

been economically transformed into products such as stainless steel, stainless iron, and transformer iron. The use of the last named has increased the efficiency of electric transformers to an extent which represents an annual saving of hundreds of thousands of tons of coal per annum.

At one time the induction furnace received considerably greater prominence than the arc furnace. As the author states, many furnace designers, believing that the principle of induction heating was superior, concentrated their efforts on the production of a furnace which could operate on any standard electric supply and at the same time meet all the requirements of the steel-maker. The position to-day, however, is that almost the entire output of electric steel is made from arc furnaces. The book is clearly printed and well illustrated and will certainly repay study by all those interested in the subject.

Physiology of the Growing Plant.

Encyclopédie scientifique : Bibliothèque de Physiologie et de Pathologie végétales : Nutrition de la plante.

Par M. Molliard. I. Echanges d'eau et des substances minérales. Pp. xiv + 395. II. Formation des substances terraires. Pp. vi + 438. (Paris : Gaston Doin, 1921.) 14 francs each vol.

A SERIES dealing with the physiology of the growing plant in health and disease is being written by Prof. Molliard, Dean of the Faculty of Science of the University of Paris, and the two volumes under notice are the first to be issued. The scope of the series is wider than would usually be undertaken by a single writer, but the author considers that the advantages of uniform treatment will outweigh the disadvantages arising from the attempt to cover so extensive a field of science.

The volumes before us deal with the nutrition of the plant, the phenomena of absorption of nutrients from the soil, the building up of complex substances in the plant and their translocation from leaves to storage organs. The author has succeeded in bringing together a great amount of material that cannot usually be found in the same book, and this will prove a convenience to students. As an example, under the heading "Glucosides" there is not only the usual chemical account of these substances, but illustrations of cross-sections showing the distribution of typical glucosides in growing plants. In this and in other directions, the volumes give to the chemist much information that he does not possess although it may be well known to the botanist, and they give to the botanist a survey of chemical relationships which he might not find so easily elsewhere.

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It could scarcely be expected that a book covering so much ground could include anything like all the recent work. The section on soils, for example, contains no reference to many of the investigations made during the last few years. The only grouping of fractions in mechanical analysis of which mention is made is that of Wollny, drawn up forty years ago, no reference being made to the important later developments made in the United States, Great Britain, Sweden, or elsewhere. Similarly also, it is assumed that soil possesses the sand-grain structure formerly attributed to it, although this view is now displaced by the later colloidal hypothesis. Fuller justice is done, however, to recent French work, and it is in the summaries of some of these interesting and suggestive investigations that English readers will find the chief interest of the book.

We should like to suggest that in future volumes there should be more references showing the sources from which the tables are taken. A considerable number of figures are given, but it is not easy to know the exact conditions under which they were obtained, and, as every one who has studied plant nutrition is aware, the phenomena are profoundly affected by alterations in the conditions under which the plant is growing. In particular the section dealing with the mineral constituents of plants would have been greatly improved by fuller references.

Life among the Sema Nagas.

The Sema Nagas. By J. H. Hutton. Published by the direction of the Assam Government. Pp. xviii + 463. (London : Macmillan and Co., Ltd., 1921.) 40s. net.

MR. HUTTON has quickly added to his monograph on the Angami Nagas a second describing the allied tribe, the Sema. The latter occupy the watershed dividing Assam from Burma, the plateau and the valleys of three rivers, the most important, the Dayang, eventually flowing into the Brahmaputra and so into the Ganges, the other two mingling their waters with the Lania, and reaching the sea by way of the Ti-Ho, the Chindwin, and the Irawadi. The Sema Nagas are a mixed race, the result of emigration from at least three directions : from the north-west, whence came the Singpos, Kacharis, and Garos ; from the south the Angamis ; while a migration from south northwards on the part of the Thado Kukis and Lusheis has scarcely ceased even now.

Mr. Hutton's work is the result of eight years' acquaintance with the Sema Nagas, during which he learned to speak their language, which had not hitherto been reduced to writing, and gained the confidence of a

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