

where the student could actually understand and use them. In fact, this does not seem to be a real objective of the book, as evidenced by the lack of illustrative examples, and by the type of questions and problems, averaging about six of each per chapter. The problems are almost all formula substitutions, and many of the questions may be answered by thumbing backwards through the chapter to find the appropriate paragraph.

Further, basic facts of nature are frequently lost or hidden, because of the lack of logical-pedagogical exposition. As an example, the student reading chapter 6 on electricity and magnetism, might miss learning that electric current consists of moving charges, and is not told that matter contains positive and negative charge. He is told that "electric virtue" can be transported along metals, and that the one- and two-fluid theories are both acceptable. Not until chapter 12 does it appear that the electron is negative, that the hydrogen atom is presumably neutral, and the nucleus, therefore, positive. The strict historical approach used in the book does not get the physics together.

The teacher who wishes to try Inglis can present either a one- or two-semester course by omission or addition of topics and case histories. The teacher who would have his students experience some of the pleasures or excitement of actually understanding and using physics, of being in this sense participants rather than spectators, would have to add large amounts of his own material, or use another book instead of or in addition to Inglis.

Harry Soodak

City College of
the City University of New York

Gas Laser Technology

By D. C. Sinclair, W. E. Bell

161 pp. Holt, Rinehart and Winston,
New York, 1969. \$7.25

A number of books have been written on the specific subject of gas lasers, reviewing past achievements and compiling reprints. These were written

mainly for readers already working in the area of lasers. This book is intended as an introduction to gas lasers and as a textbook for students. The authors have written a clear and concise book that will fulfill a useful purpose, particularly as a text for senior and graduate level courses.

Their method of referencing what they consider the most pertinent articles at the end of each chapter is open to criticism as to their particular choices but it is a valuable guide to those using the book. The reader then relies on the authors' judgment for references to specifics and details, and thus eliminates the literature search required when a more complete list of references are given.

The chapter devoted to Lamb's theory of the laser is easily followed. The treatment of transverse mode structure, with the explanation of geometrical construction of the propagation of laser beams in cavities, is very useful and is the most complete treatment in the book.

The book contains a chapter on the construction of gas lasers that applies mainly to low-power visible lasers but also contains general information on vacuum processing of laser tubes as well as dc and pulsed electrical power supplies for visible lasers.

In an introductory book such as this, a brief historical review of the development of gas lasers would be useful as well as at least a mention of the wide variety of gas lasers that have been developed. The introductory chapter briefly discusses the helium-neon, argon-ion and carbon-dioxide lasers, which are representative of three types of gas lasers. No mention is made of chemical lasers or of metal-vapor lasers. The book does not treat the general fields of pulsed technology (such as Q-switching) or diagnostics of the laser output (such as detectors, power meters, and so on). The book does contain a complete introduction to the fundamentals of gas lasers, and the concepts of inversion and gain, cavity modes and the basic construction techniques of gas lasers are well presented.

David C. Smith

United Aircraft Corporation
East Hartford, Connecticut

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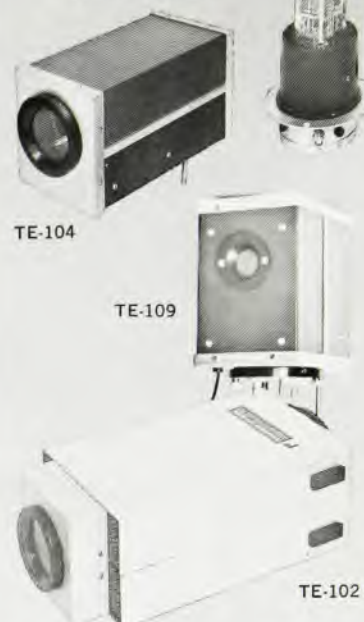
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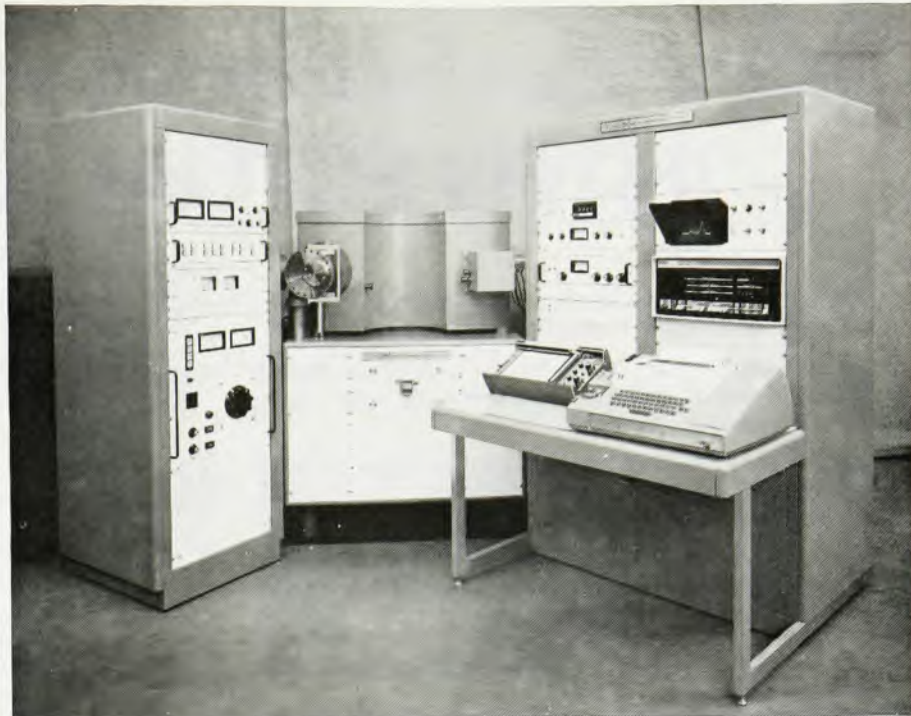
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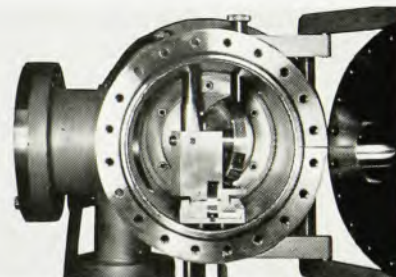
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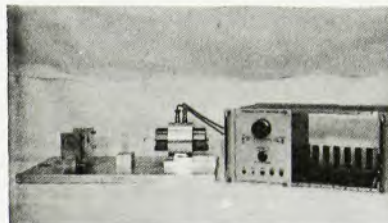
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