

OUR BOOK SHELF

Nature contemplated Philosophically.—*Die Natur im Lichte philosophischer Anschauung.* By Maximilian Perth. (Leipzig and Heidelberg, 1869.) Large 8vo. pp. viii. and 805.

THE modern developments of the study of natural science have led to the separate and too exclusive consideration of branches of knowledge. This result necessarily follows from the defects inherent in our methods of investigation; but everyone will admit the importance and advantage of contemplating Nature as a whole, instead of attending to a fragment of her works. Hence she must be contemplated philosophically; for it is the business of philosophy alone to work out the greater problems which are common to, and underlie, the great problems of the sciences.

Such are the views which led Prof. Perth to write this book, a task for which he had fitted himself by many-sided study from boyhood, and the accomplishment of which has exacted the labour of several years. It is a purely philosophic work, belonging to a class of which there are few specimens, and cannot be easily read except by those who have some technical acquaintance with philosophic terms. The following are titles of a few of the topics treated in the volume:—"Matter, Organism, Spirit;" "The Relation of Nature to the Moral Idea;" "The Chemical Process;" "Species;" "The Chronological Perfection of Organic Nature;" "The Geographical Distribution of Plants;" "The Spiritual Life."

The author does not attach himself to any particular school of thought; but Kant, Hegel, and Spinoza have, perhaps, a predominance. His information is universal; but the erudition displayed is accompanied, as generally happens, by a want of point, precision, and climax. Here and there, a somewhat sad and sombre eloquence relieves and ornaments the picture.

E. J. M.

An Introduction to the Science of Heat.—By Temple Augustus Orme. (London: Groombridge & Sons.)

It is not many years since the appearance of the first thoroughly scientific treatise on heat in the English language, and now we hail the advent of a well-written introduction to more advanced works: a book intended for the beginner who is supposed to possess nothing but a fair knowledge of arithmetic and an average amount of intelligence. This book is full of excellent examples of the various laws of heat, in which the author makes use of the metrical system of measurements, and the centigrade scale of temperature; and the student who has worked through these questions cannot fail to have acquired a good practical knowledge of the subject of heat, as well as an appreciation of the advantage of the metrical system. Nor are theoretical views left out, and although the treatise only professes to be an introductory one, we have a good elementary account of the dynamical theory of heat, including the grand laws of the conservation and dissipation of energy. The author is undoubtedly right in accustoming the student at an early age to think of, and if possible apprehend, this great generalisation, for in truth it forms the appropriate supplement to and completion of the ordinary laws of motion, and should be studied along with these; otherwise the student may be led to conceive that when two equally massive inelastic balls strike one another with equal and opposite velocities, the result is *nil*, and to entertain many similar absurdities. And inasmuch as the laws of motion find their way into introductory treatises on natural philosophy, so should the laws of energy find a place in these. In the study of such laws, the student cannot too soon become accustomed to those technical terms which are necessary to give accurate expression to his conception; and we are glad the author has introduced the terms *kinetic* and *potential*, although we think that on one or two occasions he has used the word *force* where *energy* would have been preferable.

B. S.

Sicilian Fungi.—*Funghi Siciliani.* Per Guiseppe Inzenga. Centuria Prima. 4to. pp. 95, with 8 coloured plates, price 10s. (Palermo, 1869. London: Williams and Norgate.)

A WORK which will be very welcome to English fungologists, and especially to those who are interested in fungophagy. We have here descriptions of 100 of the more conspicuous Fungi of Sicily, with coloured plates of some of the more important or newly-described species, an account of their localities, and of the uses to which they are applied; and, what is of no small importance in a work on Fungi, a list of the synonyms belonging to each species. Sig. Inzenga has paid special attention to the economic properties of the Sicilian Fungi; among this first century he enumerates 30 species, which he can vouch for as being perfectly wholesome, more or less delicate in flavour, and easily distinguished from any noxious species, many of them being largely used as articles of food by the Sicilian peasantry, and sold in the markets of Palermo and Messina; while only eight are named as being absolutely poisonous, or so suspicious as to be prudently rejected. Our common mushroom, which is forbidden to be sold in the markets of Rome, is freely eaten in Sicily, though not so much esteemed as several other species.

A. W. B.

The Microscope and its Applications.—*Das Mikroskop und seine Anwendung.* Von Dr. L. Dippel. Zweiter Theil. Anwendung des Mikroskopes auf die Histologie der Gewächse. 8vo. pp. 328, with 188 woodcuts, and 6 lithographic plates, price 12s. (Brunswick, 1869. London: Williams and Norgate.)

THE first part of Dr. Dippel's treatise on the microscope was devoted to a description of its different forms, with practical directions for its use and for the preparation of specimens; in the present volume we have an account of its application to the observation of the minute parts of plants. It is divided into four sections. The first consists of investigations of cells as distinct organisms, including the cell-membrane, the cell-nucleus, the cell-fluid, protoplasm, and salts; the formation of cells; and their transformation into tubes and vessels. The second part relates to the more complicated tissues of the higher cryptogamia and of the phanerogamia. The third records the results of investigations on the elementary organs and tissues in polarised light. The fourth part is occupied by an account of the anatomical structure or comparative anatomy of the different compound organs, the stem, root, leaves, and organs of reproduction. With this volume the work closes for the present, but an additional one is promised at some future time on animal histology. It contains a clear record of the present state of microscopical science as applied to the minute structures of the vegetable kingdom, free from those abstruse speculations which often fill so large a portion of continental works of this description. The illustrations, both woodcuts and lithographs, are of the excellence to which we are accustomed in German scientific works, and to each section is appended a list of all the important works and papers already published on the subject.

A. W. B.

The Physical Phenomena of Life.—*Les Phénomènes Physiques de la Vie.* Par J. Gavairot, &c. (Paris: Masson et Fils. London: Williams and Norgate.)

WE do not quite see why this little book should have been written. It is too technical to be useful as a popular volume; it is too diffuse, and yet too incomplete, to be a text-book; and it has neither the critical grasp nor the originality of an independent essay. There is a grand opening for some one to gather up all the recent advances in physiological physics, and weld them up together into a single book. When we took this volume in hand, we hoped to find something of the kind; but it really consists of little more than a straggling discourse on animal heat, and another on muscular contraction.

M. F.