Even with these omissions, the book has a wide range, covering the Earth's atmosphere from a height of 80 km up to its outermost limits, the Sun and the interplanetary plasma, the Moon and planets, galactic astronomy and the technology of space research. There are more than a hundred papers, almost all of them in English, and each is preceded by a summary in English and Russian. The Committee for Space Research (COSPAR), which organized the conference, has always been genuinely international, and so are the papers: though a large proportion comes from the United States or the U.S.S.R., there are also many excellent contributions from other countries.

The first group of papers, totalling 170 pages, is devoted to the Earth's upper atmosphere from heights of 80 to about 2,000 km, and includes elegant analyses of variations in atmospheric density by L. G. Jacchia, H. K. Paetzold and others, and a long review of upper-atmosphere chemistry by V. I. Krassovsky. The second group of papers (150 pages), dealing with the charged particles in the same region of the atmosphere, is dominated by the many reports on measurements of electron-density profiles. The third group of papers (170 pages) is on the magnetosphere, that is, the atmosphere from a height of approximately 2,000 km out to the farthest limits of influence of the Earth's magnetic field, at about 10–15 Earth radii on the sunlit side. This group includes accounts of various measurements of the Earth's magnetic field and the zones of trapped radiation.

An excellent review by C. de Jager, on "Emission of Gas from the Sun", sets the scene for the next two groups of papers (250 pages), which are concerned mainly with the outflow of charged particles from the Sun, the 'solar wind', and its interaction with the Earth's atmosphere. This complex, fascinating and rapidly developing subject has in the past few years completely altered our view of the Earth's environment: what was an absolute blank not long ago now stands revealed as the scene of a rich and fluctuating hydromagnetic struggle. Notable among the papers on this subject are those giving results from the *Explorer* 10 satellite, which probed the fluctuating boundary of the magnetosphere.

The next group of papers (110 pages) covers solar radiation, ultra-violet and X-ray, and records an impressive number of detailed measurements of the solar spectrum between 5 and 3000 Å by rockets and satellites. There follow three papers on the astronomical unit, including a useful review by A. A. Mikhailov, who recommends a value of 149,550,000 km. Then come four papers on meteorites and tektites, including an excellent survey of interplanetary dust measurements, and ten papers on some larger solid bodies of the solar system, namely, the Moon, Mars and Venus.

"Space Astronomy" is the subject of the next group of papers (70 pages), which includes reports on the first southern-hemisphere observations of stellar ultra-violet radiation, made by a *Skylark* rocket in 1961, and the γ-ray measurements by *Explorer* 11.

The final section of the book (110 pages) is concerned with the technology of space research and consists chiefly of papers describing instruments used, plasma probes, mass spectrometers, photo-detectors, and others.

The editor, Prof. W. Priester, and the North-Holland Publishing Co. are to be congratulated on producing, within a year of the Symposium, such a handsome, well-edited and well-printed volume, which provides an authoritative survey of most aspects of space science. One of the book's most remarkable features—which reflects particular credit on the translators of the Russian papers—is the excellent literary style of the contributions. When one considers that the papers are in English, which is not the native tongue of many of the authors, that the editor comes from Germany and the publishers from Holland, the stylistic felicity of the book is quite admirable.

D. G. King-Hele

SNOW CRYSTALS

Snow Crystals

By W. A. Bentley and W. J. Humphreys. (Dover Edition *T*287). Pp. 226. (New York: Dover Publications Inc.; London: Constable & Co., Ltd., 1962.) 24*s*.; 2.95 dollars.

THIS is a paperback re-issue of the book originally published by McGraw-Hill in 1931. It represents the collected work of W. A. Bentley, who spent nearly fifty years photographing snow crystals at Jericho, Vermont. The appearance of this new issue is superb; it is a masterpiece of paperback book production. The contents are reproduced exactly as they appeared in the earlier edition.

From the scientific point of view it is a pity that there is no record of the magnification or amount of retouching on the prints, particularly since some of them show unusual and interesting forms. Dobrowolski, in his treatise *Historja Naturalna Lodu* (1923), made extensive use of Bentley's pictures, but Nakaya in *Snow Crystals* (1954) was critical of his technique of cutting out the snow crystal negative and printing to produce a black background. This gives a very impressive picture but tends to diminish the scientific value.

The pictures could contribute much to the study of snow crystal form if it were known that they possessed the original outlines and features. This is illustrated by two photographs in the collection, on p. 205 and p. 207; these show an apparent overgrowth anomaly. A plate crystal has formed round a columnar crystal but the hexad axis of the plate is perpendicular to the hexad axis of the column.

It appears that Bentley was concerned with the scientific aspects of his work and he published several papers in *Monthly Weather Review* during 1901–27. The introduction to the collection was added by Humphreys for the publication after Bentley's death and he presents the pictures as true representations of the snow crystals with the exception of a few plates which have had arms and details trimmed off. The more elaborate and unusual crystals are accurately portrayed.

I. J. Smalley

VEGETATION AND SOILS OF THE WORLD

Vegetation and Soils

A World Picture. By Dr. S. R. Eyre. Pp. xvi + 324 + 32 plates. (London: Edward Arnold (Publishers), Ltd., 1963.) 36*s*. net.

AS the Freedom from Hunger Campaign gains momentum and the public at large begins to give thought to the problems associated with food shortage, any book on soil will catch the eye. In other words, there is already a wide readership for any publication which will outline fairly and factually the scope of the world's potential resources in this medium of plant growth. Accepting this premise, one may expect from authors on this topic texts which are explicit and discernible, which inform and educate. Dr. Eyre's work measures up to some of these requirements, but by no means all.

The subject is a complex one and integrates basic knowledge from many not-so-kindred sciences. Indeed, it is a project that might well have been undertaken by a botanist, an agriculturist or a soil scientist. But the author, a geographer, tackles it from his own particular point of view.

As a generalization on the world distribution of vegetation and soils it is quite valid. Both on established vegetation (climatic climax) and transient vegetation (ecotones) an adequate picture is given. The relating of the Krakatoa