

search of treasure. Associations such as these were held sufficient to prove that it possessed magical power, and this belief was reinforced when after its destruction a visitation of plague occurred, the bridge at Shuster collapsed, and the Hawzah dam was breached. This was all obviously the result of the desecration of the talisman, so the fragments were collected and buried in the precincts of the tomb. The story, as a whole, is singularly instructive to those in quest of the origins of popular beliefs.

OCEAN DRIFT FRUITS.

Plants, Seeds, and Currents in the West Indies and Azores. The Results of Investigations carried out in those Regions between 1906 and 1914. By H. B. Guppy. Pp. xi+531. (London: Williams and Norgate, 1917.) Price 25s. net.

THE author of this important work is a well-known authority on ocean currents and the geographical distribution of plants. His earlier writings on the geology and natural history of the Solomon Islands and the Cocos Keeling Islands, and his more recent work on "Plant Dispersal," contain the results of many years' patient and exhaustive investigations in the Pacific region. In the present volume he deals in an equally thorough and careful manner with the numerous problems connected with plant distribution in the Atlantic region and embodies results of great scientific interest.

The dispersal of plants by ocean currents is by no means a new subject of inquiry. Hemsley ("Challenger Report: Botany," vol. i.) gives an interesting summary of the literature to 1885. The present author acknowledges that the reopening of the subject by Hemsley was the means of stimulating the activities of himself and later investigators. Clusius first figured some of the West Indian drift seeds and fruits in 1605, though at the time he was ignorant of their origin. Hans Sloane in 1695-97 gave an account of four drift seeds cast ashore in the Orkney Isles. Three of these he recognised as having been seen by him in Jamaica. After the lapse of two centuries the mystery in regard to the origin of the fourth drift fruit (*Sacoglottis amazonica*) was only cleared up about twenty years ago (see NATURE, November 21, 1895). The numerous writers who have dealt with drift fruits on European shores since Sloane are fully enumerated in the third, possibly the most interesting, chapter in the book. The tracks of drift seeds and fruits and the "fan-shaped" distribution of bottle drift are admirably illustrated by a chart of ocean currents (p. 46). The fact is established that the drift brought by the north and main equatorial currents and mingled in the Caribbean Sea is captured by what ultimately becomes the Gulf Stream and conveyed to the western shores of Europe. Careful observation has shown that at least one-third of the drift seeds and fruits floating in the neighbourhood of the Turks Islands,

in the Caribbean Sea, have been found on the coasts of Europe. Incidental mention is made of the transport of logs of mahogany and even of live turtles to European shores.

In the fourth chapter the similarity between the West Indian and West African littoral floras is discussed. This may be accounted for by the fact that of fifty-three plants occurring in both worlds 62 per cent. respond to the current test for transport by the main equatorial current.

A detailed account of the large foreign drift seeds and fruits, first of the Turks Islands and secondly of other portions of the West Indies, occupies several chapters. The distribution of each is given and its relative capacity for dispersal by ocean currents.

Interesting observations are made on Rhizophora in the West Indies. In the appendix (p. 502) it is suggested that vivipary of the mangroves might be regarded as due to their endeavour to accommodate themselves to climatic conditions cooler than those that once prevailed in their present habitat.

The chapters on the general character and geological structure and the flora of the Turks Islands embody the most complete account yet published of the natural history of that interesting group, and in the detailed study of the altitudinal range of the indigenous plants of the Azores we have two scientific memoirs of great interest.

It is not possible to devote adequate attention to the chapter on Mr. Guppy's theory of differentiation based on the facts presented in this and previous publications. In regard to the general topic of the geographical distribution of plants, he fully accepts the views of Bentham, Hooker, and Asa Gray so clearly re-stated by Thiselton-Dyer in his contribution to "Darwin and Modern Science." Mr. Guppy admits that distribution becomes purely a problem of the northern hemisphere, and that this removes more difficulties in the study of distribution than any other hypothesis. It is a pleasure to add that the great value of Mr. Guppy's researches during the last thirty years has been authoritatively recognised by the recent award of the gold medal of the Linnean Society.

D. M.

OBSERVATION, PHILOSOPHY, AND TEACHING.

- (1) *The Combination of Observations.* By D. Brunt. Pp. x+219. (Cambridge: At the University Press, 1917.) Price 8s. net.
- (2) *Fundamental Conceptions of Modern Mathematics. Variables and Quantities. With a Discussion of the General Conception of Functional Relation.* By R. P. Richardson and E. H. Landis. Pp. xxii+216. (Chicago and London: The Open Court Publishing Company, 1916.) Price 1.25 dollars or 5s. net.
- (3) *Revision Papers in Arithmetic.* By W. G. Borchardt. Pp. viii+156+answers xxxii. (London: Rivingtons, 1917.) Price 2s.