includes an excellent summary of the history of geology. Part 2 is a rather superficial discussion of the internal structure, composition, and origin of the earth. This is followed by a section devoted to a description of primary structures in sedimentary and igneous rocks and of secondary structures (including folds and faults) in deformed rocks. The treatment is standard, but the examples are largely Russian. In part 4 (200 pages) Beloussov develops the principal theme of the book—that is, the significance of vertical oscillatory movements of the earth's crust and their absolute control of the deposition of sediments. In the following section he discusses tectonic movements that produce folding. He begins with a too brief section on stress and strain; this is followed by a lengthy but rather narrow treatment of discontinuous (supratenuous) folding, and he concludes with a general discussion of the relation of folding to geosynclinal theory. In part 6, which deals with rupture, the author describes some very interesting Russian experimental work. Part 7 is a much too cursory treatment of the relation of igneous activity to geotectogenesis. In the following 70 pages he summarizes geotectonic processes and sketches the present tectonic structure of the earth—a rather stupendous undertaking.

In the final section Beloussov reviews and dismisses all Western theories of geotectogenesis. He has made a serious attempt to digest Western geologic thought and literature (the bibliography has 519 entries), but Western contributions made during the last 20 years are treated rather lightly. Beloussov seems convinced that most geologists outside of Russia are married happily to the contracting earth hypothesis. He criticizes other Western theories for inadequately demonstrating causal mechanics, but he admits his own oscillation theory is based upon imperfectly understood processes (he favors differentiation resulting from unequal distribution of radioactive heat). Western geologists may be dismayed by Beloussov's somewhat dogmatic approach, but his underestimation (we hope) of us is not very different from our tendency to underestimate Russian progress.

Excellent volumes like this one will stimulate geologic thought throughout the world.

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Astronomy

The Distribution and Motion of Interstellar Matter in Galaxies. Proceedings of a conference held at Princeton, N.J., April 1961. L. Woltjer, Ed. Benjamin, New York, 1962. xiv + 330 pp. Illus. $11.75.

Within the past 15 years interstellar polarization and the 21 cm radiation from interstellar hydrogen have been discovered, the Palomar Sky Survey has been completed, the 200-inch Hale and the 120-inch Lick reflectors have swung into action, colliding galaxies have been discovered and studied (by radio and by optical techniques) out to distances of more than a billion light years, and use of the synchrotron mechanism has shown that radiation from the Crab Nebula is heavily polarized. It has also become increasingly evident that stars not only condense out of the interstellar medium but that they also contribute to it; thus, the great questions of the evolution of the stars and galaxies are directly related to the subject matter of the book. In consequence, studies of interstellar matter have assumed a new importance and are increasingly engaging the attention of astronomers and astrophysicists.

There were 27 participants at this conference which was held at the suggestion of Bengt Strömgren. The papers, with essential parts of their discussions, have been published in this book about as they were presented at the conference. There are twelve papers on the characteristics of interstellar matter in our galaxy, three on the characteristics of interstellar matter in other galaxies, five on small-scale dynamics of interstellar matter, and ten on large-scale dynamics of interstellar matter. Following these 30 papers is a report of the concluding session, with summaries by Strömgren and Woltjer, and 11 pages that report the general discussion, with J. H. Oort presiding. Although some fundamental considerations concerned with the physics, and especially with the chemistry, of interstellar matter are not covered, the discussions are nevertheless extraordinarily wide ranging and at an advanced level.

This book is for the serious astronomer, not the casual reader. It gives a useful, authoritative summary from many points of view of our present knowledge and speculations, of observational programs recently finished or still to be completed, and of many still unanswered questions related to the four components of the interstellar medium: the gas, the dust, the cosmic rays, and the magnetic fields. Dust, one of the four components of interstellar matter, is almost always found in connection with the spiral arms that are characteristic of multiple-arm galaxies, such as the one shown on the cover of this issue.

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Nuclear Radiation

Radiation Effects on Organic Materials. Robert O. Bolt and James G. Carroll, Eds. Academic Press, New York, 1963. xvi + 576 pp. Illus. $13.50.

Radiation Effects on Organic Materials contains essays written by scientists from industrial and government laboratories and is concerned with the effects of nuclear radiation on the properties of organic liquids, gases, and solids. The editors state in their preface that the book is intended for those in research and development who are conversant with the fundamentals of physics, chemistry, and engineering. Consequently, very little effort is made to cover the basic underlying principles, although the first four chapters—an introduction and a treatment of the interaction of radiation with matter, the chemical effects of ionizing radiation, and the radiation chemistry of pure compounds—summarize the fundamental principles. No derivations of equations are given, but principles and the results are stated as a matter of course. In general, the book is well referenced, so the reader can easily expand his background on any particular subject.

The remaining chapters treat radiation effects on polymers, plastics, elastomeric materials, nuclear reactor coolants, lubricants, adhesives, textiles, coatings, films, dielectric fluids, fuels, fluid shielding materials, coal, wood, and explosives.

In my opinion, one of the book's most valuable characteristics is its broad coverage of the literature, much of which is often not conveniently available. There are frequent references to reports published by the Atomic Energy Commission and the Air Force, to journals that cover a large number of disciplines, and to other similar sources. Certainly the objective of summarizing the literature and its background ap-