lytical, of tubes with cathode bias and an article on the shift of the dynamic load line with changes in average plate current. Finally, one appendix that has been added will be particularly welcomed by the student—it contains answers to representative problems in the text.

The subject of transistors makes its influence felt even in the discussion on tube circuits, for *explicit* treatments of the grounded-grid and grounded-plate amplifiers have been added; thus, a source of confusion for the beginning student is anticipated and disposed of, namely, his feeling that the three basic transistor connections somehow do not have their correspondences in tube circuits. The final chapter on transistors serves as an introduction to the field; however, because of the less than fifty pages available the problem of transistor bias is not treated and some advantages peculiar to transistors like complementary symmetry are not even mentioned. Also, the common-base connection is used as the standard circuit and all voltages are referred to the base, whereas this reviewer believes the choice of the common-emitter circuit would have been preferable. A minor criticism, too, is that black marks useful throughout the rest of the book for indicating emphasis are not used in the transistor chapter. The linear incremental analysis of the transistor is presented in detail and graphical analysis, including the transfer of load lines from one voltage-current plane to another, is lucidly treated.

It is felt that the book makes a worthwhile addition to the reference library of anyone interested in electronics, and that it will gain increased acceptance as a textbook for introductory (and intermediate) courses in electronics.

Progress in Nuclear Physics. Volume 3. Edited by O. R. Frisch. 279 pp. Academic Press Inc., New York, 1954. $9.50. *Reviewed by Evans Hayward and Irwin Oppenheim, National Bureau of Standards.*

Volume 3 of *Progress in Nuclear Physics* contains nine articles covering a wide range of interests. Three are devoted to the ionizing-particle detectors, diffusion-cloud chambers, proportional counters, and solid-conduction counters by M. Snowden, D. West, and F. C. Champion, respectively. The first two are of interest because of the tremendous strides in the development of these instruments since the war and their subsequent application to many problems in nuclear physics. The paper by Champion describes the solid state physics of the crystal counter, a very interesting device which is not yet widely used because of the difficulties in its operation. An article on the Cerenkov Effect by J. V. Jelley gives a history of the experiments as well as the theoretical development concerning this phenomenon; the last section describes various counters that make use of the Cerenkov Effect for detecting radiation. The paper on the Production of Intense Ion Beams by P. C. Thonemann discusses the properties and the production of plasmas and will appeal chiefly to the accelerator physicist. The article by Blin-Stoyle, Grace, and Halban on Oriented Nuclear Systems describes methods for obtaining polarization and alignment of nuclei and the information available from systems of oriented nuclei and oriented particle beams. Deutsch's article on annihilation of positrons gives special emphasis to theoretical and experimental results for positronium. The importance of the study of the deuteron in the determination of spins and parities of nuclei and nuclear forces is emphasized by Huby in his article on Stripping Reactions and by Massey in Collisions of Deuterons with Nucleons.

The articles are all of high caliber and make profitable reading for the general reader as well as for the specialist.

Nuclear Science Glossary

A Glossary of Terms in Nuclear Science and Technology is just what it claims to be—a comprehensive listing of terms and definitions in the general field of nuclear engineering. The *Glossary* is made up of nine sections dealing with physics, reactor theory, reactor engineering, chemistry, chemical engineering, biophysics and radiobiology, instrumentation, isotope separation, and metallurgy, with the sections available separately at prices ranging from $.60 to $2.50 each and the whole series selling for $7.00. Compiled under the direction of the National Research Council, the *Glossary* was produced by the Nuclear Energy Glossary Committee of the American Society of Mechanical Engineers and may be obtained from the latter at 29 West 39th Street, New York 18, New York. According to the foreword, "the aim has been to limit the inclusion of terms in each section of the Glossary to the following categories: (1) peculiar to the field of nuclear energy; (2) used in this field in a different sense or with different emphasis from what is most commonly understood in other connections; and (3) used elsewhere in the same way, but so infrequently as to be unfamiliar."

Books Received

TRANSACTIONS OF THE SYMPOSIUM ON FLUID MECHANICS AND COMPUTING (New York University, 1953). Edited by Garrett Birkhoff, K. O. Friedrichs, and T. E. Sterne. 243 pp. Interscience Publishers, Inc., New York, 1954. $5.00.

A BRIEF TEXT IN ASTRONOMY. By William T. Skilling and Robert S. Richardson. 327 pp. Henry Holt and Co., New York, 1954. $4.00.

SYMPOSIUM ON FLUORESCENT X-RAY SPECTROGRAPHIC ANALYSIS. American Society for Testing Materials Special Technical Publication No. 157. 68 pp. ASTM, 1916 Race St., Philadelphia 3, Pennsylvania, 1954. Paperbound $1.75.

INDEX TO THE LITERATURE ON SPECTROCHEMICAL ANALYSIS (Part III, 1946–1950). By Bourdon F. Scribner and William F. Meggers. American Society for Testing Materials Special Technical Publication No. 41–C. 226 pp. ASTM, 1916 Race St., Philadelphia 3, Pennsylvania, 1954. Paperbound $4.50.