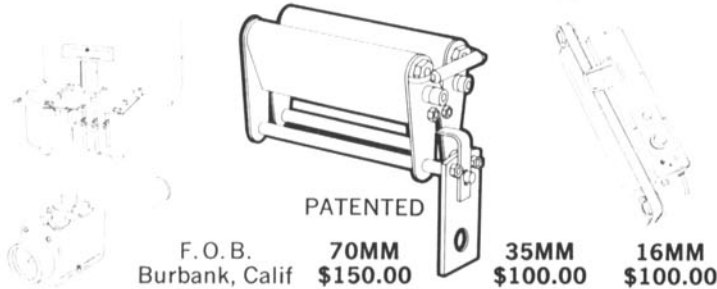


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books reviewed

Masers and Lasers: How They Work, and What They Do

By M. Brotherton (Foreword by C. H. Townes). Published (1964) by McGraw-Hill Book Co., 330 W. 42 St., New York, N.Y. 10036. 207 + xvi pp., 25 illus. 5½ by 8 in. Price \$8.50.

Scientific writing has long established for itself a reputation for incomprehensibility. And of all devices (aside from those involved in military secrecy) masers and lasers have probably been the most unintelligibly reported in the engineering literature. It is refreshing, therefore, to find a book that aims at presenting this material so that it can be understood by the non-specialist. It is remarkably successful in its treatment, and the use of heuristic aids is frequent and skillful. However, let no reader delude himself that after this much preparation he will be able to read with comprehension the current engineering literature in the field. In the first place, the subject is far too abstruse for such a short-cut education. But also, perhaps, one may have some qualms about the author's choice of laying such an elaborately prepared (and quite readable) groundwork before coming to the masers and lasers themselves; and then telling, relatively, so little about them after all this introduction.

The book concludes with a brief historical survey of great interest on the development of the maser and the laser—and here its value would have been much enhanced by giving specific references to where in the literature these individual advances were recorded.—*Pierre Metz*, Consultant, 66 Leamington St., Lido, Long Beach, L.I., N.Y. 11561.

Proceedings of the St. Louis Photo-Optical Data Reduction Seminar

Published (1964) by the Society of Photo-Optical Instrumentation Engineers, 205 Ave. I, Office 23-24, P.O. Box 288, Redondo Beach, California 90277. Incl. Chapters I–XIX. Photographs of authors, roster of registrants and list of companies and agencies represented, 237 pp. 11 by 8½ in. paperbound. Price \$6.50.

The degree to which reduction procedures and techniques of optical data is being pursued is amply shown in these *Proceedings*. Optical data-gathering instru-



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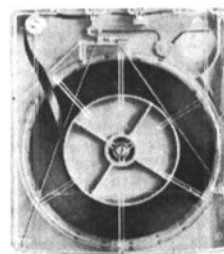
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ments are utilized in such diverse fields as ballistic missile reentry studies, military intelligence and geodetic studies, each with its special information content. The use of such instruments will surely be extended to other areas as well as be increased in current areas. More and more information is being acquired which must be extracted from the data records with the highest accuracy in the shortest time interval after acquisition.

The approaches of several of the many groups concerned with this are presented in the individual contributions to the *Proceedings*. The papers cover most of the areas of data reduction including applications of automatic reduction techniques, analyses of data records for information content, use of standard optical data reduction equipment in conjunction with computers and studies of, as yet, nonstandard equipment (e.g. those utilizing fiber optics). As such, this collection of papers presents some problems and their solutions to a very important, but seldom recognized, segment of research workers, namely the data analysts.

Seminars such as this are fast becoming an absolute necessity for the purpose of exchange of new ideas and introduction to new equipment. However, publication of the presented papers only shows a very few specific problems of the many more problems inherent in the field of data reduction. The collection in this *Proceedings* will serve to introduce the reader to several working groups and might answer a few questions but will leave many other questions unanswered. It appears now that there are as many solutions as there are working groups — and these are indeed many. — *Walter G. Planet*, Barnes Engineering Co., 30 Commerce Rd., Stamford, Conn.

The Optical Industry Directory

Published (1964) by the Optical Publishing Co., Lenox, Mass. 8 by 10½ in. Paper bound. Price \$10.

The 10th Anniversary issue of the Optical Industry Directory is the only existing publication that covers the fields of optical instrumentation and systems design and fabrication.

The 400-page directory lists many hundreds of American companies that deal with modern optical design and has divided the general field into some 1000 categories to delineate the itemized fields of interest. For the convenience of the user the publishers have included the consolidation of small companies with larger organizations, as well as changes of address resulting from the building of new facilities. The listing also includes the names and telephone numbers of the key officers of each organization. The Lens Appendix lists the characteristics of over a thousand "off the shelf" objectives, giving the manufacturer as well as the trade name and principal use. The Directory is also useful for the student in physics departments who, contemplating a career in optics, needs to know what companies offer job possibilities.—*A.E.A.*

Educational Media Index (Vols. 3 and 11)

Published (1964) by McGraw-Hill Book Co., 330 W. 42 St., New York, N.Y. 10036. Art and Music (Vol. 3) — 236 pp. + List

of Sources (pp. S-1-S-32), 7 by 10 in., Price \$4.50 (+ annual supplement, \$6.50); Science and Engineering (Vol. 11), 334 pp. + list of Sources (pp. S-1-S-32), 7 by 10 in., Price \$5.10 (with annual supplement, \$7.25).

The Educational Media Index (14 volumes) is a project of the Educational Media Council. Listed and described in the index are "materials educational in nature (that are) generally available for educational use anywhere in the United States. Excluded are such items as books, conventional printed material, recordings and tapes entirely of music and materials that are a transposition from another primary medium such as talking books." Included are such items as charts, graphs, maps, cross-media kits, films and kinescopes, filmstrips, pictures in sets, models and mock-ups, phonodiscs, phonotapes, programmed instructional materials, slides and transparencies, and videotapes for educational use. Subjects in Vol. 3 on *Art and Music* range through many areas such as Abstract Expressionism, Architecture (Academic, Baroque, American, Celtic, etc.) through Woodwinds and Worksongs. Vol. 11 on *Science and Engineering* includes items in the broad, general areas of Astronomy, Life Sciences, Earth Sciences, Chemistry, Physics and (under Engineering) Education. The first yearly supplements will be issued in 1965.

Books, Booklets, Brochures

Washington County Closed Circuit Television Report is a definitive report on the Hagerstown experiment, i.e., use of a closed-circuit TV network for county-wide classroom education. Inaugurated in Hagerstown, Md. (county seat of Washington County) in 1956 (*Journal*, p. 446, Aug. 1956), the project was an opening event in what has often been called the revolution in education.

The 80-page paperbound booklet published by the Board of Education, Washington County, Hagerstown, Md., (single copies available without charge) is handsomely designed and illustrated. Part I of the report, *Television in Washington County*, presents facts and figures on the system as a whole, engineering requirements, staff, pupils, teachers, and costs. Part II evaluates the program in terms of educational values. Comparison tables and descriptions of various means of evaluation are used to show the achievement of television-taught groups as compared with achievements of similar groups conventionally taught. The overall gain in achievements of pupils taught by television was shown to be "reliably greater than chance," the report states. Conclusions are drawn in the Evaluation Summary: "Is television responsible for the achievement gains shown in the testing program? The Washington County staff does not claim that television per se is responsible for all the improvement in pupil achievement that occurred, but feel that it has contributed to an overall situation that made growth possible. (1) It focused attention on problems in a way never before possible. (2) It stimulated teamwork and planning. (3) It created interest in curriculum development and teaching procedures. (4) It re-