

rather rough-and-ready methods. Much of the chapter on the aeroplane is out of date; it is scarcely correct to say that the air-pressure results for plane surfaces can be corrected so as to apply to curved surfaces by slight changes in the constants, and in any case there are plenty of experimental data for giving a correct account of cambered wings. The chapter on the dynamics of aeroplanes is not very full, while a treatment of the parachute by means of differential equations is inserted for little reason, in a book which is not really a mathematical treatise. In addition nearly three of a total of less than 150 pages are occupied with Glaisher's analysis of the motion of the balloon—with the note that it has little practical value! After the chapter on ornithopters we get a short account of dirigibles and the bodies of aeroplanes, etc. There is also a brief account of stability.

Some of the appendices are useful, although the bibliography is disarranged. Foreign names are misspelt, e.g. an umlaut on the "a" in Lilienthal. The author has the ability to produce a real text-book on aeronautics, but the present volume is disappointing.

S. BRODETSKY.

Die Pendulations-Theorie. Von Prof. Dr. H. Simroth. Zweite Auflage. Pp. xvi+598. (Berlin: Konrad Grathlein, 1914.) 13.50 marks.

FIREd by a new view of the shifting of the polar axis of the earth the speculative mind of a distinguished zoologist, Simroth, conceived the idea of a relation between earth oscillation and organic development.

The merit of this oscillation theory of organic distribution was its reduction of the rise and spread of organic forms to a single process in relation to recurring secular change. Simroth assumed that the earth forms an oscillation system of a peculiar kind, such that one maximum line of stress runs north and south through Norway, Germany, the line of elevation of the Alps, and across the western Sahara, while the other companion stress line passes through Bering Strait and the Pacific, west of the American coast. Assuming also permanence of the general configuration of the oceans and continents, Simroth then makes his grand assumption, which is that the evolution of genera has recurred along the European line of maximum oscillation (which is therefore the region of creative evolution) in response to secular changes of environment. From this area of distribution those forms that are primitive migrate eastwards or westwards to areas of less disturbance, whilst the progressive forms adapt themselves to the cold of polar uplift or the warmth of equatorial depression. In this way Simroth accounts for the occurrence of allied forms in widely separated parts of the world. Beings are what they are and where they are, as a "function" of the oscillation system.

The new edition of this work does not remove the difficulties of those who refuse to accept Simroth's hypothesis. The new matter consists merely of 33 pages appended to a reprint of the first edition and contains no references to criticisms such as those of Prof. G. C. Bourne (Proc. Zool. Soc. 1911, pp. 802-805) that refer to a fundamental objection—the secondary nature of marine organisms. If Dr. Simroth has not converted his fellow-zoologists, he is not likely to make converts in other biological fields. Granted that we have no simple alternative to his view, yet the assump-

tions on which it rests are not in accordance with modern geological opinion; and if that is so, biological speculation on such a weak basis is only misplaced ingenuity. The earth as a system of stresses is likely to prove a much more complex theme than the one Simroth vaguely describes, while the relation between maximum stress and biological progress requires far more critical examination than he gives to it.

F. W. G.

Swiss Travel Almanac. Edited by the Swiss Tourist Information Office. Summer Season, 1922. Pp. 112. (Olten, Switzerland: O. Walter, Ltd.; London: Swiss Federal Railways, Regent Street, 1922).

THIS book is a reminder that Switzerland is ready once more to become "the playground of Europe," and it is especially an appeal to English visitors. The numerous signed essays include one by Mr. A. Latt on "English influences on Swiss intellectual life," recalling many pleasant details of *rapprochement* in the seventeenth and eighteenth centuries. Mr. Schaeferlin writes finely of the brave hardihood of alpine trees. Good and readable as the essays are, the great charm of the book lies in its illustrations. The well-known scenes of tourist gatherings are relegated to the advertisement pages at the end, and throughout this modestly styled Almanac we are given an exquisite series of photographs, printed in brown, of "trees and woodlands" in the Alps. Each of these appeals delightfully to the naturalist, who will promptly consult the calendar and the tables of exchange.

G. A. J. C.

Handbook of Commercial Information for India. By C. W. E. Cotton. Pp. viii+383. (Calcutta: Superintendent Government Printing, India, 1919.) 1 rupee: 2s.

MR. COTTON'S book is a useful volume which gives in a condensed form, and well arranged for reference, notes on all the principal exports of India, including origin, district of growth, processes of preparation, and conditions of export. It does not profess to be a scientific work or in any sense a rival to larger and more complete gazetteers of Indian products. It has been compiled for traders, and with this end in view notes on ports and commercial organisations are added. Among the State departments connected with trade we find a reference to the geological survey but none to the Survey of India or to the Royal Indian Marine. Does this imply that maps and charts have no bearing on trade? It is to be hoped that the demand for this book will result in the publication of an annual edition.

Das Problem der Genesis des Actiniums. Von M. C. Neuburger. Sonderausgabe aus der *Sammlung chemischer und chemisch-technischer Vorträge*. Herausgegeben von Prof. Dr. W. Hertz. Band XXVI. Pp. iii+64. (Stuttgart: Ferdinand Enke, 1921.) 5 marks.

THE author discusses the experimental work done on the origin and transformations of actinium, and the various hypotheses which have been put forward as to the successive changes in the actinium series. He concludes that at some stages, besides α - and β -particles, particles of mass 3 and charge 2 are emitted. There is a detailed list of references, including some so recent as the year 1921.