

ciature, and chemical calculations. At the end of each chapter is a summary, and a number of questions to test the student's progress. Considerable attention is given to experiment, and the aims and purposes of the study of chemical science are brought into prominence. In fact, though the volume is one of a class of much-maligned text-books, and though it is intended for students working for examination, it is, nevertheless, a book which presents the rudiments of chemistry in a form which will make students appreciate the value of experiment as an instrument of scientific research.

Encyclopédie scientifique des Aide-Mémoire. Edited by M. Léauté. (Paris: Gauthier Villars et Fils. Masson et C^{ie}.)

THREE new volumes have recently appeared in this very serviceable series of technical handbooks. They are as follows:—

“Les Piles Électriques.” By Ch. Fabry. This volume deals with the theory of the various electric cells, the measurement of the electromotive force and resistance of such cells, the construction of ordinary electric cells, and standard cells.

“Les Machines Thermiques.” By Prof. Aimé Witz. Heat engines generally, steam engines, hot-air engines, and gas engines form the main subject of this volume. The object of the book is to institute a comparison between various heat machines, so as to bring into prominence the special characters of their respective cycles. Chapters are devoted to atmospheric machines, compressed-air machines, and freezing machines. Elementary students of thermo-dynamics will find the book interesting.

“Les Gaz de l'Atmosphère,” by M. H. Henriot, is an excellent little volume on the chemistry of the atmosphere. The author is chemist at the Montsouris Observatory, and the methods of analysis described by him, as well as the results of investigations into the composition of the air at different places and at different times, makes his little book very valuable to meteorologists as well as chemists.

The Dahlia: its History and Cultivation. By various Writers. Pp. 81. (London: Macmillan and Co., 1897.)

THE history of the dahlia is told in this handbook by Mr. Richard Dean; the botany is described by Mr. John Ballantyne; the propagation and exhibition of the dahlia are dealt with by Mr. Stephen Jones; and the cultivation by Mr. Robert Fife; while Mr. William Cuthbertson, the editor of “Dobbie's Horticultural Handbooks,” to which series the present volume belongs, contributes an introduction. The book is interesting to the botanist as well as the florist, and it should be possessed by every one who finds delight in cultivating dahlias. Of especial value to floriculturists is a full and classified catalogue of varieties of the dahlia, and selections for various purposes. The varieties are arranged alphabetically, and the characteristics of each are described.

La Cause Première d'après les Données Expérimentales.

By Émile Ferrière. Pp. 462. (Paris: Félix Alcan, 1897.) This volume is the third and last of a trilogy having for their object the demonstration of the unity of substance by means of established facts, *à priori* argument being excluded. In the first volume the unity of the laws of matter and energy throughout the universe was expounded; the second volume dealt with the physical, physiological, embryological, and pathological facts concerning life and mind; the present volume aims at explaining the relations between various forms of organic life, the order of appearance of animals and plants upon the earth, and evolution problems generally. Leaving the metaphysical side of the book out of consideration, the book contains a certain amount of readable information and criticism.

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LETTERS TO THE EDITOR.

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Acquired Immunity from Insect Stings.

MAY I beg to add a few lines to the very interesting correspondence and discussion regarding the immunity of man from insect-stings and snake-bites after successive inoculations. The letter of Dr. Dawson Williams, in NATURE of March 4, calls attention to a certain degree of immunity which obtains among the Norwegians from the stings of the myg, a kind of gnat (probably our midge, Anglo-Saxon mygge). His statements in regard to the degree of immunity varying in different individuals, is quite in accordance with our experience with the mosquito. His pathological description of the effects of the sting of the Norwegian myg would apply most accurately to the sting of the mosquito. We also become more or less immuned from the mosquito poison after much suffering in childhood. The swelling resulting from the mosquito sting will often close the eyes of an infant. In middle age the sting is hardly noticeable. English and Irish people, upon first coming to this country, suffer beyond measure, and often come under the care of a surgeon. It is a curious yet painful sight to see a brawny Englishman presenting the appearance of our young infants under the infliction of these pests. I have two Irish servants, who have been in this country two and seven years respectively. They both tell me that the mosquito bite, as it is called, no longer troubles them, though they were eloquent in the descriptions of their acute sufferings at the outset. More than a quarter of a century ago Dr. J. C. White, a distinguished dermatologist, of Boston, in a communication to the Boston *Medical and Surgical Journal*, November 9, 1871, discusses the subject fully in a paper entitled, “On the protection acquired by the human skin and other tissues against the action of certain poisons after repeated inoculation.” He not only shows the immunity arising from the repeated stings of mosquitos, but notices a like immunity arising from the domestic pests, *Pediculus*, *Cimex* and *Pulex*. An American recalls his first experiences with the flea in Europe with the same horror that an Englishman remembers the welcome he received from the mosquito in America.

More than a century ago attention was called to the immunity enjoyed by natives to the sting of mosquitos. In the efforts of Great Britain to suppress the revolt in the American colonies, European troops were hired to augment their armies. Among these were the Anspach-Bayreuth troops, and this contingent was accompanied by an intelligent surgeon, Dr. Johann David Schoepfl. His letters to Prof. Delius, of Erlangen, on the “Climate and Diseases of America,” were published in pamphlet form in 1781. Dr. James R. Chadwick, of Boston, translated the pamphlet as being one of medico-historical interest. The following paragraph from these letters is of interest. The author says: “One fact is worthy of mention in this connection, which perhaps testifies as forcibly as anything can to the need of acclimatisation, and is moreover universally admitted to be true. In a new-comer, almost every bite of the mosquito produces a boil during the first year after his arrival, but fails to have this effect in the subsequent years.”

EDWARD S. MORSE.

Salem, Massachusetts, March 22.

To the query of Mr. Dawson Williams (NATURE, March 4, p. 415), as to whether the mosquito injects a toxin, an affirmative answer may be given. The mosquito has, instead of the two long simple salivary glands of other diptera, a complex system, three glands on each side of its thorax, two of each set unlike the third. All the six ductules from these glands unite so as to carry the secretion to the common salivary duct, and by it to the hypopharynx. The structure of the hypopharynx is the same as that of the sting of a bee, a tubular-pointed organ with a subterminal orifice. The only exit for the discharge of the complex glandular apparatus is into the wound made by the lancet-formed mouth-organs.

I have all this mechanism dissected out and preserved for