and the difficulties in diagnosis. The statement that "except in emergencies the possibility of amebic etiology of appendicitis should be carefully explored before surgery is decided upon" is to be questioned in caring for most patients with acute abdominal pain.

However, in general, this book provides a great deal of information and an excellent bibliography on the complicated subject of amebiasis. Both the family physician and the specialist will find it a valuable addition to their library.

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The Present State of Physics. A symposium presented 30 Dec. 1949 at New York meeting of AAAS. Arranged by Frederick S. Brackett. AAAS, Washington, D.C., 1954. vi + 265 pp. Illus. $6.75. (Members, $5.75).

The papers here presented give excellent introductions to various fields of research in physics and biophysics on the level of a college graduate.

P. Kusch gives a lucid discussion of the magnetic moment of the electron. He describes the atomic beam method for observation of the hyperfine structure of atomic lines and briefly discusses the correlation of the experimental results with the various steps of the theory, culminating in Schwinger's treatment of the interaction between the electron and the quantized radiation field.

Two papers are devoted to cosmic rays. E. P. Ney discusses the particles and processes that are observed in cloud chambers and emulsions at balloon altitude, that is, around 90,000 ft, where the primary cosmic rays are predominant, and where some heavy primaries are present with abundances at least as great as their abundances in terrestrial or stellar matter. J. C. Street surveys the processes by which the primaries, which (in rare cases) may have energies up to 10^{17} ev, gradually change to the cosmic radiation as observed at sea level. In particular, he discusses the production of π mesons and their decay to μ mesons. The two papers on cosmic rays reproduce numerous very instructive cloud chamber photographs.

An article by K. Lark-Horovitz on "the new electronics" gives a historical outline of semiconductor problems and a special discussion of the electric and optical properties of germanium semiconductors in bulk form as they are affected by chemical impurities and lattice defects. The thoroughness of this article is evident from the fact that it occupies a quarter of the book and gives 352 references.

The next article, by J. Bardeen, is concerned with the transistor. Starting from a brief review of the properties of semiconductors, he presents some of the basic equations governing the flow in semiconductors and applies them to the interpretation of the transistor.

A von Hippel interprets the ferroelectric properties of barium titanate, which, better than any other ferroelectric substance, lends itself to fundamental investigations and applications. Its transparency permits the striking optical demonstration of the "domains" and their changes in an alternating electric field.

P. J. W. Debye investigates the structure of polymers, combining the various experimental methods: scattering of light, index of refraction, depolarization of the scattered light, turbidity, dielectric constant, and viscosity.

The article of R. Lumry and H. Eyring takes us into the field of biophysics. Its title is "Implications of the chemical kinetics of some biological systems." The authors explore to what extent the laws of thermodynamics and chemical kinetics lead to the understanding of certain biological processes.

I feel that the field of biophysics would gain from more active cooperation by physicists. However, physicists are not attracted to biophysics, since here the problems are presented by the biologist, and the collaborating physicist may frequently consider himself a technical assistant. The last two articles will help overcome the reluctance of the physicist by presenting biophysical problems from the biologist's point of view. These articles are by Frank Brink, Jr., "Some physical and chemical properties of axons related to conduction of nerve impulses," and by Frank H. Johnson, "Bioluminescence and the theory of reaction rate control in living systems."

The papers were presented at a symposium 30 Dec. 1949. Only a few papers give any more recent references. In a period of rapid progress, many readers who want to familiarize themselves with the present state of research may try to find more recent sources than this symposium, excellent as the papers are.

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Problems of Consciousness. Transactions of the Fourth Conference, 29–31 Mar. 1953. Harold A. Abramson, Ed. Josiah Macy, Jr. Foundation, New York, 1954. 177 pp. Illus. $3.25.

The interdisciplinary conference on problems of consciousness, sponsored by the Macy Foundation, has now completed its fifth and final annual meeting. Each year a panel of distinguished scientists, mostly from the medical and social sciences, spend 3 days in a leisurely examination of some of the problems of the field. At each meeting there are a few formal presentations, but most of the time is reserved for free discussion, all of which is recorded for subsequent publication.

A serious assessment of the value of the conference should await the appearance of the fifth volume, presumably now in preparation. The fourth report leaves one with some doubts as to the appropriateness of this topic for an interdisciplinary conference, particularly when the membership is notably lacking in people with technical philosophical training. "Consciousness"

is not a neat, clearly identifiable problem area like the functions of the adrenal cortex, the conditions of blood clotting, or the nature of the nerve impulse. It is a concept about which metaphysicians and epistemologists have worried for centuries, a concept that must be given at least a provisional definition before scientists can profitably make it the object of interdisciplinary study.

A working agreement as to the nature of the problem may have been achieved at the first meeting, but if so, it seems to have been forgotten. The record of the fourth meeting presents three short and extremely able papers by Roy R. Grinker, Talcott Parsons, and Jean Piaget, respectively, followed by 121 pages of discussion. Individual contributions are always interesting and frequently informative, but it is difficult to find any thread of development that suggests that a problem is being gradually clarified. Perhaps the final volume will provide the needed synthesis.

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A Field Guide to the Birds of Britain and Europe. Roger Tory Peterson, Guy Mountfort, and P. A. D. Hollom. Houghton Mifflin, Boston, 1954. xxxiv + 318 pp. Illus. + plates. $5.

So far as illustrations are concerned, this attractive pocket volume is entirely the work of the American ornithologist and bird painter, Roger Torey Peterson. Of these, there are 1200, and they follow the familiar Peterson method which is primarily patternistic. Six hundred and fifty-four of the illustrations are in color, and a more gemlike brilliance and precise register could not be asked. The text is the work of two well-known British ornithologists. Guy Mountfort is largely responsible for the immense labor of compiling a complex book for which the scientific literature of some 20 languages for the past many years had to be reviewed, and for which the nomenclature of numberless authors had to be weighed and edited into the latest official usage. The 380 distribution maps showing breeding and wintering grounds and the descriptions of the ranges are the work of P. A. D. Hollom. Subspecies are dealt with only when recognizable in the field. Dutch, French, German, and Swedish names are added to the English names, and North American names are included where the bird is conspecific but the name is different (for example, sand martin in England, bank swallow in America, for *Riparia riparia*). Foreign editions in these other languages are scheduled for early publication.

The present volume includes every one of the 551 species of Europe west of the U.S.S.R., which apparently has been excluded for reasons of poor communication and fieldwork facilities at the present time. Even so, Russian ornithological literature has been researched and much of its results included.

Speaking as an American who lived for 6 years in Europe, always deep in the country, I can say that many hours of fruitless search would have been saved me if I had possessed the present volume while trying to identify hoopoes, rollers, wall-runners, and the many species of *Sylvia,* so strange to New World eyes. This pocket volume will certainly accompany me on my trip to Europe next spring, as more important to a naturalist than language phrase-books or guides to art treasures.

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Electronics. A textbook for students in science and engineering. Thomas Benjamin Brown. Wiley, New York; Chapman & Hall, London, 1954. xi + 545 pp. Illus. $7.50.

This textbook deals quite broadly with the field of electronics. The topics range from physical electronic principles to microwave applications. The treatment is essentially descriptive with a minimum of mathematical analysis. It would appear to be most suitable for use in a course for students whose major field of interest is other than electronics. For this reason, Brown's book will no doubt be welcomed by those schools that offer survey courses in electronics for students in mechanical and chemical engineering.

I feel that the inclusion of laboratory experiment instructions in the body of the text is unfortunate since the continuity of material is sacrificed, and the book is, therefore, somewhat difficult to read. A further handicap is the use of somewhat unconventional terminology such as "full-cycle power supply" rather than "full-wave rectifier" and "feedback product" rather than "loop gain."

This textbook should prove helpful to individuals who wish to gain a general knowledge of the present state of the electronic art.

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The Biochemistry of Genetics. J. B. S. Haldane. Macmillan, New York, 1954. 144 pp. $2.75.

Although the author states that this book is written for the biochemist, and not for the geneticist, there is no doubt that most geneticists can gain a great deal from it. In fact, the geneticist is told in many ways that the future of genetics is in the physiological approach and also that most of the simple chemical models that the geneticist uses are obsolete. There is not only a reiteration of the generally accepted premise that there is a biochemical basis underlying all genetically controlled variations, but there is also an emphasis on how little is really known about the processes themselves and the associated inhibitions, competitions, rates, and so forth. Most biochemical processes that have been studied are remote from the primary gene action.

Haldane speculates in a manner that is pleasing, being neither overly dogmatic nor overly apologetic. The thesis that there is a major evolutionary trend toward