(1) *The Journal of the Institute of Metals.* Edited by G. Shaw Scott. Vol. 53: Metallurgical Abstracts and Index to Volumes 51, 52 and 53 of the Journal. Pp. v+887. (London: Institute of Metals, 1933.) Not sold separately; £4 net (inclusive of two preceding "Proceedings" vols.).

(2) *The Journal of the Institute of Metals.* Edited by G. Shaw Scott. Vol. 54. Pp. 326+22 plates. (London: Institute of Metals, 1934.) 31*s.* 6*d.* net.

(1) THIS volume comprises the metallurgical abstracts which have already been circulated to members of the Institute of Metals during 1933 in the monthly *Journal*. The whole range of metallurgical science and practice has been covered in the usual comprehensive manner. Besides the structure and properties of metals and alloys and the metal working processes, a wide variety of topics, from the electron theory of metals to the uses of aluminium paint, are covered in abstract form in this volume. An imposing list of abstractors' names is given, but a list of the periodicals abstracted would be much more useful.

(2) The thirteen papers presented at the March meeting of the Institute, together with Dr. H. Moore's presidential address and Prof. E. K. Rideal's May lecture on "Gases and Metal Surfaces" are now available as vol. 54 of the *Journal*. Prof. Rideal gives a lucid survey of recent advances in the physico-chemical study of the adsorption of gases by metals, in the course of which it is possible to discern several pointers to future methods of study of lattice structure. One of the most interesting of the papers is that by Prof. Portevin and Dr. Bastien on "Castability of Ternary Alloys", a subject of great practical importance in foundry practice which is slowly but steadily being investigated on sound physico-chemical lines. Research on the phenomenon of fatigue is represented by a communication from the National Physical Laboratory dealing with the influence of the intercrystalline boundary on fatigue characteristics. Other topics include the constitution of copper-iron-silicon alloys, magnesium-nickel alloys, and silver-beryllium alloys. The volume concludes with a full appreciation by Prof. Hanson of the late Dr. Rosenhain, a past-president of the Institute and the greatest modern exponent of physical metallurgy.

L. H. B.

Die Flechten: eine Einführung in ihre allgemeine Kenntnis. Auf Grund neuerer Forschungen und kritisch dargestellt von Prof. Dr. Friedrich Tobler. Pp. v+84. (Jena: Gustav Fischer, 1934.) 5.50 gold marks.

IN 1931, Prof. F. Tobler delivered at the invitation of the University of London three lectures on lichens. The publication under review is the outcome of these lectures. In it Prof. Tobler has endeavoured to put forward a well-founded, general and physiological conception of the group of lichens. He wanted to show and make clear what he and his school considered that a lichen was and what a lichen could do. He mentions four important characteristics of the lichen. The algæ present in the form of gonidia must be more or less intimately connected with fungal hyphæ, to insure free exchange of food-material. A morphological differentiation might be expected separating the lichen from even allied fungi. The physiological success of such a symbiosis is, of course, also necessary. Vegetative reproduction by such organs as soredia, for example, is an important feature in many species of lichens.

Prof. Tobler brings forward much new evidence in support of his view, that in the perfect lichen we have such a close union between alga and fungus, and such a balancing of physiological activities, that the resulting organism must be looked upon as a unity. He therefore disparages the use of the term consortium, as stressing too much the dual nature of the lichen. Prof. Tobler has written an interesting and useful pamphlet, though its appearance might be looked upon as symptomatic of modern views generally, rather than as creative of a quite new idea.

O. V. D.

Leçons de zoologie et biologie générale. Par Prof. Georges Bohn. (3): *Les invertébrés (Coelentérés et vers).* (Actualités scientifiques et industrielles, 133.) Pp. 102. (Paris: Hermann et Cie, 1934.) 15 francs.

IN a brief account of the coelenterates, sponges and worms, in which structure is subservient to biology and life-history, is a number of explanatory references of interest to the general reader. Prof. Bohn records that at the time of the battle of the Yser, soldiers who had bathed several times in the sea off Pas de Calais and had been stung by the large jelly fishes were gravely indisposed and some died. This serves as an introduction to a short account of anaphylaxy. The swarming of *Heteronereis* is graphically described and referred to as an impressive scene of life and death—the males circling round the females and rendering the sea-water milky by their discharged sperms, the sudden rupturing of the bodies of the females and the liberation of the eggs, which are immediately fertilised, while the bodies of the females fall to the bottom and die. Interesting examples of life-histories, especially of rotifers and of parasitic worms, are given and afford opportunity for reference to parthenogenesis, heterogony and neoteny (as in *Caryophyllœus*).

Life and Soul: Outlines of a Future Theoretical Physiology and of a Critical Philosophy. By Max Loewenthal. Pp. 291+4 plates. (London: George Allen and Unwin, Ltd., 1934.) 8*s.* 6*d.* net.

THIS book expounds an attractive hypothesis of the nature of life and soul, which, no doubt, will appeal to the common-sense of the reader. The author develops the notion of a material which is capable of utilising the waste heat of the universe, and of being formed, in other conditions of temperature, electrical potential and pressure, of other elements than those found on the world's surface. As his 'archiplasm' is not supposed, however, to be an object of direct apprehension, much of the author's hypothesis is bound to remain in the serene realm of speculation.

T. G.