

Mr. Phillips's volume will be greatly appreciated not only by those who are connected with Alabama, but by all who are interested in the manufacture of iron and steel wherever it may be carried on.

(2) Mr. Hudson's book is one of a series of textbooks which are described as "introductory to the chemistry of the national industries." It is written in a clear and concise manner, and deals very ably with recent scientific investigations and theories regarding the constitution of iron and steel. The principles underlying the smelting of iron, the manufacture of wrought iron and steel, foundry practice, and such processes as case-hardening, welding, &c., are reviewed very briefly, but no attempt is made to treat these subjects from the manufacturing point of view, and this part of the book can scarcely be regarded as an introduction to the metallurgy of iron and steel, except for very elementary students. The book is intended primarily for those interested in the physico-chemical rather than the practical aspects of the subject, and this is clearly the intention of the author, who states in his preface that "practical details of the methods of production have been avoided almost entirely, in order that more attention may be devoted to such matters as an explanation of the constitution of steel and cast-iron, and the effects of mechanical and heat treatment on the properties of these alloys." In the later chapters these subjects have been very completely dealt with, and, together with the chapter on corrosion by Dr. Bengough, will be welcomed by many students of metallurgy.

OUR BOOKSHELF.

Ueber kausale und konditionale Weltanschauung und deren Stellung zur Entwicklungsmechanik.
By Wilhelm Roux. Pp. 66. (Leipzig: W. Engelmann, 1913.) Price 1.50 marks.

PROF. ROUX makes game of Prof. Verworn's recent essay on the causal and the conditional outlook on the world, which was, we think, reviewed some months ago in NATURE. What is true in Verworn's essay is not new, and what is new is not true. The causal outlook, which has been in vogue "from the Stone age down to Verworn," is not to be superseded by a crude "conditionism." What is sound in Verworn's emphasis that the scientific task is to inquire into all the antecedent conditions is recognised by all investigators. The change proposed is verbal, for as soon as a process is set a-going, its conditions become active factors or causes. The complete conditions *are* the complete causes. Verworn lays great stress on what he calls the "effective equivalence" of the conditions of any process or result, but Roux cannot accept the phrase. Equally necessary the factors are, but certainly not equivalent.

NO. 2288, VOL. 92]

In the study of development the *specificitas potentiae* of each of the various factors is well known. In vital processes the internal and the external conditions cannot be spoken of as equivalent, as Verworn proposes. The constitution of an ovum includes factors which determine a certain, within limits, typical result; the external conditions of oxygen, warmth, moisture, and so on, activate and sustain the development. Thus Roux distinguishes between "determining" and "realising" factors, and says that it is nonsense to speak of their "equivalence."

From time to time in his brilliant series of studies in "developmental mechanics" Roux has given a causal analysis of the known factors involved, distinguishing, for instance, between internal and external, determining and realising, necessary and "not necessary" factors; and he is entirely opposed to the false simplicity which Verworn's "conditionism" would suggest. There has been hard hitting on both sides, but perhaps it is instructive to remember that Verworn's life has been largely spent in the study of metabolism, and Roux's in the study of development—which is for him an "autophænesis," "a becoming-visible of manifoldness by the proper activity of the germ." J. A. T.

Brazil in 1912. By J. C. Oakenfull. Pp. viii+498. (London: Robert Atkinson, Ltd., 1913.) Price 5s.

THIS is the fourth annual edition of an excellent handbook on Brazil. As usual, it is well and profusely illustrated, the large map of the country and the coloured frontispiece showing the precious stones of Brazil being especially good. The book deals in an interesting manner with the history and geography of Brazil; but the chapters on the anthropology and ethnography, the geology and palæontology, the mineralogy, and the agriculture of Brazil will appeal more directly to scientific readers.

The book is intended for free distribution, but duplicate and trade copies can be obtained at the price stated.

Teachers of geography will find it an interesting and valuable work of reference in the school library.

The Theory and Design of Structures. A Text-book for the Use of Students, Draughtsmen, and Engineers engaged in Constructional Work. By E. S. Andrews. Third edition. Pp. xii+618. (London: Chapman and Hall, Ltd., 1913.) Price 9s. net.

THE first edition of this book was reviewed at some length in the issue of NATURE for March 18, 1909 (vol. lxxx., p. 64). The additions made to the present edition are incorporated in an appendix of some twenty-seven pages, and these include a note on Dr. Stanton's experiments on wind pressure. The notation in the chapter on reinforced concrete has been made to agree with that proposed by the Concrete Institute, and numerous exercises have been added to the volume.