

seventeenth century to the present day. In the second essay the relations that should exist between the State and biology are considered, and there can be little doubt but that as a result of this address to the Biological Section of the British Association at Southport, followed by the fifth essay, which gives an outline of the scientific results of the International Fisheries Exhibition, held in London in the same year (1883), we are in great measure indebted for the valuable help given by our Government towards the establishment of the Laboratory at Plymouth belonging to the Marine Biological Association of the United Kingdom.

The third and sixth essays, on Pasteur and hydrophobia—or rabies, as we would prefer to call this formidable disease—and on centenarism, are full of interest, and while in the former the author has to content himself with a narration of the chief results of Pasteur's invaluable labours, in the latter we find an account of a subject which has been critically worked out by himself.

Three of the essays relate to the subject of Darwinism, and possibly will be found the most interesting in the volume. The first is on the subject of "Degeneration, a chapter in Darwinism," and was delivered as one of the evening lectures at the British Association meeting at Sheffield, in 1879. In it Prof. Lankester calls attention to the fact that degeneration, or the simplification of the general structure of an animal, may be due to the ancestors of that animal having taken to one of two habits of life, either the parasitic or the immobile. Other new habits of life appear also to be such as to lead to degeneration. Let us suppose, for example, a race of animals fitted and accustomed to catch their food, and having a variety of organs to help them in this chase; suppose such animals suddenly to acquire the power of feeding on the carbonic acid dissolved in the water around them, just as green plants have. This would lead to degeneration; for they would soon cease to hunt their food, and would bask in the sunlight, taking food in by the whole surface, as plants do by their leaves. Another possible cause of degeneration appears to be the indirect one of minute size. And so, as is well shown, this hypothesis of degeneration enables very numerous cases of animal structure to be accounted for. The second of this set, forming the seventh of the collected series, is on parthenogenesis, and in it we find the fascinating accounts given to us by the painstaking zeal of von Siebold of the habits and manners of the little wasps belonging to the genus *Polistes*—a story both wonderful and romantic. The third of these, the eighth of the whole set, treats of Haeckel's theory of heredity, in which the transmission of acquired characters by heredity is discussed, but this phase of belief Prof. Lankester will no longer insist upon, and he points out that Weismann's essays on this question should be carefully studied by naturalists.

The last essay to be alluded to is the fourth, on examinations. The author claims that but few have had a wider or a more continuous experience in examinations than he has had. On this somewhat vexed question he has a good deal that is to the point to say, showing that the use of examinations in schools and Universities is different from their use as a test of fitness for entrance into a profession, or a post in the Home or Indian Civil Service,

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or as a means of deciding a question of relative merit.

We feel sure that as each of these essays originated in a desire to promote the interests of science, so the author, in collecting the present series, will be found to have had the same aim in view.

OUR BOOK SHELF.

Agenda du Chimiste. Par MM. Salet, Girard, et Pabst. (Paris: Hachette and Co., 1890.)

IN this volume will be found a most complete and exhaustive compilation of facts and numerical tables of use to the chemist. The first edition was published in 1877 by M. Wurtz, and in subsequent editions the work has been thoroughly brought up to date. It is now published annually as a chemical year-book, the publication of each year containing a few special articles called for by the events of the past twelve months. This year the following are among the special articles contributed: "The Progress of the Industry of Colouring Matters," "Review of the Exhibition of 1889" as regards matters of chemical interest, and "Views of the International Chemical Congress concerning Nomenclature." The numerical data included in the book are most full, and ought to be of great service in the reduction of observations. The collection of them represents an immense amount of labour, and the accompanying descriptions of experimental methods are very clear and concise. A most useful portion of the work is that in which all the known physical constants of the elements and numerous compounds are given. Special care appears to have been taken in collecting the published thermo-chemical data, with the result that the chapter upon this subject is one of the most valuable in the book. The tables for use in quantitative analysis, and especially those referring to commercial methods, will doubtless be fully appreciated for the saving of time and arithmetical labour which their use will effect. It is, moreover, of no mean advantage that all formulæ are given according to the ordinary nomenclature, and not according to the old notation still retained by many French chemists. The volume is small and handy in spite of its five hundred pages, and cannot fail to be of service in the laboratory. A. E. T.

The Philosophy of Clothing. By W. Mattieu Williams. (London: Thomas Laurie, 1890.)

MR. WILLIAMS is a somewhat eccentric writer, and by most people some of the notions set forth in this little book will be regarded as "fads." He is generally able, however, to give a good reason for the opinions he advances, and much of his advice, although opposed to the rules of fashion, is sound and practicable. The subject is one which occupied the close attention of Count Rumford; and of his researches Mr. Williams, as he himself says, has made "free use."

LETTERS TO THE EDITOR.

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The Zoological Affinities of *Heliopora cerulea*, Bl.

THE remarkable blue coral, *Heliopora cerulea*, of Blainville, represents, I believe, one of those species that, in common with *Stylaster*, *Millepora*, and other allied genera, have been recently relegated to the Hydrozoic subdivision of the Coelenterata. So far as I remember, however, and without having present access