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The issue closes with a brief theoretical paper by Baldin on the isobaric invariance of the pion field and with concise but informative abstracts on the photoproduction of neutral pions on deuterons (300-Mev synchrotron: Belousov, Kutsenko, and Tamm), on the photoproduction of charged pions on hydrogen and deuterium (300-Mev synchrotron: Adamovich, Kuz'micheva, Larionova, and Kharlamov) on the investigation of the (γ, p) reaction at energies under 30 Mev (30-Mev synchrotron: Leikin, Osokina, and Ratner) and on the yield and angular distribution of high-energy photoneutrons (Baranov and Gol'danski).

Electricity and Magnetism. By B. I. Bleaney and B. Bleaney. 676 pp. Oxford U. Press, New York, 1957. \$10.10. Reviewed by T. Teichmann, Lockheed Missile Systems Division.

Recent works on electricity and magnetism have tended mainly to extended treatments of Maxwell's electromagnetic theory together with applications to rather fundamental physical phenomena such as the scattering of electromagnetic waves, radiation from moving charges, etc. Such a treatment certainly establishes a sound basis for the understanding of electromagnetic phenomena, but it nevertheless leaves a substantial gap, at least in the expository sense, between this basis and many of the practical phenomena which it underlies. This gap is largely bridged by the volume here reviewed which not only expounds the underlying material in a concise but perspicuous way, but contains a wealth of interesting and significant applications. The book begins with a study of electrostatics, steady currents, and conductors including frequent references to and discussions of significant experiments and methods of measurement. Aside from the standard material, consideration is given to such topics as Drude's theory of metallic conduction, electron optics, thermoelectricity, electrochemical potentials, and gaseous discharges. This is followed by chapters on magnetostatics, electromagnetic induction, direct current measurements, and magnetic measurements. In conformity with the authors' well-known interests, particular emphasis is laid on the last-mentioned topic. The general portion of the book concludes with chapters on alternating current theory and electromagnetic waves. The remainder of the book deals with a variety of topics covering the entire gamut of electromagnetic problems, though again with an accent on the authors' own interests in the field of magnetism. The subjects covered are filters, transmission lines, waveguides, electric machinery, vacuum tubes and their applications, very high-frequency tubes, alternating-current measurements, noise theory, dielectric constant, solid-state conduction theory, paramagnetism, ferromagnetism and antiferromagnetism, and magnetic resonance. Each chapter is followed by a set of reasonably simple but illuminating problems together with their answers. The rationalized mks system is used throughout but the final chapter is devoted to translating the important results into the cgs and the practical systems.

While this book is designed as an introductory graduate text, its broad coverage and description of many experimental techniques should make it particularly valuable to scientists interested in the execution and interpretation of electromagnetic experiments.

Modern Introductory Physics (2nd Revised Edition). By Ira M. Freeman. 497 pp. McGraw-Hill Book Co., Inc., New York, 1957. \$6.00. *Reviewed by Ronald Geballe, University of Washington.*

Professor Freeman was bold enough to attempt the problem of the physics course for nonscience majors and now presents a revised version of an earlier text. His book is devoted to major topics in mechanics, light, electricity, and modern physics although it contains some material on heat, thermodynamics, and waves. It presents as well many descriptive passages on historical and philosophical aspects of physics as a whole and of special topics in physics. In fact one would be tempted to say, on thumbing through the book, that the treatment is almost entirely descriptive, since most passages are devoid of equations and analytic derivations are practically nonexistent. However, numerical problems occur at the end of each chapter (without any answers) and the basic techniques of algebra and trigonometry are treated in an appendix. The net result, it seems to me, is a book which should frighten only the most timid students, yet should lead to some experience with the quantitative aspects of physics.

The first few chapters, since they are written for a student with no background in physics, should be painstakingly clear. A real attempt has been made to explain the basic ideas of measurement and the fundamental concepts in a simple and unhurried way, but a number of usages and statements seem to be either misleading or potential sources of confusion. Most obvious is the "mass-weight" treatment, and the danger is enhanced because of the manner in which density is introduced on page 23 and the discussion of force units on page 81. In the paragraphs on "What Scientists Do", delimitation of the (scientific) problem is treated most casually although it is only through delimitation that science makes problems it can handle. In Chapter 2 and in the chapters on light the wave theory is made to appear as the shining example of a successful scientific theory with no hint of its inadequacy. The relation between g and G is taken up only in a problem at the end of a chapter, and there but implicitly. The velocity of an extended object is said (on page 51) to be the velocity of a specific particle of it, with no qualification as to its state of rotation. Dimensions and units are confused on page 52. On page 196 the path of a light ray on refraction is first said to be "curved" and three sentences later to suffer an "abrupt" change with no explanation of the apparent discrepancy. There are others, some of which might be matters of personal taste.

In general, however, the care taken by the author is apparent and the results are good. He avoids excessive

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