

plates, there are 215 figures in the text, all of which appear to have been specially drawn for the book, and many are quite original. The coloured figures are reproduced by the three-colour process, and are on the whole satisfactory, though one or two are scarcely recognisable. The text-figures include line-drawings of the forms of crystals, and excellent half-tones representing actual crystals and mineral specimens.

To the English student of mineralogy such a book might be used with advantage as a German reading book. The sentences are short and not involved.

A Synopsis of the Orthoptera of Western Europe.
By Dr. Malcolm Burr. Pp. 160. (London: Oliver Janson, 1910.) Price 3s.

THE present work appeared in instalments from 1903 to 1909 in the *Entomologist's Record*, and in its present form will be extremely useful as an introduction to the subject, and as a tourist's guide, especially as its small size renders it more convenient than Brunner von Wattenwyl's work on European Orthoptera, or that of Tümpel's on those of Central Europe. Dr. Burr's work includes all the countries west of (and including) the neighbourhood of Vienna. For eastern Europe we have (for those who can use it) the great Russian expansion of Tümpel's book by Jacobsen and Bianchi, which includes all the Orthoptera of central and eastern Europe, and Palæarctic Asia.

Dr. Burr has given short but careful descriptions of genera and species, and also tables of species under the genera, and he has very properly included the more important naturalised species, such as *Periplaneta australasiae*. Orthoptera are, however, very liable to be carried about from one place to another, and mere casual visitors are very properly only mentioned by name, as on pp. 17, 18, &c. A long-legged Japanese grasshopper, *Diestrammena marmorata*, not mentioned by Dr. Burr, has several times been captured recently in London.

Prehistoric Man. By Joseph McCabe. Pp. viii + 128. (London: Milner and Co., Ltd., n.d.) Price 1s. net.

THIS book gives an excellent popular exposition of the present state of our knowledge of prehistoric anthropology. The chapters on Palæolithic man and his implements are full of interest. Within the last few years a considerable number of more or less complete Palæolithic skeletons have been discovered in France and elsewhere, and great additions have been made to our knowledge of man in this distant epoch. In this little volume will be found a lucid description of the latest discoveries. The author is not content to give a mere list of more or less disconnected data, but always endeavours to weave his material into a continuous evolutionary story. This tendency, though admirable in a popular writer, appears in some cases to lead to a slight distortion of the facts in order to make them fit into the theory. For example, the Palæolithic race represented by the Grimaldi, Galleyhill, and other remains is assigned to the later Palæolithic, though the geological evidence appears to be pretty clear that these remains belong at least to the middle Palæolithic. The Gibraltar skull has recently been shown by Dr. Keith to have been the first Palæolithic skull found (1843) in Europe, and to represent one of the most primitive races. This discovery does not appear to have been known to the author.

The chapters on the Neolithic and Bronze ages show that our knowledge of these periods is still in a very unsatisfactory condition, but that is not, of course, the fault of the author of this work.

NO. 2124, VOL. 84]

- (1) *Metallografia applicata ai Prodotti Siderurgici.* By Umberto Savoia. Pp. xvi + 205. (Milan: U. Hoepli, 1909.) Price 3.50 lire.
(2) *Lo Zinco.* By Prof. R. Musu-Boy. Pp. xiv + 219. (Milan: U. Hoepli, 1909.) Price 3.50 lire.

BOTH these little treatises belong to the excellent series of "Manuali Hoepli," and, like other members of the series, are written by specialists in their respective subjects. They possess the merit, common to practically all other works of this series, of imparting in the fewest possible words the most essential facts and principles. The treatise on the metallography of iron is essentially a practical guide for the laboratory worker. Its author was sent from Italy to study the methods adopted in the laboratories of Le Chatelier, Fremont, and Guillet, and on returning home established the metallographical laboratory of the Milan steel works. The author has selected for description the methods he has found best suited in practice, and has illustrated the work by nearly 100 of his own microphotographs of steel in its different states.

The treatise on zinc is of a more general character, and calls for little comment. It deals with the ores, methods of extraction, history, statistics, and uses of the metal.

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.]

Ooze and Irrigation.

MAY I be allowed to reply to some inquiries?

(1) It is thought by some that my remarks applied especially to foreign lands. Let me point out that the ooze of our English rivers is often just as fertile as that of the Nile, and that the number of annelids found in the ooze is enormous. This may be illustrated by reference to the Thames. The late Frank Buckland tells us that when he kept fish he "fed them with red worms collected from the Thames mud. These worms cost 4s. 6d. a quart; the price of Thames worms, like everything else, has increased considerably." Now whether these worms were true annelids, or merely the larvæ of insects, the point is the same. In the case of Tubifex and its allies, a quart would mean many hundreds of thousands. Mr. Shrubsole, myself, and others, have frequently examined the ooze from various parts of the Thames, and the number of different species of mud-frequenting worms is very great, while it is utterly impossible to estimate the total of individuals.

(2) Another interesting point is continually coming under my observation. When a number of annelids taken from the ooze is examined, it is found that the tail, which is in constant rhythmical motion in the water, is festooned with numbers of symbiotic vorticels. These move to and fro in the water, and are constantly capturing the bacteria and other lowly forms of life with which the putrid water is laden. So far as I am aware, no biologist has ever given this fact, or the action of the vorticels, any detailed study with a view to ascertaining their action, and their relation to their host on the one hand, and the water and soil on the other.

(3) It would be of great value to science if someone would carefully examine the ooze before and after passing through the bodies of annelids, and ascertain what is the nature of the change that has taken place. Is there any difference between the quantity of nitrogen in pure mud and that which has been digested?

These and many other problems having a vital bearing on agriculture need attention, and it is to be hoped that