

as a practical method of identification or as an intellectual exercise is open to question; we are inclined to think that it is neither the one nor the other, and that the table should only be consulted when the group character of the compound has been definitely ascertained.

The fact that the book is written by a native of Bengal and printed by a Calcutta firm explains the occasional lapses in English, which is by no means to the discredit of either publisher or author; but it does not excuse the far too numerous mistakes in the spelling of chemical names. It is unfortunate that the volume has not been read in proof by someone conversant with the language.

J. B. C.

OUR BOOKSHELF.

The Callendar Steam Tables. By Prof. H. L. Callendar. Pp. 39. (London: Edward Arnold, 1915.) Price 3s. net.

In his Royal Society paper in 1900 and in his article on Vaporisation in the "Encyclopædia Britannica" of 1902, Prof. Callendar showed the use of a simple empirical formula connecting the pressure, density, and temperature of steam. If his formula is correct, it is possible to tabulate all the properties of steam required in engineering calculations in such ways that the numbers are more consistent with one another than any hitherto published. Mollier, of Dresden, published tables and corresponding curves calculated by this method, and these were republished in England by Ewing in 1910. Messrs. Smith and Warren calculated and published tables which were discussed in NATURE of April 3, 1913. We then gave reasons for the suggestion that perhaps such experimental results as were available scarcely justified the use of the Callendar method, in spite of the fact that Prof. Callendar is undoubtedly the highest authority on this subject. He now says that these tables form part of a larger work entitled "Properties of Steam," in which the theory of steam and experimental methods of investigation are more fully discussed and illustrated.

For the present we may, perhaps, assume that, for moderate pressures and temperatures, these tables are more correct than any hitherto published, and if this is so their value to the steam engineer cannot be over-praised. They give pound Centigrade and also pound Fahrenheit units, with pressures in pounds per square inch, volumes in cubic feet per pound, as well as kilogram Centigrade units, with pressures in kilos per square cm. and volumes in cubic metres per kilo. Table II. is the most important; it gives volume, entropy, temperature, and total heat in terms of pressure. Tables IV., V., VI., and VII. give the total heat, volume, entropy, and Gibbs's potential of super-heated and super-saturated steam. The diagram which accompanies the tables has been arranged for interesting graphical calculation. From this description steam

engineers will see that, in addition to what is due for his engine experiments in Montreal, they owe the author a second deep debt of gratitude. The gas and petrol engine engineers also owe him a large debt. We do not think that there is any case of an experimental physicist since Regnault's time doing even half as much service to engineering.

J. P.

The Star Pocket-book, or How to Find your Way at Night by the Stars. By R. Weatherhead. Second impression. Pp. 92. (London: Longmans, Green and Co., 1915.) Price 1s. net.

This little manual not only provides an easy means of becoming familiar with the chief constellations and individual stars, but also shows how this knowledge may be made practically useful in the determination of position and direction during night marches. The book contains several useful tables giving among other details the time of year when certain stars transit at midnight, the highest altitudes of stars in various latitudes, and pairs of bright stars which transit at the same time. These simul-transit pairs, when vertical, mark the meridian, and also serve as pointers to a celestial pole. The new issue of the book includes some additional notes on the use of the stars as direction and time finders; and it should be found particularly helpful to soldiers and scouts at the present time.

The Cambridge Pocket Diary, 1915-1916. Pp. xv+255. (Cambridge: At the University Press, 1915.) Price 1s. net.

READERS whose work is connected with schools and colleges will find the arrangement of this attractively produced pocket diary very convenient. Beginning in the middle of September, it enables one to start a new diary at the commencement of the academic year. The miscellaneous information provided is intended primarily for members of the University of Cambridge.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

The Manganese Ore Requirements of Germany.

In a letter, under the above title, published in NATURE of October 14, Dr. Leigh Fermor dissents from the conclusion reached in my article of July 15 on munition metals that the enemy countries can produce sufficient manganese for their steel manufacture requirements without having recourse to imports, and gives it as his opinion that they are likely to be seriously hampered by a shortage of manganese ore as soon as their accumulated stocks have been used. His conclusions are as follows:—

"(a) That on the outbreak of war the Teutonic Powers had no great accumulated stocks of manganese ore, perhaps a maximum of 200,000 tons; (b) that, assuming war conditions necessitate a maintenance of the iron and steel industries of those two countries at