

## THE BEES OF THE CORONADO ISLANDS.

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Out in the Pacific, on the edge of the continental shelf, southwest of San Diego, California, are the Coronado Islands. They consist of four rocky elevations, submerged mountain-tops apparently; the largest, South Island, about two miles long. They belong to Lower California, and hence are part of Mexico. Formerly they were difficult of access, but now a small vessel makes daily trips from San Diego, and tourists visit the islands in numbers. On August 21, 1915, my wife and I spent two hours on South Island, collecting the hitherto unrecorded insect-fauna, and especially the bees.\*

Such isolated spots are extremely interesting to the evolutionist. Their fauna and flora may throw light on the rate of modification of species, or they may preserve formerly widespread, but now nearly extinct, types. The vertebrates of the Coronados have already been rather carefully studied. They possess a mouse, *Peromyscus maniculatus dubius* Allen, which occurs elsewhere only on Todos Santos Islands, Lower California. It is a relatively large, dark form. The birds, 22 species, have been fully discussed in a very interesting paper by J. Grinnell and F. S. Daggett in *The Auk*, XX, 1903, pp. 27-37. One of them, *Melospiza coronatorum*, is peculiar to the islands, differing from its mainland relative by its much paler ground colour, narrower streaking and smaller bill. Another, *Carpodacus clementis*, agrees with a San Clemente I. form, and differs from that of the mainland by the bulky bill and heavy brown streaking. Thus it appears that the modification, when there is any, may be in quite opposite directions. Nine species of reptiles are recorded by Van Denburgh and Slevin, the most interesting being *Gerrhonotus scincicauda ignavus*, which belongs otherwise to the islands northward, Catalina and San Martin. The plants have been little studied, but a fine Malvaceous species,

\*Dr. E. P. Van Duzee, in his account of the Hemiptera of San Diego and vicinity, appears to record species from North Island Coronado but as his preface shows, they came from the north end of Coronado Beach, San Diego, locally called North Island. There is a possible source of confusion here, to be guarded against.

February, 1916