generating scarcely any chlorin'; titanium, zirconium and thorium are spoken of as 'uncommon' elements.

But if these are the worst criticisms that can be passed upon the book, and this is perhaps the case, it must be conceded that both author and translator have done their work in a very satisfactory manner, and we have no doubt but that Holleman, as well as Jones, will find its way into many class-rooms and will also prove to be but a pioneer of an improved type of text-book, which will revolutionize the teaching of inorganic chemistry. And for this let us be devoutly thankful.

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A Text-book of Zoology. By G. P. MUDGE. London, Edward Arnold. 1901. Pp. viii + 416.

The author of this book is lecturer on biology at the London School of Medicine for Women, and on zoology and botany at the Polytechnic Institute, Regent Street, and is also demonstrator in biology at the London Hospital Medical College. His text-book may, therefore, be presumed to be an expression of the practice of an experienced and active teacher of biology. It differs markedly in matter and arrangement from the usual zoological texts, arranged systematically, that is, according to the accepted classification of animals. In a first part are an interesting introduction called 'the scope of biology' and a brief statement of 'the characters of the great divisions of the animal kingdom,' in which Protozoa, Metazoa, Accelomata, Cœlomata, Vertebrata, Invertebrata, Diploblastica and Tripoblastica are defined. Then comes a second part given to a study of 'the comparative morphology of the organs of *Scyllium, Rana* and *Lepus.*' The organs of these three vertebrates are discussed on the plan of the comparative anatomist, the condition of each organ or system of organs being compared in the three forms. This discussion covers one hundred and sixty-seven pages, and is illustrated by fifty-two diagrammatic figures. To this part is added a chapter of twenty-two pages on the morphology of *Amphioxus.* A third part, of sixty-eight pages, is given to the morphology of four cœlomate invertebrates, viz., *Astacus, Periplaneta, Anodonta* and *Lumbricus,* the treatment being again that of the comparative anatomist. Then comes a chapter on 'the morphology of *Hydra,*' an acœlomate invertebrate, and a chapter on 'the morphology of *Paramœcium* and *Amœba.*' The fourth part of the book is composed of a chapter on 'embryology' (38 pp.), one on 'the life history of the cockroach and the butterfly, and their chief structural differences' (9 pp.), one on 'karyokinesis, oogenesis and spermatogenesis, maturation and impregnation of the eggs, and parthenogenesis' (10 pp.)!—the author is seeing the limits of his permitted space; then one on 'heredity' (26 pp.), and finally one on 'variation' (15 pp.).

When one departs from the usual and presumably approved manner of make-up of zoological text-books, the real court of appeal for the final decision as to the worth of the new manner is that composed of teachers who have tested in actual class work the usefulness and practicalness of the innovation. Thus does the reviewer easily put aside the necessity of expressing an opinion about the matter. He will hazard the guess, however, that most present-day teachers of zoology will not choose a text-book of comparative anatomy under the name of a text-book of zoology for their first-year classes.

The work outlined in the book is sound and thorough, and the discussions of heredity, variation and the scope of biology are modern and interesting. The book is compact, well-made and fully indexed. V. L. KELLOGG.

Lehrbuch der Zoologie. By ALEX. GOETTE. Leipzig, Wilh. Engelmann. 1902. Pp. 504; 512 figs.

The author of this zoological text-book is professor of zoology in the University of Strassburg. The book is intended for university classes; it is of the reference or manual of classification type of text-book, not of the laboratory guide or specifically outlined course type, as is the English text-book reviewed above. After twenty-five pages of introduc-