

# BOOK REVIEWS

Selection of books for review is based on the editors' opinions regarding possible reader interest and on the availability of the book to the editors. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



## CONCISE AND FRANK

*Title* The Education of a Physicist

*Editors* Sanborn C. Brown and Norman Clarke

*Publisher* The MIT Press, 1966

*Pages* ix + 185

*Price* \$7.50

*Reviewer* Felix T. Adler

This small volume of about 200 pages reports on the efforts of the Third International Conference on the Education of Professional Physicists held in London in 1965. Concise and surprisingly frank summaries are ably presented which touch upon many different and controversial areas. Thus, university-industry relations or the financial problems encountered in the training of postdoctoral students are treated, as well as the concerns of the smaller centers or the best approach to undergraduate physics laboratory teaching. These discussions will be of interest to many engineering faculty members who may face analogous problems.

For example, the presentation by Professor Sanborn Brown highlights the role one key center can have in setting standards of excellence for graduate and undergraduate education, by both its example and its products who will fill many college and university teaching positions in the future. Dr. R. Kronig of Delft, on the other hand, shows the unique aspects of the European "Technical Universities," such as the Eidgenossische Technische Hochschule, Zurich, and of the University of

Delft in Holland. Geography makes it possible to concentrate engineering education in Holland at one place, in Delft. The advantages of adequate size (5000 students), a very close relationship to private industry, and a sound scientific tradition, apparently have created at Delft a unique atmosphere for creative work in applied physics as well as in engineering. The collaboration with the major Dutch industrial research laboratories of Philips, Royal Dutch Shell, and Unilever is apparently so intimate that a significant number of part-time or extraordinary professorships are held by members of the research staff in these laboratories, to the mutual advantage of industry and university.

This enviable relationship between private industry, government laboratory, and university is further illustrated by the talk of Dr. Casimir of Philips, who also remarks that "Personally, I am always profoundly irritated when people speak about the two different tasks for a university, namely teaching and research; I think it is entirely ridiculous, because it is impossible to do teaching of the kind required without doing research. It is about as futile as trying to teach swimming without water, or running a riding school without horses." Among the many interesting topics covered by Dr. Casimir, one deserves special attention: the description of the initiative of Philips in creating a foundation in cooperation with the Dutch government and the University of Amsterdam, to support nuclear research for which Philips built and provided a cyclotron.

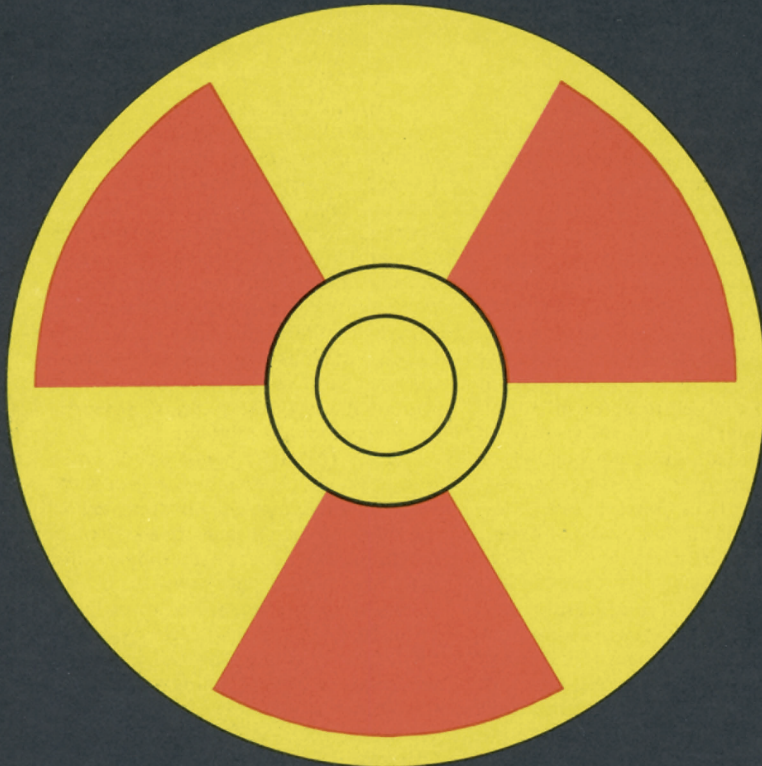
Besides many other interesting sidelights, such as the repeatedly implied need for increased emphasis

on applied physics in university curricula, this book also contains a wealth of specific information of interest to engineering faculty members. For instance, two mathematicians (Professors Bernard of the University of Paris and B. Friedman of the University of California - Berkeley) provide stimulating and controversial comments on the necessity of teaching modern mathematics to physicists, which comments may also apply to engineering graduate students.

More than fifty pages are devoted to questions pertaining to practical work in experimental physics, and to the use of films and television in teaching. It appears to this reader that the extent and quality of the work reported here could perhaps stimulate an appropriate organ of the ANS to study the potential and the availability of films for use in introductory nuclear engineering courses. Areas such as fuel-element fabrication, safety procedures and techniques, or operation of power and research reactors could perhaps be dealt with more efficiently in normal course work by the use of films or closed circuit TV.

The book is well organized in five parts, dealing with "First Degree Courses," i.e. undergraduate work, "Special Problem Areas," covering the training of physics teachers, postdoctoral work, and the role of mathematics in the training of physicists, "Practical Work, Films and Television," "Technical Universities," and "Relationships between Government, Industry, and the University." It is interesting to note that the government side is presented only by a contribution of V. E. Parker of the USAEC who outlines the role of the educational assistance

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provided by the AEC through its manifold efforts of fellowships and other supporting programs.

The book closes with the Resolutions adopted by the Conference. Two of these resolutions, dealing with the importance of mathematics in physics education at all levels, and with the need of increasing effective scientific contact between university physics departments and industry and governmental laboratories for both teaching and research, may be of special interest to nuclear engineering educators.

*F. T. Adler is currently professor of physics and nuclear engineering at the University of Illinois at Urbana. After obtaining his PhD degree in physics at Zurich, Switzerland, he taught in the physics departments of the Universities of Wisconsin, Colorado, and Carnegie Institute of Technology in Pittsburgh. He has been a staff member of General Atomics for several years and a consultant to Los Alamos Scientific Laboratories and Oak Ridge National Laboratory since 1961. Since 1959 he has served as member or chairman of the advisory committees of the Reactor Engineering, the Idaho, and the Reactor Physics Divisions of Argonne National Laboratory.*

### **BOOK ANNOUNCEMENTS**

Although the following books will not be reviewed, they may be of interest to some of our readers:

*Fundamental Analogue Techniques*, R. J. A. Paul, MacMillan, 1966, x + 216, \$6.50

*The Safe Transport of Radioactive Materials*, R. Gibson, Ed., Pergamon, 1966, xi + 290, \$12.50

*The Entomology of Radiation Disinfestation of Grain*, P. B. Cornwell, Ed., Pergamon, 1966, xx + 236, \$9.50