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THE WHITNEY SOUTH SEA EXPEDITION OF THE AMERICAN MUSEUM OF NATURAL HISTORY

THROUGH the personal influence of Dr. Leonard C. Sanford, a trustee and honorary fellow of the American Museum of Natural History, Mr. Harry Payne Whitney agreed in 1920 to finance a zoological expedition in Polynesia. The main object of the expedition is to collect birds at the various islands of the South Sea and on the intervening ocean areas. The sum generously contributed by Mr. Whitney was considered sufficient for five years' work, including provision for the purchase of a vessel which would assure the field workers of the Museum an opportunity to visit a large number of islets which are far from the trade routes or ordinary lines of communication. The expedition is perhaps the most comprehensive that has ever been planned and equipped for ornithological science.

The Whitney South Sea Expedition is under the direct administration of a committee appointed by the Trustees of the Museum and consisting of Doctors Leonard C. Sanford, Frank M. Chapman and Robert Cushman Murphy. As field representative, the Museum has been fortunate in securing the services of Mr. Rollo H. Beck of San José, California, a veteran naturalist and collector of marine birds who had previously rendered the institution years of noteworthy service, particularly while he was in charge of the Brewster-Sanford South American Expedition of 1912-1916. Mr. Beck is accompanied in the field by Mrs. Beck, who was his constant companion during the South American littoral work, and by an assistant, Mr. Ernest H. Quayle, whose training at Stanford University has admirably fitted him for the responsibility. In September, 1920, the members of the party sailed from San Francisco to Tahiti and from the latter base they have

since been engaged uninterruptedly in field work.

An appeal by Professor Henry Fairfield Osborn, president of The American Museum of Natural History, to Ambassador Jusserand for the good offices of the French Government in the Society Islands, met with a generous response, and since the initiation of the work, the Whitney Expedition has received every courtesy both from the government and from individuals at the French Islands.

When Messrs. Beck and Quayle arrived in Tahiti, they began at once an ornithological reconnaissance of this classic isle. As opportunity offered, trips were made to neighboring islands either upon trading vessels or by the use of sloops carrying copra or other cargoes. Early in 1921 an invitation from Père Rougier, the proprietor of Christmas Island, north of the Equator, was accepted, and the ornithologists made a notable journey to this interesting station, stopping en route for collecting at three different islands of the Marquesas group. Subsequently voyages were made to the southward, when the northern islands of the Austral group were visited, as well as Rapa, the southernmost of the eastern Polynesian islands. In September, 1921, a second trip was made to the Marquesas, followed by a preliminary visit to the Tuamotu Archipelago, upon eleven islets of which collecting was undertaken.

During the first year's work, Mr. Beck was continually on the lookout for a suitable vessel which he might purchase, and in this way become independent of the uncertain movements of trading craft. In December, 1921, after adverse consideration of several vessels, the Committee purchased the 75-ton schooner "France," which is equipped with a sixty horse power engine and which was built at Tahiti three years ago. Through the unfailing courtesy of the French Colonial Government, the usual requirement of partial French ownership was waived, and the schooner was admitted to yacht registry, with permission to carry on work at any of the French islands. Similar permission for the British islands was granted by His Majesty's Colonial officers, and after the "France" had been thoroughly refitted, she sailed with

Messrs. Beck and Quayle, in January, 1922, on a trip to the Austral Islands, Rapa, Gambier Islands, Pitcairn, Henderson, Oeno, Elizabeth and Ducie Islands.

While the expedition is primarily ornithological, no opportunity has been lost to obtain desirable material and data in other branches of science, particularly at the many Polynesian islands where the native peoples and fauna are rapidly dying out or are altering materially with changing conditions. With this object in mind, the Museum has cooperated in all possible ways with other institutions that are carrying on research in the Pacific. The Bernice Pauahi Bishop Museum of Honolulu, for example, is now a center of Pacific investigations, coordinated under the administration of Professor Herbert E. Gregory, of Yale, who is serving as Director of the Bishop Museum. The Committee of the Whitney Expedition has been from the beginning in close touch with Professor Gregory and has sought his advice on many details. The members of the Expedition have been instructed to undertake special lines of collecting which do not interfere with their main objects, to offer transportation whenever possible to the field workers of the Bishop Museum, and of other scientific organizations, and in general to further the cause of Pacific investigation by selecting fields of endeavor which lead toward cooperation rather than competition. It has been decided, for instance, to leave the ornithological investigation of the Hawaiian Islands and of certain neighboring groups, such as Midway, Johnston, Palmyra and Washington Islands, to the Bishop Museum, and to confine the efforts of the Whitney Expedition, for the present at least, to the southerly and easterly islands of Polynesia, from Samoa and the Marquesas southward and eastward to the Austral group and Easter Island. In order that the American Museum of Natural History may obtain a full representation of the avian fauna of the Pacific Basin, however, a comprehensive exchange of material has been arranged, and the museum has already received from Honolulu an important collection of Hawaiian birds, which gives it a very nearly complete series of the scarce or ex-

tinet *Drepanididae* as well as other interesting and peculiar birds of the archipelago.

In addition to the advisory services of Professor Gregory and his staff, and of many other friends of the American Museum, the expedition has enjoyed the cooperation of Dr. Charles W. Richmond, of the United States National Museum, in the preparation of abstracted data of great value for any research in Polynesia. Dr. Richmond, who is a distinguished bibliophile, has a rare acquaintance with geographical works relating to the Pacific, particularly with the accounts of both early and recent voyages in this field. Upon the basis of his experience and his bibliography, Dr. Richmond has summarized the principal points of geographic and zoological interest in the writings of discoverers, naturalists, travelers, missionaries, and others who have visited the Line, Marquesas, Society, Cook, Austral, Tuamotu, and more easterly groups. Dr. Richmond's manuscript report gives, moreover, all the known synonyms of the names of the various islands and their outliers. His data on this score are based upon hundreds of sources and are far more complete than the list of designations given in the pilot books or atlases. The report also includes a full list of the known vertebrate fauna of each island, with notes on all the extinct, doubtful or mythical species mentioned by the early voyagers. Equipped with such information, the Museum's field workers are in a position to investigate each island with a full knowledge of what they may expect or hope to find.

Emphasis should be laid upon the fact that zoological investigation in Polynesia must be done now if it is to be done at all. Extinction of the native animals has long been in progress. The introduction of pigs, dogs, cats, and even of the mongoose, into islands which had no native mammalian fauna; the rapid spread of the alien minah and weaver birds, and of a hawk transported from Australia; and the periodical concentration of copra workers, or of pearl or bêche-de-mer fishermen, upon small islets, make it certain that many of the native birds are doomed as surely as the splendid race

of native people. Dr. Richmond's report has not failed to call attention to the importance of the rapid completion of such work as the Museum has now undertaken. Some idea of the extraordinary changes taking place in Polynesia may be gained from the following press quotation referring to an islet of the Tuamotus:

"The opening of the pearl diving season, the great event of the year in the French settlements, comes in July. Diving is not permitted for two years in succession at the same island. The various pearl islands are opened in rotation. This means that all gear, stocks of merchandise and building material must be taken to a new island each year—no small undertaking when it is remembered that the coral atoll, which in ordinary times supports less than 200 persons, becomes in the diving season the abiding place of 2,500 or more. This year the open island is Hikueru, one of the Paumotu archipelago 400 miles to the eastward of Tahiti. Already this lonely atoll is taking on a metropolitan appearance. The profits to be gained come not only from the pearl-shell won from the lagoon, but from the sale of all kinds of wares dear to the native heart and from the providing of entertainment to refresh the weary diver and his women folk after the labors of the day are over. The average native diver wins a good sum from the bottom of the lagoon and much of it goes on expensive silk dresses for his wife and daughters, on the delectable canned goods of the "popaa" (white man) and on the "movies." This year there are to be, it is said, three moving pictures theaters, any number of motor cars for hire—the length of the roadway in Hikueru is less than a half mile, but that apparently does not make any difference—a brass band and, it is reported, electric lights along the "Great White Way" of this little ring of coral sand. Late advices indicate that the season this year at Hikueru will be the most active in many years. It is estimated there will be at least 1,000 divers at the island. These, together with their families and the traders with their staffs, will swell the population of the island during the season to nearly 4,000."

The collecting work of the Whitney South

Sea Expedition has no more than fairly begun, but the specimens already received at the Museum have given a foretaste of the remarkable zoological and geographical results that are to be anticipated. The material comprises the following:

1. More than 3,000 bird skins, together with representative collections of birds preserved in alcohol, nests and eggs, and the stomachs of specimens prepared as skins. The contents of the bird stomachs are to be analysed and reported upon by members of the staff of the United States Biological Survey.

2. A collection of reptiles, including lizards from nearly all the islands visited, as well as marine turtles. Although the lizards are represented by but a small number of species, the aggregation constitutes one of the few collections sent to the United States from Polynesia since the days of the Wilkes Expedition of 1828-1834. A duplicate set of reptiles has been forwarded to the Bishop Museum.

3. Herbarium collections made by Mr. Quayle at the Society Islands, Austral Islands and elsewhere. The plant specimens have, for the most part, been sent to the Bishop Museum for determination, only one set of duplicates being retained in New York.

4. Photographs illustrating not only the birds and other wild animals of the places visited, but also interesting features of the topography, vegetation and the appearance and life of the native peoples.

5. Approximately 3,500 pages of manuscript notes, prepared by Messrs. Beck and Quayle, which not only supply a narrative of the expedition, and a running comment upon the ornithological field work, but also throw light upon many phases of Polynesian life conditions.

The birds received from the Whitney South Sea Expedition demonstrate that Polynesia is one of the greatest remaining fields for ornithological investigation. They comprise thus far about a hundred forms, of not more than twenty-five families, but they are all represented in splendid series, and some of them are among the rarest of known birds. Several of the spec-

ies were, in fact, listed in Rothschild's monograph on "Extinct Birds" (1907). Many of them are of much historic importance in that the status of the species has heretofore rested entirely upon descriptions dating from the golden age of exploration, when Bougainville, James Cook, and other discoverers, brought back to Europe the first collections from Polynesia. The warbler (*Conopoderas æquinoctialis*) of Christmas Island, for example, has not heretofore been represented in any collection, and was known only from the faulty description of Latham. The beautiful fruit pigeon (*Ptilopus huttoni*) of Rapa had previously been known only from the type skin in the Museum at Turin; and there are many other examples. Finally, a relatively large proportion of the birds obtained prove to be new to science.

The sea birds, as well as many of the insular land birds, of Polynesia, throw much light upon broad questions of geographical distribution. The collections of the Whitney Expedition show, for instance, that the birds of the tropical trade wind belt in the South Pacific are, for the most part, specifically or racially distinct from those inhabiting the Horse Latitudes farther south. The terrestrial avifauna is not particularly extensive, but it proves highly interesting. As an example, the warblers of the genus *Conopoderas* appear to exhibit on a vastly larger scale the evolutionary facies of the Galápagos finches. Each large insular group in Polynesia seems to have its peculiar species of this genus, while in some cases every islet within a single archipelago has a well-marked geographic race, the range of which may not be greater than the isolated surface of but a few acres.

Since Mr. Beck left the United States he has from time to time sent home narrative accounts of great general interest, which have been published in "Natural History," the Journal of the American Museum. At the present time Messrs. Beck and Quayle are working from the "France" among the Marquesas Islands, whence additional reports and shipments of material are expected early in 1923.

ROBERT CUSHMAN MURPHY