

cal and mineralogical features which characterise volcanic phenomena. For although mechanical force is admitted to be convertible into its equivalent in heat, which heat may in its turn set in operation chemical action, still no such forces, either alone or combined, can transmute one chemical element into another, or bring about the formation of products having at all times a definite chemical and mineralogical constitution, out of the incongruous materials likely to be met with on the sides of such faults, or cracks, or contraction. Our present knowledge of the mineral characters of the earth's crust does not entitle us to entertain the supposition that the substance of the rocks immediately contiguous to fissures of this character occurring in so many different parts of the globe, could in all, or even in other than solitary instances, when fused by the action of mere heat, afford products identical with those of known volcanoes. On the other hand, nothing is more certain, from the examination of volcanic products, than that, no matter from what part of the world they be derived, whether from volcanoes situated near the north or south poles, in the islands of the Pacific or Atlantic oceans, or from the craters of the Andes or the Apennines, they are all identical in chemical or mineralogical constitution—a result which indicates forcibly that that they must be derived from some one common source, and not be mere local accidents, as Mr. Mallet's hypothesis would require us to assume. For these and other reasons which we need not bring forward on the present occasion, it does not seem probable that this hypothesis will receive the adherence of either chemist, mineralogist, or geologist.

In conclusion, attention might here be directed to the disadvantages which, in a pecuniary point of view, the British student labours under when making himself acquainted with foreign science by means of translations. The original pamphlet of Prof. Palmieri in Italian, and its translation into German by the eminent chemist, Rammeisberg, were procured here in London for the small sum of eighteenpence each, whereas English translations of scientific works, got up, however, in superior paper, wide margin, and elaborate covers, can rarely (if ever) be obtained under several times the cost of the original works.

DAVID FORBES

OUR BOOK SHELF

Human Physiology the Basis of Sanitary and Social Science. By T. L. Nichols, M.D. Pp. 479; woodcuts. (Trübner, 1872.)

THE title "Human Physiology," which alone appears on the back of this book, is misleading, and even the title as given above would scarcely prepare a reader for what he will find. The preface, however, gives fair warning. "Physiology," writes Dr. Nichols, "the science of life, has been handed over to the medical profession, which has an unfortunate interest in the popular ignorance of sanitary laws; while metaphysicians, moralists, and theologians have confused rather than enlightened our ideas "as to the moral nature of man and his consequent social requirements." This seems rather hard on the doctors, who have certainly done all that has yet been done in preaching the laws of health and in getting them carried out, both by public supervision or compulsion and by private influence; but the whole volume is an exemplification of the latter part of the melancholy result, whether due to those designing persons who study metaphysics,

morals, and theology or to some other cause. Dr. Nichols is an ardent advocate of the numerous theories which blind and bigoted Science has consistently and universally refused to accept, to the great disgust of circle-squarers, anti-Newtonians, popular "scientists," and Social-Science-mongers. The first section of the book treats of preventible mortality, poverty, ignorance, drunkenness, and prostitution; the second of matter, force, and life, including adverse criticism, on the feeblest grounds, of the doctrines of evolution and of materialism, with some remarkable "proofs of immortality." The third part gives a popular account of the human body, with some of the oddest illustrations ever printed. The fourth treats of the laws of generation, including chapters on love and marriage, hereditary transmission, and problems of the sexual relation. This section is, perhaps, the best in the book, and its subjects are handled with freedom and modesty, while the conclusions are sensible enough. The fifth, part on health, disease, and cure, contains a good many useful and obvious remarks on the value of cleanliness, exercise, and temperance, together with a number of utterly unsupported or demonstrably false propositions. The last part, is devoted to the discussion of morals and society, in which important questions in political economy, ethics, agriculture, are stated, benevolent wishes for all classes of mankind are expressed, and the questions left much as they were found.

In a book of this kind the reader is not surprised to encounter the old and new dogmas of phrenology, vegetarianism, clairvoyance, homœopathy, animal magnetism, anti-vaccination, and cure by Psychic force. But though unscientific and sometimes anti-scientific, the author would deserve credit for putting before the public information which, however trite, is too little acted on, if his assertions of the wonderful cures he has made by hydropathy at Malvern, and the quotation from "a little book," by Mrs. Nichols on the same subject, did not suggest a doubt whether in his case singleness of motive can be admitted in excuse of ignorance.

P. S.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.]

Dr. Bastian's Experiments

MR. LANKESTER asks me several questions relating to the experiments by Dr. Bastian, reported by me in NATURE a few weeks ago. In reply I beg to say that new Cheddar cheese was used. The cheese was not weighed, but the quantity added to the contents of each flask probably did not exceed two grains. The turnip infusion was filtered before it was introduced into the flasks: the filtrate was limpid. After boiling, the liquid was somewhat turbid, and contained visible particles.

Feb. 3

J. BURDON SANDERSON

Eyes and No Eyes

MR. RAY LANKESTER'S letter has reminded me of a little experiment of my own which converted me to Bastianism. I had some turnip and cheese flasks which Dr. Bastian had been kind enough to prepare in my presence. I took them home and in due time examined the contents in a good microscope, using what I thought adequate power. I saw nothing, and went triumphant to Dr. Bastian to report my failure, taking the flasks with me. Dr. Bastian looked at the fluid, smelt it, and told me he would eat his hat if it was not full of life. I thought he would have to eat his hat. He put a drop under his microscope and told me to look. It was full of small Bacteria. I was a good deal puzzled at first, but after a little discussion I found out why I had failed to see what was in the fluid. Without going into details, I may say that the short result was that I had been rather a miff with the microscope. May not this explain some other failures?—not Mr. Lankester's; of course.

QUERY 1