

The Naturalist

The chief interest of the "old school" naturalist was collecting, preserving, and classifying the insects, birds, plants, and other specimens that he brought back from numerous field trips. And if he found something new he had the privilege of naming it. The modern scientist is likely to be a specialist confined to his laboratory, ignoring adjacent subjects. But the naturalist was free. The whole realm of creation was his to explore. Charles C. Nutting was a naturalist.

How to stuff animals, why seals are polygamous, the marriage customs of South Sea islanders, how to dig up and get old idols, how to make a dredge for collecting animals from the bottom of the sea, why birds are brilliantly colored, how to plan an expedition, the condition of the hotels in Havana, the effects of the Gulf Stream — these are a few of the subjects which Professor Nutting studied. Almost everything interested him. Apparently he went nowhere without asking hundreds of questions, seeing interesting things, and afterward telling and writing vividly about his experiences.

The colorfulness of his description, the force

of his enthusiasm, and his ability to interpret phenomena untechnically made him at once an effective teacher and a popular writer and lecturer on science. His style was clear and straightforward, but sometimes slightly marred by triteness and unnecessary words. The reports of his three major expeditions, written in semi-popular style, illustrate his literary capacity.

For example, in 1916 when he witnessed the most brilliant display of northern lights he had ever seen, he described the phenomenon in *Science*, and received more recognition for the amount of work involved than for anything else he ever did. "The whole heavens shuddered and staggered," he wrote, "shivered into a swirling chaos and reformed again and again in new and still more weird aggregates of shimmering light. Light streamed and wavered, rippled, flickered and pulsated. Now it was in broad waves reaching to the zenith, and now in vibrating bands. Here a broad cone shot up from the northern horizon until its apex pierced the very mid-heavens, and in the twinkling of an eye it was gone. There, from the shifting zones around the zenith, ripples of light passed upward to the blue."

Professor Nutting believed in popular science. By interesting the average man in his projects, he felt that he was fostering the growth of science.

Through his enthusiasm and sincerity he persuaded people to dig down into their pockets and raise the money necessary for the support of his scientific expeditions. And he left them convinced that they had contributed to something worthwhile. Two purposes were behind his expeditions — the stimulation of student interest in natural science by the handling of innumerable specimens and the observation of them in their natural condition, and the development of the museum.

It is only fair to say that Nutting's activity in popular science was severely criticized as "unscientific" and a "waste of time" by many of his contemporaries. But not all scientists had this reaction. Dr. Waldo L. Schmitt, curator of marine invertebrates of the Smithsonian Institution, says, "His narratives of the several expeditions that he carried through for the University of Iowa will always be classics in their line. I have read each of them over several times and expect to do so again." It seems certain that Professor Nutting's many popular writings and speeches gained for him the support he needed and gave the University of Iowa considerable publicity. His work as an expeditionist is summed up by Dr. Paul Bartsch of the National Museum in the statement that Nutting "made the State University one of the greatest leaders in exploration in the country."

For more than twenty years after Nutting joined the faculty of the University he spent his summer vacations on expeditions or in zoological laboratories. His travels took him to the West Indies, the Bay of Fundy, the Saskatchewan River, Wood's Hole, England, Italy, and Hawaii. Later he spent several years organizing the Laysan Island Expedition in 1911 and planning the famous cyclorama of that fabulous bird island in the Pacific. He did not accompany the party to Laysan Island, but in 1918 he led an expedition of thirteen scientists to Barbados and Antigua, and in 1922 he conducted the Fiji-New Zealand Expedition with R. B. Wylie, A. O. Thomas, Dayton Stoner, Mrs. Stoner, and Waldo Glock. Not only did he return with valuable experience for teaching purposes, but the University museum and laboratories were enriched with innumerable specimens.

Plans for these expeditions were always thorough and made well in advance. For example, on the Bahama Expedition in 1893 he calculated that crinoids could be found at a certain spot on an undersea plateau at a depth of two hundred fathoms. The captain of the expedition ship took his bearings carefully, let down the dredge, pulled it forward, and hoisted. The first scoop contained thirty-two specimens of crinoids! The second

scoop away from the calculated spot netted only a few, and the third scoop none at all. They sailed back to the first location and dredged in the opposite direction. And again the third scoop brought up no crinoids. They had hit the spot exactly by calculations made more than a year before in Washington.

Professor Nutting's scientific reputation rests primarily upon his study of hydroids. In the whole array of animal life, the hydroid is in a phylum lower than the lowest worms. Coelenterates are only two steps up from one-celled animals, yet they are complex creatures that shoot their prey with a poison spear from a stinging cell. Hydrozoa are one kind of coelenterates. They are sea-going animals.

From his first contact with salt water, the ocean seems to have appealed strongly to this inland scientist, so it was natural that his principal research should have been devoted to marine forms. His particular interest in hydroids seems to have begun on the University's Bahama Expedition in 1893 when he described some of the hydroids collected in his *Narrative and Preliminary Report*.

"Every summer during the past five years", declared the *University News Bulletin* in December, 1899, "Professor Nutting has been going to the coast to study Hydroids." During part of

the summer of 1895 "he worked in the Marine Biological Laboratory at Plymouth, England; he was the first American who ever worked in this laboratory and in recognition of this fact he was accorded all the privileges of the laboratory without fee. In 1896 he worked in Professor Agassiz's private laboratory at Newport, R. I., and for the past three summers at the United States Fish Commission Laboratory at Wood's Hole, Mass."

Before 1899, he had published his first three articles on hydroids, and by that time he was "working them up" for the Smithsonian Institution and the United States Fish Commission. He was still engaged in work for the Smithsonian Institution at the time of his death in 1927. Of his published writings, fifteen titles deal specifically with hydroids. These total about 985 pages, 142 full-page plates, and 408 text illustrations. In these works he named and described 134 new species, four new genera, and one new family of hydroids. Besides these he renamed four species and redescribed dozens of others.

Most important of his published works are the three monographs on American hydroids done for the Smithsonian Institution and the National Museum. They are beautifully printed on large quarto pages. There are 736 such pages, 102 plates the same size, and 303 text drawings. In-

deed, these three volumes of *American Hydroids* are the rock on which Professor Nutting's reputation is founded.

At the time of his death, a fourth volume dealing with two more families, the Lafoeidae and the Hebellidae, was almost ready for publication. The plates were drawn, the manuscript practically complete but needing to be brought up to date. And this unpublished work, of the greatest importance in its field, seems to have been lost forever! Somehow, in the rearrangement and moving of the zoology department to the old medical laboratory building, the manuscript was mislaid, perhaps burned, and many of the borrowed type specimens were destroyed.

The loss did not disturb the "experimentalists" who had eclipsed the "systematists" at the University. Taxonomy was pushed aside. Yet in his particular field, Professor Nutting was the leading American authority and is likely to remain so.

WILSON L. TAYLOR