

books reviewed



Junction Transistor Electronics

By Richard B. Hurley. Published (1958) by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. 6 by 9-in., 473 pp + vi-xvii, Price \$12.50.

The present-day importance of the transistor is well known, and is reflected by the number of books available on practically all phases of transistor technology. As its title implies, this book deals exclusively with the junction transistor, and is intended for the practicing engineer with a background in electronics. In accordance with this intent, the treatment of the internal physics of semiconductors is limited to the first chapter. Chapters 2 through 7 are devoted to a discussion of low-level considerations, including the development of equivalent circuits, audio-frequency amplifiers, bi-

asing, noise, and degenerative feedback. The author makes use of the "r" parameters, in contrast to the more commonly found "h" parameters; however, the necessary conversion formulas for the r, h, and y parameters are given, and with care in interpretation, the reader should not experience any difficulty. Chapter 6, dealing with noise considerations, is notable because of the brief but thorough (to a practicing engineer) treatment.

Following the treatment of low-level considerations, eleven chapters, approximately one-half of the book, are devoted to high-level situations, including physical considerations, power amplifiers, d-c amplifiers, d-c regulators, high-frequency equivalent circuits, internal feedback, video amplifiers, tuned amplifiers, gain control, oscillators, and modulation circuits. The chapters on high-frequency equivalent circuits and video amplifiers are particularly well thought out, and although such information can be obtained from other sources, few books contain a detailed treatment of these extremely important topics.

The final four chapters are devoted to a discussion of switching circuits. The engineer dealing with computers or data-processing devices will undoubtedly complain that this treatment is far too brief, especially since a short introduction to Boolean algebra is also given in this part of the book. However, the treatment is sufficient to give the reader a general introduction to switching circuits, and the excellent bibliography included at the

end of each chapter is a source of more detailed information.

As with any book in a constantly expanding broad field such as transistors, this book represents a compromise. As the author states in the preface, it is not intended as a handbook, but rather as an aid to practicing engineers interested in transistors, and, more particularly, in junction transistors, and their applications. In this respect, the exclusion of more modern high-frequency devices such as the field-effect transistors limits the value of the book to some extent, and the fairly advanced mathematics used in a number of places places a severe limitation on its value to technicians. However, for the engineer experienced in electron tube technology, the book provides a very good introduction to junction transistors and their applications. In the field of television, the use of transistors in both transmitting and receiving equipment is rapidly expanding, and Mr. Hurley's book would be a good text for the practicing engineer interested in broadening his knowledge. It is of less value in the motion-picture field, although junction transistors are being used both in audio

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equipment and in process control equipment.

In summary, the book fulfills its stated objective — that of explaining the junction transistor, its characteristics, and its applications — in a manner familiar to the practicing engineer, and is therefore a useful and interesting addition to the field.—*Harvey W. Mertz*, 406 Cornwall Rd., Haddonfield, N.J.

(*Ed. Note:* Mr. Hurley presented a paper on the Transistor Session at the Los Angeles Convention in 1956; "The role of transistors in electronics," *Journal*, June 1957, pp. 330-332.)

Television Advertising

By Clark M. Agnew and Neil O'Brien. Published (1958) by McGraw-Hill Book Co., 330 W. 42 St., New York 36. 300 pp. Illus. 6 1/2 by 9 1/4-in. Price \$9.50.

Those who have been in television advertising from the start may have forgotten the many long hours of trial-and-error learning, and the many different fields they have had to master, before reaching their present level of proficiency. Newcomers to this young and still expanding field can probably best appreciate the vast scope of the subject matter that is now required for professional status. A field so large and of such rapid growth as this one has needed a book to document it in its present state. The authors have done an excellent job of meeting this need.

The many subjects covered in the main section of the book may be broadly divided into theory, production basics, production practice, production particulars, and planning for the future. Following this, about 50 pages are devoted to an advertising dictionary, and to an appendix of unusually high value as a source of factual reference material.

It is difficult to convey adequately in a necessarily brief review the thoroughness with which the authors have developed their subject. In studying the sponsor, the authors examine the pressures which influence him in his important responsibility of accepting or rejecting material. In studying the audience, they make it quite clear that any viewer can turn off the sound or go out for a snack during the commercial. They compare the faults, as well as the virtues, of audience sampling methods. They demonstrate "gobos," "split-gobos" and other production particulars. These and many more pieces of the entire subject are presented in a very readable manner.

Novices will find this book useful; So will experienced professionals, if only as a welcome refresher course.—*Don G. Malkames*, 7 Plymouth Ave., Tuckahoe, N.Y.

A Grammar of the Film

By Raymond Spottiswoode. Paperbound ed. published (1959) by University of California Press, Berkeley 4, Calif. 328 pp. including index, Preface and Introduction. 4 by 7-in. Price \$1.50.

It is good news indeed that Raymond Spottiswoode's *A Grammar of the Film* has been published in a paperbound

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edition. Originally published in 1935 by
Faber, and Faber Ltd., of Great Britain, it
was published in the United States in 1950
by the University of California Press
(publishers also of the present reprint).

Although by no means the equal in
practical ways of Spottiswoode's classic,
*Film and Its Techniques, A Grammar of the
Film* has considerably more than historical
interest. The book repays careful reading,
and if certain sections seem intensely and
exclusively concerned with "battles long
ago," and in other sections the youthful
author seems more erudite than lucid,
even these sections will repay careful
reading for occasional flashes of insight
and stimulating (and controversial) argu-
ment.

This book was written with high aims
and lofty purposes, "...to make as
precise as possible the language and
grammar which the film, as a prospective
art-form, has to acquire; next to outline
its history, redressing the balance of crit-
icism which has inevitably but wrongly
laid sole stress on the machine-made film,
and indicating the economic and political
factors which have determined its course in
the past and are likely to influence it
in the future. . . ."

One of the most charming sections of
the book is the preface (to the 1950
edition), written by the mature author of
Film and Its Techniques, in which he evalu-
ates the work of the young author with
perception and objectivity.

"With all the heady enthusiasm of his
twenty years and unembarrassed by any
actual contact with film, he felt that he
had the answer," says the older man of the
younger with perhaps a half-amused,
half-regretful sigh for that vanished enthu-
siasm.

"How then, does this early study of
film stand up to the passage of time?"
the older man inquires. "The answer
seems to be," he says, "that film is a
medium still so much under commercial
domination that it is always in danger of
falling into stereotyped forms which are
easy to exploit. There is, therefore, a
continuing need to go back to funda-
mentals, and see what new forms can be
spun out of the basic substance of film.
Never was the need for experiment greater
than today, when so little is being done.
Thus any study, however imperfect,
which tries to lay bare the scaffolding of
the film medium, may be able to help the
creative worker on his way."

It is a pity that the entire Preface can-
not be quoted here in its entirety. It is witty
and delightful and at the same time full of
sound observations and critical evaluations.
The author (of the Preface) has no hesi-
tancy in pointing out the imperfections of
the young author's book, which he exposes
with a devastating wit. It is with something
akin to a shock of recognition that the
reader realizes that the older author is the
same person as the younger author who
has developed with the years and bril-
liantly fulfilled the promise of his early
efforts.

Science Study Series, prepared under
the direction of the Physical Science Study
Committee of Educational Services Inc.,
Watertown, Mass., published in coopera-

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tion with Doubleday-Anchor Books, New York, and Wesleyan University Press Inc., Columbus, Ohio, 1959, 4½ by 7½-in., illus., 95¢ each.

- S1, *The Neutron Story*, Donald J. Hughes, 158 pp.
- S2, *Magnets, The Education of a Physicist*, Francis Bitter, 155 pp.
- S3, *Soap Bubbles and the Forces which Mould Them*, C. V. Boys, 156 pp.
- S4, *Echoes of Bats and Men*, Donald R. Griffin, 156 pp.
- S5, *How Old Is the Earth?* Patrick M. Hurley, 160 pp.

The Science Study Series, which has begun with the publication of the five titles listed above, is one result of the research, directed by the Physical Science Study Committee, which was aimed at a major revision of the teaching and study of physics. The PSSC was formed at the Massachusetts Institute of Technology in 1956 by a group of 200 high-school teachers, editors, authors, journalists, apparatus-designers, film producers and other specialists. The PSSC is currently completing a new physics text book, producing a library of short classroom films, and designing simple apparatus that can be constructed by teachers and students.

The Science Study Series, which will eventually number more than seventy illustrated paperback books, will be issued at the rate of about fifteen titles a year. Some will tell of the role of physics in the world of man, his technology and civilization. Others are biological in nature. According to the statement at the beginning of each book, "the primary purpose of these books is to provide an authoritative survey of physics within the grasp of the young student or the layman." It is stated that "all the authors have been selected for expertness in the fields they discuss and for ability to communicate their special knowledge and their own views in an interesting way."

Donald J. Hughes, who wrote *The Neutron Story*, learned the story from Enrico Fermi, and was invited by Mme. Fermi, a member of the PSSC, to contribute this opening monograph.

Magnets, the Education of a Physicist used the pedagogical technique recommended by James B. Conant, that of leading the student through the maze of learning already followed by the pathfinder.

Soap Bubbles and the Forces Which Mould Them is a reprint of a classic of science literature, out of print since 1916. As a model of lucid exposition, it has much to recommend it to science authors and report writers, except that it is unindexed, the only one among the first five in the series to show such a conspicuous lack!

Echoes of Bats and Men is written by the man who, in 1938, first heard the ultrasonic voices of bats. Donald R. Griffin has united biology and physics, the two sciences with which the *Science Study Series* is concerned, in this report on studies of bats, porpoises, and whirligig beetles, and of electronic radar and sonar.

Patrick M. Hurley discusses the search for the answer to the question *How Old Is the Earth?* in the light of our new knowledge of radioactivity, treating radio-

activity both as a source of energy and as a dating tool.

Next on the list are to be *The Physics of Television*, subtitled *Electrons, the Eye and the Ear*, by Donald G. Fink, Director of Research, Philco Corp.; and *Crystals and Crystal Growing*, subtitled *Order in Nature*, by Alan Holden and Phylis Singer.

Obviously not for professional scientists, *The Science Study Series* books may be useful in filling in gaps in the specialist's knowledge. Although they vary, it may be said that, in general, the books represent the same type of "tutorial" material that one finds in some magazine articles, though some of the books may go deeper or cover subjects more fully. For example, *Echoes of Bats and Men* has been treated in current periodicals, but here the material is presented soundly and in extremely useful format for study and ready reference.

The First Year of Title VII, an article by Kenneth D. Norberg and Thomas D. Clemens in the Fall 1959 issue of *Audio Visual Communication Review*, presents an informative report of considerable value for engineers as well as to the educators. "A Report on the Administration of Educational Film Activities in 14 Countries," a survey by the International Council for Educational Films for Unesco, also presents relevant facts and draws clear-cut conclusions. The three main articles of the issue ("New Directions for Communication Research," by L. P. Greenhill; "Comparative Costs for Televised and Conventional Instruction," by W. F. Siebert; and "Education and the Challenge of Mass Culture," by George Gerbner), although different in subject matter, all seem to fall a little short of the exhaustive and scholarly treatment that would result in an important contribution to a special and limited field and also to fall short of the condensation of material and clarity of style that would appeal to the average reader. This is not to say that there is not much of value in each of these three articles. Each deals with an important facet of the broad area of audio-visual communication and each contains many thought-provoking statements. Perhaps the common fault — if there be one — lies in some uncertainty as to the point of view, or rather as to what type of reader is to be reached: the specialist, to whom a special vocabulary and an academic style would present no barriers to understanding, or the average reader looking for information presented clearly and concisely.

Job information for experienced engineers and scientists is contained in the Fall 1959 issue of *Careers*, a publication which gives a brief run-down of job opportunities in the big companies. It is published by *Careers, Inc.*, 15 W. 54 St., New York 36. The publishers note that free distribution is normally limited to alumni of ECPD-accredited colleges and universities through their alumni placement offices or other accredited agencies. It is noted that "Popular-priced edition is made available to all others by Simon and Schuster, Rockefeller Center, New York."

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