An Encyclopædia of the Air

The Air and Its Mysteries
By C. M. Botley. Pp. xv+296+16 plates. (London: G. Bell and Sons, Ltd., 1938.) 8*s*. 6*d*. net.

IF Miss Botley had reverted to the old custom of using sub-titles when she christened her substantial volume, recently published, she could have hit on none more appropriate than "Inquire Within upon Everything connected with the Atmosphere". Meteorologists are perhaps somewhat prone to regard the earth's mantle of gases as the joint province of their own and the aviation fraternities: this book comes as a salutary reminder of the important part played by the air in almost every ramification of human activity. Here is matter that concerns physicians, physicists, psychologists, geographers, astronomers, seismologists, archæologists, photographers, botanists, ornithologists, entomologists, chemists of both the organic and the inorganic variety, radio workers, business men, shipmasters, with, of course, meteorologists and airmen, and, last but not least, lovers of the beautiful in Nature. To each and every one of these the author offers food for thought, supplemented in several cases by suggestions for mutual co-operation or original investigation.

In so doing, the author displays a range of knowledge that is rare in these days of specialization. So encyclopædic is the array of information set forth in her 290 pages of text that it may be doubted whether even the most omniscient reader of NATURE could go through Miss Botley's book without adding something to his stock of wisdom. For he who understands the muscular structure of birds and bats, and who knows that the house-fly moves its wings more than 300 times in a second, may well have neglected to inform himself of the maximum possible size of raindrops, and of the fact that the earth's atmosphere is at least 625 miles thick.

The author has the gift of a pleasant, lucid style, coupled with no small literary grace, evidently resulting from wide and well-chosen reading outside, as well as inside, the realms of science. On one point Miss Botley gives a more accurate statement of the truth than Prof. D. Brunt in his book "Weather Science for Everybody". According to the latter authority, there are "zones of silence" around the seat of *any* great explosion: Miss Botley rightly tells us that this does not happen in the case of an extremely violent explosion, such as the eruption of Krakatoa on August 26–28, 1883, when the detonations were heard at all distances up to about 3,000 miles.

It would really need a corps of reviewers to deal adequately with the multitude of aerial subjects discussed in this volume. So far as the meteorological sections are concerned, there is not much to criticize. An understatement appears on p. 111, where it is implied that the annual average of 143 thunderstorms at Leon, Mexico, is not known to be equalled or exceeded elsewhere on earth. We have the good authority of Dr. C. E. P. Brooks ("Climate", Ernest Benn, 1929, p. 126) for pointing out that Buitenzorg, Java, ordinarily suffers such storms on as many as 322 days in the year. To redress the balance, p. 183 of Miss Botley's book contains what must surely be an overstatement: "On the eastern side of Hudson Bay . . . so cold are the conditions that, in an area five times the size of England, there is not a single tree, only creeping willow".

Attention has recently been directed to a strange lack of unanimity in regard to the world's recorded extremes of low temperature. For the absolute surface minimum at Verkhoiansk (Siberia) Miss Botley, following the *Meteorological Glossary* (M.O. 225, ii), gives — 93 6° F., on January 3, 1885. In various authoritative works the figure is cited as — 90° F. Doubt exists also as to the date of the occurrence, February 1892 being adopted by some Soviet writers, who ought to know. The absolute upper-air minimum, over Java, is said by Sir Napier Shaw to be — 135° F. McAdie, however, puts it at — 133° F., the *Meteorological Glossary* at — 131·6° F., and Miss Botley at — 131° F. How, therefore, has all this promiscuity arisen?

The work under review is well worthy of the high company with which it rubs shoulders in Bell's Popular Science Books. Mention should be made of the fine series of photographic illustrations, outstanding among which are Plates II, X, XIII and XIV, representing respectively a sandstorm over the Pyramids, an example of ball-lightning, the 'banner' cloud on the Matterhorn, and a Fulmar petrel in process of 'banking'. Incidentally, the position of Plate V (an infra-red photograph of the coasts of south-east England and northern France taken from the air) is wrongly given in a reference on p. 202.

E. L. HAWKE.