

The accuracy which Dr. Aston now obtains in his measurements is emphasised by the fact that he is able to direct attention to a departure from the whole number rule shown by certain isotopes, notably those of tin. This departure of the atomic mass from a whole number (oxygen, of course, being taken as 16) amounts to only two or three parts in a thousand, yet seems to be definitely established. It does not appear possible at present to draw any very precise conclusion from this observation. To avoid disturbing our ideas the effect may be attributed, in a general way, to some "close packing" of the same kind as prevents the masses of the general isotopes being whole numbers in terms of hydrogen as unity, but so little is known of the structure of complex nuclei that this is, in effect, simply a shelving of the matter until further measurements, of even higher accuracy, shall become possible. The few cases of departure do not appear as such in the tables of isotopes, since a new term, "mass number," has been introduced in place of the old "mass of isotope." This is defined either as the number of protons in the nucleus or as the nearest whole number to the mass expressed in terms of oxygen as 16: both definitions amount to the same thing. Since the departure is a minor matter, at any rate in the present state of our knowledge, this term is a timely one which serves, as good terms should do, to avoid inaccuracy on one hand and circumlocution on the other.

The book contains many references to relevant results of other researches which have been carried out in the last two or three years, such as the work of Rutherford and Chadwick on nuclear disintegration, and the investigations of Ellis on nuclear γ -rays. A rather fuller account of Fajans' speculations on relative stability of nuclei might have been welcome, since they are both more intelligible and more fruitful than most of the conjectures on this subject. The detection of an isotope effect in band spectra is also discussed, but, it may be said, it is by no means certain that the boron nitride bands of Jevons, on which there has recently been discussion in the correspondence columns of *NATURE*, are really monoxide bands, as Mulliken wants them to be, theoretically desirable as it may be for them to be so.

The paper on which the second edition is printed is a great improvement on that of the first, and it is pleasant to be able to acknowledge, in these dear days, that the book is very reasonably priced. In place of a final word of commendation, which is superfluous in this case, may be ventured the anticipation that in another year or two Dr. Aston will bring out a new edition recording the remaining thirty or so non-radioactive elements as satisfactorily sorted out into their isotopes. It seems very probable.

E. N. DA C. A.

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Our Bookshelf.

The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland: a Record of the Work done in Science, Literature and Art during the Session 1923-1924 by numerous Societies and Government Institutions. Compiled from official sources. Forty-first annual issue. Pp. vii+405. (London: C. Griffin and Co., Ltd., 1924.) 15s. net.

THE issue of this Year-Book for 1922-23 did not appear until the summer of 1924: this was somewhat late for a reference book dated for 1923. The publishers deserve our gratitude, therefore, for the promptness with which they have produced the volume for 1924. This forty-first issue has already started on a career of usefulness in our hands, which will continue until, and even after, the volume for 1925, which we hope to see in due course, has been published.

Compared with last year's Year-Book, that for 1924 has been increased by sixteen pages, and we understand that seven societies have been added to the list. The increase affords some measure of the steady and healthy progress of scientific thought in Great Britain. As usual, the entries are grouped conveniently according to subject, and in each group there is a further subdivision into societies in London, the provinces, Scotland, and Ireland. Under each entry is included the address, officers, meetings, conditions of membership, and publications of the society or institution in question, and in many cases the titles of papers read during the session 1923-24 follow. Valuable summaries of the work during the year of such public institutions as the Royal Observatory, Greenwich, the National Physical Laboratory, and Rothamsted Experimental Station are also given. Our thanks should be added to those of the publishers to the officials whose replies to requests for detailed information have made it possible to issue such an "official" volume. It was probably too late for insertion that the new address of the Royal Dublin Society at Ballsbridge, Dublin, was announced.

In turning over the pages, we have found the British Photographic and the British Cast Iron Research Associations (the former not indexed), but none of the score or so of the remaining industrial research associations. The volume as it stands is, however, a valuable work of reference, which all who would keep in touch with scientific movements in the British Isles would do well to have at hand.

Auxiliary Tables of the Survey of India. Fifth edition. Revised and extended by Dr. J. de Graaff Hunter. Part 1: Gaticules of Maps. Pp. 25. (R. 1=2s.) Part 2: Mathematical Tables. Pp. xiii+89. (Rs. 2=4s.) Part 3: Topographical Survey Tables. Pp. xxi+52. (Rs. 1.8=3s.) (Dehra Dun: Trigonometrical Survey; Part 1, 1921. Part 2, 1924. Part 3, 1923.)

THE work of the Survey of India, especially in the domain of geodesy, has a world-wide reputation. The first edition of these tables, which are intended to facilitate calculations connected with survey operations of all kinds, appeared so long ago as 1868. They have more than once been copied and adapted by the surveys