two thin slices of mica the size of a postage-stamp, my colleague at Budapest sent me what he believed to be *Pemphigus zeæ-maydis*. As I thought, he was mistaken; the insect which he discovered on the roots of the maize is a *Tetraneura*, since the hind wings have only one nervure instead of two, as the species of the genus *Pemphigus* should have. Moreover, the size, shape of the antennæ, and absence of hairs on the abdomen proved that it was *Tetraneura ulmi* and not *Tetraneura rubra*, of which I had discovered the subterranean habitat in the preceding year, and which lives at the roots of the dog's grass.

Here, then, we have the complete history of the biological evolution of a second Aphis of the elm, discovered, so to speak, simultaneously in France and Hungary, and which had already been elucidated by Prof. Kessler, of Cassel, placed now beyond doubt. In the train of *Phylloxera quercus*, *Anopleura lentisci*, and *Tetraneura rubra*, of which I made known the migrations from one species of oak to another, or from the roots of grasses to the mastic-tree and the elm, we have *Tetraneura ulmi*, which migrates in June from the elm-galls to the roots of the maize, and which returns in October in the pupiferous form, bringing forth the sexual individuals upon the trunks of the elms.

As to *Pemphigus zeæ-maydis*, its gallicolous form (that is to say, the foundress and emigrant phases) still remains to be discovered.—*Comptes Rendus*, July 16, 1883.

Elevated Coral Reefs of Cuba. By W. O. Crosby *.

Mr. Crosby describes in this paper the elevated coral reefs of Cuba, and draws from them the apparently well-sustained conclusion that they indicate a slow subsidence during their formation, and hence, further, that Darwin's theory of the origin of coral islands is the true theory. The *lowest* reef-terrace of the northern side of the island has a height of 30 feet, and varies in width from a few rods to a mile; it was once plainly the fringing reef of the shore. The *second* reef-terrace rises abruptly from the level of the lower to a height of from 200 to 250 feet, and bears evidence of having been of like origin with the lower. The altitude of the *third* reef is about 500 feet; and the *fourth* has a height east of Baracoa, near the Yumuri River, "of probably not less than 800 feet." These old reef-terraces extend, "with slight interruptions, around the entire coast of Cuba; and in the western part of the island, where the erosion is less rapid than further east, they are the predominant formation, and they are well preserved on the summits of the highest hills. Mr. Alexander Agassiz states that the hills about Havanna and Matanzas, which reach a height of over 200 feet, are entirely composed of reef-limestone."

* Proc. Boston Soc. Nat. Hist.

In the precipitous mountain called El Yunque (the Anvil), five miles west of Baracoa, reef-limestone, 1000 feet thick, constitutes the upper half of the mountain, the lower part, on which the reef rests, consisting of eruptive rocks and slates; and originally the upper limit of this modern limestone formation must have been 2000 feet above the sea-level. Mr. Sawkins gives 2000 feet as the maximum thickness of the Jamaica elevated coral reefs above the sea.

Evidence that the reefs were not formed during a progressive rising of the land is drawn from the thickness of the reefs. Mr. Crosby observes that the reefs reaching to a height of 500 and 1000 feet, if not also to that of 2000 feet, show, by the remains within them, that they were made chiefly of reef-building corals, and hence that they were not begun in deep water, as is assumed in the theory of Mr. Agassiz, but that they were made in shallow water during a progressive subsidence. Mr. Crosby concludes as follows:—

"We have then apparently no course but to accept Darwin's theory as an adequate explanation of the elevated reefs of the Greater Antilles, and therefore to admit that the upheaval of this portion of the earth's crust has been interrupted by periods of profound subsidence during which the reefs were formed. The subsidence of 2000 feet, of which El Yunque is a monument, must have reduced the Greater Antilles to a few lines of small but high and rugged islands; but, as Mr. Bland has shown, this fully accounts for the absence in these immense tracts of all large animals, although they were abundant here in Pliocene and earlier times."

The writer adds here the following objections to the theory of the formation of coral atolls in deep waters out of the calcareous secretions of deep-water life:—(1) It is very improbable that submarine eruptions ever make the large and well-defined craters, like those of subaerial action, which are appealed to in order to explain the lagoon feature of atolls; (2) Many coral atolls are twenty miles or more in diameter, which is vastly larger than the largest of craters; (3) The atolls are never circular, and the larger have the irregularities of outline or diversities of form characterizing other large islands of the ocean; (4) In the actual reefs and islands of the Feejee group (see the map of the islands in the writer's 'Corals and Coral Islands') all the conditions, from the first stage to that of the almost completed atoll, are well illustrated, one island having only a single peak of rock within the lagoon, not $\frac{1}{100}$ of the whole area, which a little more of subsidence would put beneath the waters and leave the lagoon wholly free.—J. D. Dana, in *Silliman's American Journal* for August 1883.