

a side. In western Java $S = 50$ km. There are more earthquakes in this region. It will not be without interest to quote a few of the author's conclusions expressed in this numerical form.

For Porto Rico, $S = 2.3$ km., that is, there is one earthquake annually in each square of 2.3 km. (1.38 miles) on a side on the average.

For the island of Luzon, $S = 2.8$ km.; for Manila, $S = 3.0$ km.; for central Cuba, $S = 41$ km.; for western Cuba, $S = 128$ km.; for Hawaii, $S = 37$ km. These numbers may be compared with others relating to the United States, as central California, $S = 76$ km.; New England, $S = 90$ km.; the Carolinas, $S = 313$ km.; Michigan, $S = 487$ km., or with Tokyo, Japan—one of the most disturbed portions of the globe—for which the number is 12 km. Manila and Porto Rico are far more disturbed than this.

Work of the kind here noticed is valuable in proportion to the care with which the data have been sifted, and to the impartiality of the investigator. It is believed that anyone who will examine the work of M. Montessus carefully will conclude that he has made a considerable step forward.

EDWARD S. HOLDEN.

STOCKBRIDGE, MASS.,
August 15, 1898.

ZOOLOGICAL NOTES.

MR. FRANK FINN, of the Indian Museum, Calcutta, has been making an extensive series of experiments with birds in regard to the value of the so-called warning colors of butterflies. These experiments, which are recorded at length in the *Journal* of the Asiatic Society, are extremely valuable from the fact that while it has been assumed that insects nauseous to man are equally nauseous to birds this has not been sufficiently well proved. In fact, it has been shown by

the investigations of the Department of Agriculture that many of the (to us) vile-tasted Hemiptera are greedily devoured by birds. Definite information is also needed as to the extent to which birds actually eat butterflies. The experiments were mainly made with Babblers, *Crateropus*, and Bulbuls, *Otocampus*, although a few other species were used.

As a result of his experiments Mr. Finn concludes: "That there is a general appetite for butterflies among insectivorous birds, even though they are rarely seen when wild to attack them.

"That many, probably most, species dislike, if not intensely, at any rate in comparison with other butterflies, the 'warningly-colored' *Danainæ*, *Acræa violæ*, *Delias eucharis* and *Papilio aristolochiæ*, of these the last being the most distasteful, and the *Danainæ* the least so.

"That the mimics of these are at any rate relatively palatable, and that the mimicry is commonly effectual under natural conditions. That each bird has to acquire separately its experience, and well remembers what it has learned."

That, therefore, on the whole the theory of Wallace and Bates is supported by the facts and Professor Poulton's suggestion that animals may be forced by hunger to eat unpalatable forms is also more than confirmed.

F. A. LUCAS.

CURRENT NOTES ON ANTHROPOLOGY.

INDETERMINATE FORMS OF CHIPPED STONES.

THERE is a large class of objects which constantly puzzle the antiquary. These are flaked or chipped stones simulating the forms of art effects, yet not positively indicating the work of man.

In a handsome and abundantly illustrated volume of 70 pages M. A. Thieulen publishes a paper read before the Anthropological Society of Paris on a collection of