

ress of the theory as presented, so the reader would be advised to proceed from this collection to some of the many references given as well as to a study of the many papers published since 1950.

Science in Space. Lloyd V. Berkner and Hugh Odishaw, eds. 458 pp. McGraw-Hill Book Co., Inc., New York, 1961. \$7.00. *Reviewed by T. Teichmann, General Atomic Division, General Dynamics Corporation.*

SINCE the publication five years ago of *Scientific Uses of Earth Satellites* (edited by J. Van Allen, University of Michigan Press) "space science" has developed into a major discipline, encompassing a great variety of topics, and offering tremendous scientific and practical potentiality. As a result of the information obtained even with the relatively limited experiments carried out so far, the main interest is no longer in details of instrumentation and experiment, many of which have already proven their worth, but in the content and organization of far-ranging scientific exploration of space.

Science in Space recounts the accomplishments to date and discusses some of the new avenues opened by the capability to venture into outer space. Also included is a description of some of the present and impending programs.

Following the introduction into the over-all problem, the book contains a valuable summary by Rossi and Jastrow of the results already obtained. It is of interest to note that the most significant discoveries so far, the radiation belts, were not anticipated in the early (pre-1958) discussions, which is a point to be borne in mind in considering present-day prognostications.

A major portion of the book deals with the earth and its environment. This includes the extensive discussion of radiation in space by Van Allen, Simpson, Parker, and Chamberlain; description of the geodetic and meteorological aspects by Woollard and Wexler, respectively; and of upper atmospheric research by Kellogg, Shapley, and Villard. Many of these topics have almost immediate practical interest in terms of weather forecasting, navigation, and communications.

The remainder of the book concerns larger-scale and more unknown domains, in which one may perhaps encounter spectacular surprises. Dicke describes a variety of experiments on gravity, which are now on the verge of being feasible, if not already practicable, while Urey describes what may be learned about the origin of the solar system and the universe from the moon and the planets. Goldberg and Dyer discuss solar and general astronomy, with particular reference to the effect of the vast increase in spectral range made available by extra-terrestrial observations. Finally, Lederberg and Hartline discuss "space biology" (relating to "man-in-space") and "exobiology" (concerned with possible life outside the earth).

The combined effect of these articles gives a full account of our present knowledge and main areas of interest, and it should also provide an interesting landmark to compare with results five or ten years hence.



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