

hope rises in the biologist's breast that the secret of life is going to be discovered. Always, however, residual phenomena are detected, and there is a retreat to some form of vitalism. Prof. Neumeister gives a scholarly survey of the history, expounding the positions of Johannes Müller, Von Baer, Lotze, Du Bois-Reymond, Fehner, Wundt, Bunge, and many more. His own position, which closely resembles that of Johannes Müller, may be briefly stated as follows:—Truly vital phenomena cannot be interpreted in terms of physico-chemical categories; life is an inter-relation of the physical and the psychical—an inseparable, unknowable inter-relation; there are no forces operative in protoplasm which are not operative in non-living matter, but in all active protoplasm there are psychical qualities of a transcendental character.

Biologists will probably be most interested in the section of the book that deals with protoplasm, and the many conceptions of it that have been suggested, e.g. by Nägeli, Kühne, Bütschli, Pflüger, Pfeffer, Verworn, Hofmeister, Hertwig, and Ostwald. Neumeister deals at especial length with the Hofmeister-Ostwald theory, which practically reduces metabolism to a series of fermentations. As a chemical physiologist the author attacks this theory with might and main, and comes to the conclusion that ferments have really nothing to do with the essential activity of protoplasm, their activity is intracellular, not intraprotoplasmic, they are only the "chemical tools" made by and used by protoplasm. What then is protoplasm? A peculiar chemical system of very diverse protein-substances, along with certain other compounds the molecules of which by a unique interaction give rise to psychical and material processes quite inseparable from one another, in a way that we cannot hope to understand. "Ins Innere der Natur dringt kein erschaffener Geist." J. A. T.

*The Fat of the Land. The Story of an American Farm.* By J. W. Streeter. Pp. xi+406. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1904.) Price 6s. 6d. net.

MANY ways have been adopted of teaching agriculture, but we do not think we have before met with an account of the management of a farm thrown into the form of a tale—a romance some readers would be unkind enough to call it. The book describes how an American doctor, warned for reasons of health to abandon a city life, purchased a neglected farm and by a liberal exercise of capital, energy and business capacity, made it both pay its way and provide him at the same time with health and pleasure, so that the family all lived on "the fat of the land." The main text is sound enough, that the farm should be regarded as a factory converting raw material into finished products and that skill and knowledge can always find a satisfactory market by the production of the best, but we doubt if the demonstration will prove convincing or even suggestive to the practical man.

The book reminds us irresistibly of the "Swiss Family Robinson," and bears about the same relation to agriculture as that friend of our childhood did to serious natural history.

*Die Dissozierung und Umwandlung chemischer Atome.* By Dr. Johannes Stark. Pp. vii+57. (Braunschweig: F. Vieweg und Sohn, 1903.) Price 1.50 marks.

THIS little book from the fluent pen of Dr. Stark, of Göttingen, is a reprint of three articles in the *Naturwissenschaftliche Rundschau*. Its object is to exhibit a comprehensive view of the application of the electron theory to the group of phenomena which may be characterised as subatomic transformations, and to do

this in terms which may be understood by any person of intelligence. On the whole this object is successfully accomplished.

The author shows how the discovery of Röntgen rays and of the Zeeman effect, together with the determination of the mass of the particles forming the kathode rays, have led, in the hands of J. J. Thomson, to an entire change in our ideas of atomic structure. He follows out the bearing of this idea on the phenomena of conduction in metals, in solutions and in gases, and shows how the brilliant researches of Rutherford and of Rutherford and Soddy on radioactivity led them to consider that this phenomenon was caused by the transformation of one element into others, a result which was finally established by the discovery of Ramsay and Soddy that the radium emanation turned into helium.

The book is clearly written, and its value is increased by a chapter of references at the end. It may confidently be recommended to all interested in the recent developments of physical theory. O. W. R.

*Nature's Story of the Year.* By Charles A. Witchell. Pp. xii+276; illustrated. (London: T. Fisher Unwin, 1904.) Price 5s.

"OBSERVERS of Nature," says Mr. Witchell in his preface, "belong to one of two classes—the scientific and the imaginative." Mr. Witchell himself belongs to the latter category, for, to make use of his own words, he depicts "some curious incidents in Nature in a frame of imaginative colouring." The book will probably give readers a general interest in natural phenomena, for there is no attempt systematically to describe the plant and animal life to be found in the country at different seasons of the year. The author directs attention to anything that happens to have impressed him, and his facts and fancies are expressed in pretty terms.

*Essays and Addresses.* By the late John Young, M.D., Regius Professor of Natural History in the University of Glasgow. With a Memoir. Pp. xlii+143. (Glasgow: James Maclehose and Sons, 1904.)

THIS small collection of essays and addresses is issued by the committee in charge of the memorials of the late Prof. Young. The biographical sketch with which the volume commences is by Dr. Yellowlees, and it is a pleasing narrative of a well-filled life. The history of the years when Young was on the Geological Survey is particularly attractive, though throughout the narrative the reader is impressed with Young's untiring energy. The committee has selected the following essays and addresses for publication:—"Three English Medical MSS.," "A Discourse," "The Making of a Book," "The Scientific Premonitions of the Ancients," "Jewish Mediciners," and the "Address on the Hunterian Library."

*The Globe Geography Readers. Senior. Our World-wide Empire.* By Vincent T. Murché. Pp. 392. (London: Macmillan and Co., Ltd., 1904.) Price 2s. 6d.

THE latest of Mr. Murché's books is one of his best. It provides a simple, interesting account of the countries and peoples of the British Empire which should make the boys and girls who study it interested in different parts of the world. The volume is profusely illustrated with sixteen full-page coloured plates and an unusually large number of black and white pictures. There is no rigid adherence to geographical information alone; the historical facts necessary to make up a complete description of a country are included judiciously.