

ionization, ultrasonic and thermal conductivity detectors. Special attention is given to the last named, no doubt in view of its relative simplicity and ease of use in conjunction with gas-liquid chromatography.

The more sophisticated technique of mass spectrometry is considered and typical examples of decomposition studies using this method of analysis are described briefly. Pyrolysis-gas chromatography is also discussed in terms especially of the thermal decomposition of polymers. The use of infrared spectroscopy and interference spectroscopy also receives mention, together with a brief consideration of selective absorption and condensation of gases. The relatively new approach of thermoparticulate analysis, whereby the presence of nuclei produced by thermal decomposition, of size approximately  $10^{-7}$ - $10^{-6}$  cm and detected by condensation of water, is given special consideration.

I find it difficult to decide for whom the book has been written. The very elementary approach to the description of these techniques seems to indicate a not very high scientific requirement on the part of the reader, yet these methods require much understanding if they are to be applied realistically and used to maximum advantage.

The book is clearly written, with good diagrams and tabular matter. It must, however, be considered an expensive introduction to gas analysis

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## ASTRONOMY DICTIONARIES

### ABC of Astronomy

By A. Weigert and H. Zimmermann. Translated by J. Home Dickson. Pp. 368+20 plates. (London: Hilger and Watts, Ltd., 1967.) 50s.

### Penguin Dictionary of Astronomy

By Åke Wallenquist. Edited and translated from the Swedish by S. Engelbrektson. (Penguin Reference Books, R28.) Pp. 238+16 plates. (Harmondsworth, Middx.: Penguin Books, Ltd., 1968.) 7s. 6d.

BOTH these books aim at providing an up to date dictionary of astronomy, and in this they succeed. Each is written in comprehensible language and both are suitable as a companion volume for the reader interested in astronomy or as a reference for the student. They are both by European astronomers; the *ABC of Astronomy* is by A. Weigert and H. Zimmermann of Jena and the *Penguin Dictionary of Astronomy* is by Professor Åke Wallenquist of the University of Uppsala's Kvistaberg Observatory.

Any comparison between the two dictionaries must take into account the difference in their price. At more than six times the cost of the *Penguin Dictionary*, the *ABC of Astronomy* has about the same number of entries but explained in far greater detail. The *Penguin Dictionary* is quite adequate when a brief definition of some term in astronomy is all that is required, but for a more informative account of astronomical theories and descriptions of objects in space the *ABC of Astronomy* has more to offer.

To what extent does each book fulfil its claim to include recent developments? A way of judging this is to compare their accounts of the exploration of the Moon. Under the heading "Space Travel" the *ABC of Astronomy* describes rocket studies of the Moon up to the soft landing of Surveyor I on June 2, 1966. The *Penguin Dictionary* goes a little further. It gives an account of lunar probes as part of its entry on the Moon, and mentions the photographs of the Moon's surface taken by Orbiters 3, 4 and 5 in 1967.

Both dictionaries remark on the magnificent Leonid meteor display of November 1966.

The present boom in radio astronomy is an example of the problems which beset the dictionary user as well as

the compiler. How is one to ensure that an expensive dictionary is not going to be hopelessly out of date within a few years. This is where a cheap reference book such as the *Penguin Dictionary of Astronomy* is particularly useful. It can supplement a more expensive and comprehensive dictionary, and be replaced by a more modern edition when new developments make it necessary.

EDWARD PHILLIPS

## PHOTOSYNTHESIS SYMPOSIUM

### Harvesting the Sun

Photosynthesis in Plant Life. (A Symposium sponsored by International Minerals and Chemical Corporation, Chicago, Illinois, October 5-7, 1966.) Edited by Anthony San Pietro, Frances A. Greer and Thomas J. Army. Pp. ix+342. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1967.) 60s.

DURING the past decade there has been a symposium or a collection of discussions on each aspect of photosynthesis. These have been very nearly on an annual basis, both as individual conferences and as a part of larger more general meetings, such as the Biochemical Congress. Each of the meetings has resulted in a volume of collected papers. These collections make very useful aggregates on a library shelf. In fact, in some ways they might better be considered in the nature of a journal series rather than a series of books.

Their importance lies in the possibility that sometimes there is material in them which is found nowhere else. Frequently, however, the situation is the reverse, that is, more often than not the material that is published in these symposium volumes is a collection of material by the authors which has been or will be published in the usual journals as well.

These collections have additional merit over and above this possibility in that the material in them may not be available elsewhere. They are in general directed rather closely to a single subject and as such make the researcher's chore of becoming aware of what is going on, not only in the area of his direct interest but also in areas which are peripherally interesting to him, much easier.

For this reason, the present volume, which is one of these collections, should clearly be added to the library shelves adjacent to its predecessors and no doubt its successors. However, as a volume which might be construed as an essay on a particular subject, it is of course lacking in any such comprehensiveness and coherence. This is true of very nearly all such collections.

It is for this last reason that it seems to me that collections such as these do not have a very important place in the personal libraries of the general scientist in physics, chemistry, biochemistry, molecular biology or botany, but rather have their most important place in the libraries to which these various scientists have access. There is another important function which they fulfil and that is to provide an opportunity for the researchers who are present at the meeting to present their results and have them printed and published in a collection of pertinent material, with a good deal of freedom concerning the matters which they can introduce in this way. In general, these articles are not subject to the usual refereeing procedures of the periodical publication. It is this which gives them their advantage as well as their disadvantage. The disadvantage, however, is overcome to a degree by the publication in the symposium collection of the discussion that almost always accompanies the presentation of these papers. Unfortunately, in this particular collection, such discussion is very limited if present at all.

The general content of the symposium covers most of the aspects of photosynthesis with some special emphasis