THURSDAY, NOVEMBER 14, 1907.

A NEW HANDBOOK OF INORGANIC CHEMISTRY.

Handbuch der anorganischen Chemie. Herausgegeben von Dr. R. Abegg. Band ii., Abt. ii. Pp. ix+700. Price 24 marks. Band iii., Abt. i. Pp. x+466. Price 17 marks. Abt. iii. Pp. xiv+876. Price 24 marks. (Leipzig: R. Hirzel, 1905–7.)

A HEARTY welcome may be extended to this valuable work of reference, which does for inorganic chemistry much more than Beilstein's famous handbook has done for organic chemistry. It is no mere guide to the recognition and characterisation of the compounds with which it deals. Its aim is beyond this, and its scope is more general. In a word, the editor endeavours to make use of the vast accumulation of physico-chemical data of the past twenty years, and to incorporate them in the descriptive portion of the work, exercising a critical selection of the material employed and giving at the same time due consideration to theoretical connections and outstanding problems. The periodic system has been adopted as the basis of classification, and the portions of the work already issued deal with the elements of the second, third, and fifth periodic groups respectively. Here it may not be out of place to protest against an aggravating instance of the Teutonic passion for subdivision. The work is to be issued in eight separately paged and indexed volumes, dealing with the eight periodic groups, together with a ninth volume of a general character. One might, therefore, reasonably expect that the numbers of the volumes would correspond to the group numbers of the elements described. Instead of this, we find the elements of the fifth group described in vol. iii., section iii., those of the fourth group presumably in vol. iii., section ii., and so on. Whether the elements of group 6 will be found in vol. iii. section iv., or in vol. iv., section i., remains for the present a subject of agreeable speculation.

Prof. Abegg, in carrying out his scheme, has secured the collaboration of many eminent workers in the domains of inorganic and physical chemistry. Amongst those who contribute to the volumes before us we may mention Marckwald (radium), R. J. Meyer (rare earths), Schenck (phosphorus subgroup), Brauner (atomic weights), and Rohland (technological subjects, *e.g.* mortar, ultramarine).

The account of the metals of the rare earths and their compounds deserves special mention. The subject is introduced by a general section of nearly fifty pages, in which we are presented with a historical survey, an account of the mode of occurrence and general chemical characteristics of the group, an outline of the methods of extraction and separation of the earths, and a discussion of the valency and atomic weights of the elements. Then follows in detail the subgroup of the cerite earths, with a special account of the separation and purification of lanthanum, praseodymium, neodymium, and samarium. The second subgroup is that of the terbium elements, and the third deals with those of the erbium and yttrium families.

Another noteworthy feature of the work is the treatment of the atomic weights of all the elements by the same hand. Prof. Brauner has accomplished his task admirably. He takes Clarke's "Recalculation of the Atomic Weights" as the source of data up to 1896, and thereafter refers to the original papers, using the reports of the International Commission as a guide. Little is said of the older and less exact determinations, but the more modern work is given in considerable detail, and critically discussed in its relationship, not only to the atomic weight of the element directly concerned, but to that of other elements which may be involved in the actual experiments. To give an idea of the scale on which Prof. Brauner has written, it may be stated that the atomic weight of beryllium occupies five and a half pages, and that of nitrogen no less than thirty-two pages. The author freely criticises the tables of the International Commission in the course of his articles, pointing out, for example, that if N=14·01 is correct, which he believes to be the case, then Ag cannot be 107·93 as given in the international table, but must lie between 107·88 and 107·89.

Prof. Abegg's "Handbuch" is admirably printed and got up, and must in future form an indispensable item in every properly equipped chemical library.

ITALIAN BIRDS AND NEOGENESIS.

Avifauna Italica. By Enrico Hillyer Giglioli. Secondo resoconto. Pp. xxiv+784. (Firenze: Coi. Tipi dello Stab. Tipografico s. Giuseppe, 1907.)

ITALIAN ornithologists in particular, and students of palæarctic birds in general, will be grateful to Prof. Giglioli for this revised edition of his most valuable work. Herein he now recognises 496 species as entitled to the rank of Italian birds; but this includes species which have only once been obtained within this area, and at least two which many ornithologists will refuse to regard as species at all.

These two exceptions are of more than passing interest, inasmuch as Prof. Giglioli contends that they furnish good examples of "neogenesis": of the birth of new species *per saltum*.

The first of these two cases is that of a redstart obtained by Prof. Giglioli from Sardinia. On data which can only be described as unsatisfactory, the author elects to create a new species—*Ruticilla nigra*—though most of us, on the same evidence, would agree that the examples on which this new species was based were but melanistic specimens of *Ruticilla titys*, the common black redstart. This view he rejects, contending that his own hypothesis is the more reasonable.

Far more importance is to be attached to the second case, which Prof. Giglioli describes at some length, not only in the pages of this work, but also in the