point out how the same product may vary through differences of climate, feeding, methods of refining, and so on; and they then show by examples what deductions may legitimately be drawn from the experimental data.

The substances dealt with include hydrocarbon oils and waxes, rosin, turpentine, soap, glycerin, and candle material, as well as the animal and vegetable oils, fats, and waxes. The book appears to be well "up to date," and can be recommended as a very useful addition to the technical chemist's library. C. S.

OUR BOOKSHELF.

Joy of the Open Air. By William Graveson. Pp. 115. (London: Headley Bros., Ltd., n.d.) Price 3s. 6d. net.

To the town-dweller who has a longing for the countryside, more especially in the dull, damp early months of the year, when spring seems so long in coming, the chapters of this little book will serve as a tonic. Mr. Graveson is a man who loves his garden and his bird-visitors, as well as the meadows, woods, and chalk-downs beyond; he has eyes that can see, and above all he has the faculty of expressing what he sees and feels in simple, charming language.

In this delightful little volume he has jotted down some of his experiences during the months from February to September of last year. He shows how, when exactions of business and various duties curtail hours of recreation, and difficulties of travel prevent holidays from being taken far afield, there are opportunities for seeking new pleasures in familiar surroundings. The rambles described in his book have been in the compass of a half-holiday walk and not more than five miles of a country town within easy distance of London. The arrangement is chronological. Chap. i., "The Haunt of the Kingfisher," describes a bright morning early in the year when the hoarfrost lies thick on the common. "The Promise of Spring" (chap. ii.) recalls the coming of the winter aconite, the crocus, and other harbingers of spring. "The Incoming of Spring" is an epic of a sunny Palm Sunday—daffodils and scillas are out in the garden, a silky-coated Pasqueflower is preparing for its Easter display, and a bright red anemone for the warm April days; and never have the almonds looked more beautiful. And so on through the book to "Foxgloves and Fairies" and "The Lure of the Heather," which are the headings of the two last chapters.

The illustrations, photographic reproductions—a stream choked with water-violet, a bed of winter aconites, a cowslip meadow, and a few others—add to the charm of this series of Nature pictures.

Submarine and Anti-Submarine. By Sir Henry Newbolt. Pp. viii+312. (London: Longmans, Green, and Co., 1918.) Price 7s. 6d. net.

SIR HENRY NEWBOLT has succeeded in presenting a very fair view of the work of our submarines and of the measures taken to meet the U-boat menace. Despite the fact that a great deal of

further information has been published since the date of the armistice, the book will be found to be useful on account of the connected presentment. Opening with the evolution of the submarine and a description of the submarine of to-day, the author passes to the methods of the submarine in attacking warships, and the means taken by warships in meeting attack and in aggressive action. The work of our submarines in the Baltic and in the Dardanelles occupies a large section of the volume, and the work of our trawlers, destroyers, P-boats, and Q-boats is well described. The book closes with an account of the Zeebrugge and Ostend attacks.

One interesting aspect of the submarine campaign is a knowledge of the feelings of the hunted during the chase. This is dealt with in chap. xvi., by quoting a long extract from the "War Diary of U 202," by Lt.-Commdr. Freiherr Spiegel von und zu Peckelsheim. Sir Henry Newbolt comments on the extract by saying that it is not unnatural that von Peckelsheim should enlarge upon his terror at the moment and his self-congratulation afterwards. But his diary contrasts badly with reports from our own submarine commanders in worse circumstances. "We may take pleasure in noting that the steadiness of nerve and the scientific view are in our favour."

Aids in Practical Geology. By Prof. Grenville A. J. Cole. Seventh edition, revised. Pp. xvi+431. (London: Charles Griffin and Co., Ltd., 1918.) Price 10s. 6d. net.

THERE are few living authors who take so wide a view of the phenomena and problems of geology as Prof. Cole, and none who is more capable of making the subject of interest to the student. He stands out, too, among his contemporaries in his appreciation of the work of the pioneers of the science, and in particular of the French petrologists of the first half of the nineteenth century, especially of Cordier and Delesse. He gives an interesting record of the latter's procedure in determining the volumetric mineral composition of a rock by the measurement of areas on a polished slab, and explains how it may be applied to sections under the microscope. Prof. Cole does not, however, refer to the linear method in which the same result is obtained by the measurement of the mineral intercepts on lines drawn over the surface. This method, which has largely superseded the area method in microscopic work, was described by Delesse in the same paper, though the credit for it is usually given to Rosiwal, who published an account of it just fifty years later in 1898.

In the limited space at the author's disposal it was impossible to include everything he might have wished, but perhaps in a new edition he will endeavour to find room for the shadow (Schröder van der Kolk) method of determining under the microscope the refractive index of grains or fragments relatively to the medium in which they are immersed. It is at once very simple and easily applied J. W. EVANS.