been written not by a nuclear physicist but by a great expert in another field of science. In 1946 Selig Hecht, professor of biophysics, wrote *Explaining the Atom*, the book that gave to many thousands an understanding of atomic structure and nuclear energy. The author's incentive was as much scientific interest as a sense of responsibility of the citizen who sees a new world coming and wants to propagate an understanding of the driving forces.

After the untimely death of the author, Eugene Rabinowitch brought the book up-to-date by many minor changes. The vivid style of Selig Hecht, who told the story of discoveries rather than described detail, is fully preserved. Hecht's book ends with the sections "The atomic bomb is built," and "The secret is out."

Rabinowitch, known to the public as editor of and contributor to the *Bulletin of the Atomic Scientists*, continues the story to the level of 1954. He describes the later development of the fission bomb and, more fascinating, the new "superbomb." Here he discusses Bethe's carbon cycle and the fusion reactions between hydrogen isotopes and lithium leading to thermonuclear reactions. They allow the construction of the famous bomb whose size is not subject to limitations (except the carrying capacity of a plane) and whose

price is presumably much lower than that of a large fission bomb. A separate chapter is devoted to "Atomic power."

The chapters contributed by Rabinowitch emphasize the idea of Selig Hecht: to inform the citizen of the indispensable background of physics as well as to point out the relation of nuclear energy to the industrial development and domestic and foreign policy. The scope of fission is evident from the recent estimate that "the world resources of commercially utilizable fissionable material are fifty times greater than the world resources of commercially utilizable fossil fuels." This estimate, however, seems to include all uranium and thorium irrespective of the efficiency of the breeding process which leads to the fissionable isotopes.

Rabinowitch closes with an optimistic prospect:

We live on the continuous but finite surface of a sphere of which any part can be reached from any other part in a few hours. It is obsolete to suppose that such a surface can be artificially maintained in a fractional state of national groups . . . the sooner all peoples join in some law-abiding extranational order, the better for us who hope for civilization.

The second edition of Selig Hecht's book is as excellent as the first edition for the instruction of the citizen who wants a sound foundation for his judgment on domestic and international policies as affected by the new energy.

O. OLDENBERG

Department of Physics, Harvard University

Linear Transient Analysis. vol. I, *Lumped-Parameter Two-Terminal Networks*. Ernst Weber. Wiley, New York; Chapman & Hall, London, 1954. xiv + 348 pp. Illus. \$7.50.

Linear Transient Analysis is a textbook containing material appropriate for a basic graduate course in transient analysis. It is also of value to practicing engineers who will find four methods of solving linear transient problems gathered together in one volume. The book is unique in this respect. In presenting the classical solution of network response, the Heaviside-Jeffreys' operational calculus, the Laplace transformations, and the Fourier transform, Weber has laid bare the mystery of transients. To those devotees of the Laplace transform who would shun the classical or Heaviside methods, he answers:

Fundamental knowledge, real understanding of any subject matter, must be independent of the form in which it is presented or in which we had our first introduction to it. The greater the variety of possible expressions for the same basic relationship, the clearer will be the concept recreated in the mind of the searching individual.

The chapters are laid out in a well-integrated order. The first chapter deals with concepts of circuits and networks that might ordinarily be overlooked in undergraduate work but are the essence of advanced circuit analysis. Classical solutions of network re-