

The Great *Albatross* Philippine Expedition and Its Fishes

DAVID G. SMITH and JEFFREY T. WILLIAMS

Genesis of the Expedition

The year 1997 marked the 90th anniversary of the *Albatross* Philippine Expedition, the longest and most extensive of the ship's career. In the history of American maritime exploration, it was second only to the Wilkes Expedition in terms of time spent and area covered. In terms of the material collected and the pages published, the Philippine Expedition is in a class by itself and stands as one of the greatest of all oceanographic expeditions. That it took place at all is due to powerful political forces that converged at the turn of the last century.

As the 19th century drew to a close, the United States and Spain were passing each other going in opposite directions. The Spanish empire was collapsing. What had once covered half the known world was reduced to three is-

lands in the Caribbean and, on the opposite side of the earth, the Philippines. By 1896, rebellions were raging in the two biggest and most important colonies, Cuba and the Philippines. The United States, by contrast, was on the way up. Its defining event of the 19th century, the Civil War, was fading into memory. The industrial revolution was in full swing, the frontier was closing, and the nation's restless energy was beginning to turn outward.

There were two other players in this drama. Neither had a speaking role, but both were waiting just offstage and cast a menacing shadow. One was Germany and the other was Japan. Like the United States, they were ascending and ambitious. The impending collapse of imperial Spain threatened a power vacuum, and the unspoken question of the day was: who would move in when Spain was inevitably pushed aside?

Cuba was of more immediate concern to the United States. American

sympathy was strongly on the side of the Cuban rebels. Each new report of Spanish atrocities raised the pitch of excitement. In January 1898, President William McKinley sent the battleship *Maine* to Havana. This act was a message intended as much for Germany as for Spain. The United States was not about to allow a stronger European power to replace Spain in the Western Hemisphere. Tensions were high, and on 15 February 1898, a catastrophic event set off the spark. At 9:40 p.m. on a tropical winter evening, the *Maine* was blown apart in a colossal explosion. For a few terrible moments, the peaceful harbor was turned into an inferno. Flames and smoke rose high into the air, and the blast broke windows, put out lights, and sent plaster crashing down from the ceilings of buildings all over town. Altogether, 268 American sailors were killed, and any chance for a peaceful solution to the crisis vanished (O'Toole, 1984:126). Events spun out of control, and all the dominoes began to fall.

War was declared by both Spain and the United States. In the Pacific, Commodore George Dewey was ordered to take his fleet to Manila and engage the Spanish. The battle resulted in a complete victory for the United States. In the aftermath, Spain was forced to sell the Philippines to the United States. But for the Americans, the worst was just beginning. The Filipino rebels had no intention of simply replacing one colonial master with another. They continued to resist, and in February 1899, the United States went to war in the Philippines. It has been called the most divisive overseas war in American history until Vietnam. It raged for nearly 3½ years and involved 70,000 American soldiers, 7,000 of whom were killed or

The authors are with the Division of Fishes, MRC-159, National Museum of Natural History, Washington, D.C. 20560.

ABSTRACT—The Philippine Expedition of 1907–10 was the longest and most extensive assignment of the *Albatross*'s 39-year career. It came about because the United States had acquired the Philippines following the Spanish-American War of 1898 and the bloody Philippine Insurrection of 1899–1902. The purpose of the expedition was to survey and assess the aquatic resources of the Philippine Islands. Dr. Hugh M. Smith, then Deputy Commissioner of the U.S. Bureau of Fisheries, was the Director of the Expedition. Other scientific participants were Frederick M. Chamberlain, Lewis Radcliffe, Paul Bartsch, Harry C. Fasset, Clarence Wells, Albert Burrows, Alvin Seale, and Roy Chapman Andrews. The expedition consisted of a series of cruises, each beginning and ending in Manila and exploring a different part of the island group. In addition to the Philippines proper, the ship

also explored parts of the Dutch East Indies and areas around Hong Kong and Taiwan. The expedition returned great quantities of fish and invertebrate specimens as well as hydrographic and fisheries data; most of the material was eventually deposited in the Smithsonian Institution's National Museum of Natural History. The fishes were formally accessioned into the museum in 1922 and fell under the care of Barton A. Bean, Assistant Curator of Fishes, who then recruited Henry W. Fowler to work up the material. Fowler completed his studies of the entire collection, but only part of it was ever published, due in part to the economic constraints caused by the Depression. The material from the Philippine Expedition constituted the largest single accession of fishes ever received by the museum. These specimens are in good condition today and are still being used in scientific research.

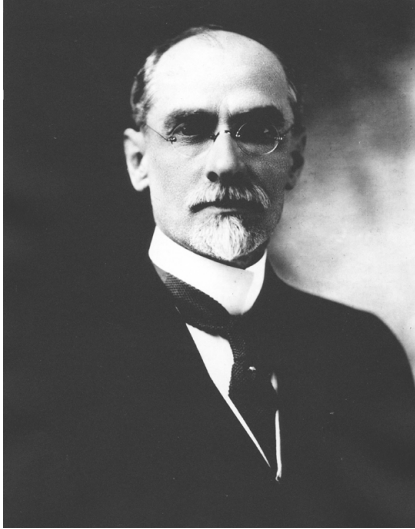


Figure 1.—Hugh McCormick Smith, Director of the *Albatross* Philippine Expedition.

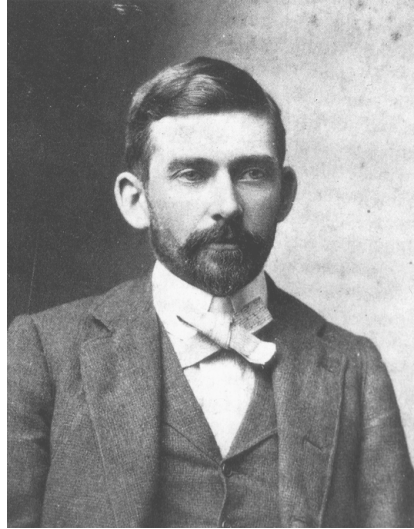


Figure 2.—Frederick Morton Chamberlain, Resident Naturalist of the *Albatross* during the Philippine Expedition.

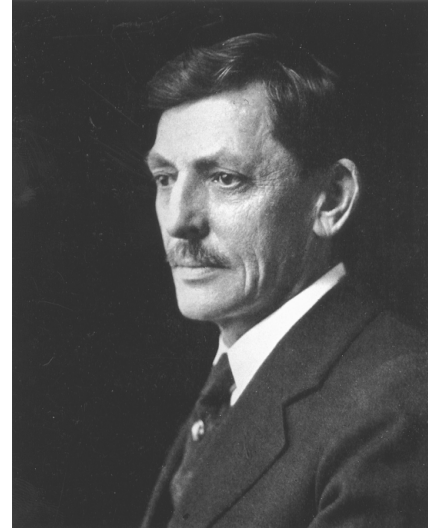


Figure 3.—Paul Bartsch, representative of the Smithsonian Institution on the Philippine Expedition.

wounded. Filipino casualties were even greater. An estimated 16,000–20,000 Filipino guerillas were killed. Civilian casualties, both direct and indirect, may never be known, but estimates range from 200,000 to as high as 500,000 (O'Toole, 1984:395). The war spawned a protest movement at home that would be unmatched until Vietnam. The Philippines did not come cheaply.

The Expedition

American power ultimately prevailed, and the war was declared over on 4 July 1902, although in fact resistance sputtered on for years afterward. By the middle of that decade, the situation had stabilized to a point where the United States could begin consolidating its power. One of the first orders of business was to survey the newly acquired territory and assess its resources, and the *Albatross* was given the job of surveying the aquatic resources of the islands. She had done similar service in the Hawaiian Islands when they were acquired, but the magnitude of the Philippine survey was far beyond any of her previous expeditions. The archipelago extends approximately 1,100 miles north to south, and almost 700 miles east to west. It comprises some 7,100 separate islands, ranging from mountainous minicontinents like Luzon and Mindan-

ao to scraps of rock barely awash at high tide. The ecological diversity is equally great: rocky shores, coral reefs, mangroves, estuaries, deep ocean basins, and freshwater lakes and rivers. There was probably not another vessel in the world better suited for the work, and, in spite of her age (25 years), she was sent out on an expedition that would keep her away from home for 2½ years.

The director of the expedition was Hugh McCormick Smith (Fig. 1), then deputy commissioner of the Bureau of Fisheries. To Smith fell the task of organizing the expedition: planning the itinerary, gathering the equipment, and selecting the civilian crew. His many administrative duties did not allow him to participate in the entire cruise, but he did arrange to be aboard for the first few months. Although the *Albatross* carried a crew of some 70 officers and enlisted men, the scientific crew was surprisingly small. Joining Smith on the initial leg of the expedition were Frederick M. Chamberlain (Fig. 2), the Resident Naturalist of the ship; Lewis Radcliffe of the Bureau of Fisheries, aboard as General Assistant and Naturalist; H. C. Fassett, Fishery Expert; Paul Bartsch (Fig. 3), a malacologist and the official representative of the Smithsonian Institution; and Clarence M. Wells, Assistant and Clerk.

On 16 October 1907, the ship left San Francisco on her way to Manila. It would be 2½ years before she passed under the Golden Gate again. Bartsch recorded the scene in his journal:

“There is scarcely any indication of a breeze this morning, and the swells are scarcely broken by a ripple. The sun is struggling bravely to disperse the fog which obscures the greater front of the shoreline of the bay. Numerous merchant ships and smaller craft crowd the warfs [sic] and the regular ferries between San Francisco, Sausalito, Oakland are plying back and forth. Two large government boats lie at anchor at a little distance from our vessel and our launch seems impatient to be off to shore for her last trip before we lift anchor and depart. Numerous . . . gulls are beating back and forth watching the vessels for discards from the cook's pantry. All is cheerful and if present indications augur well we should have a most successful and enjoyable expedition”.¹

¹ Paul Bartsch papers, Smithsonian Institution Archives, Record Unit 7089, housed in Division of Molluscs, National Museum of Natural History, Washington, D.C.

2 February - 10 March 1908

23 March - 24 April 1908

4 May - 9 June 1908

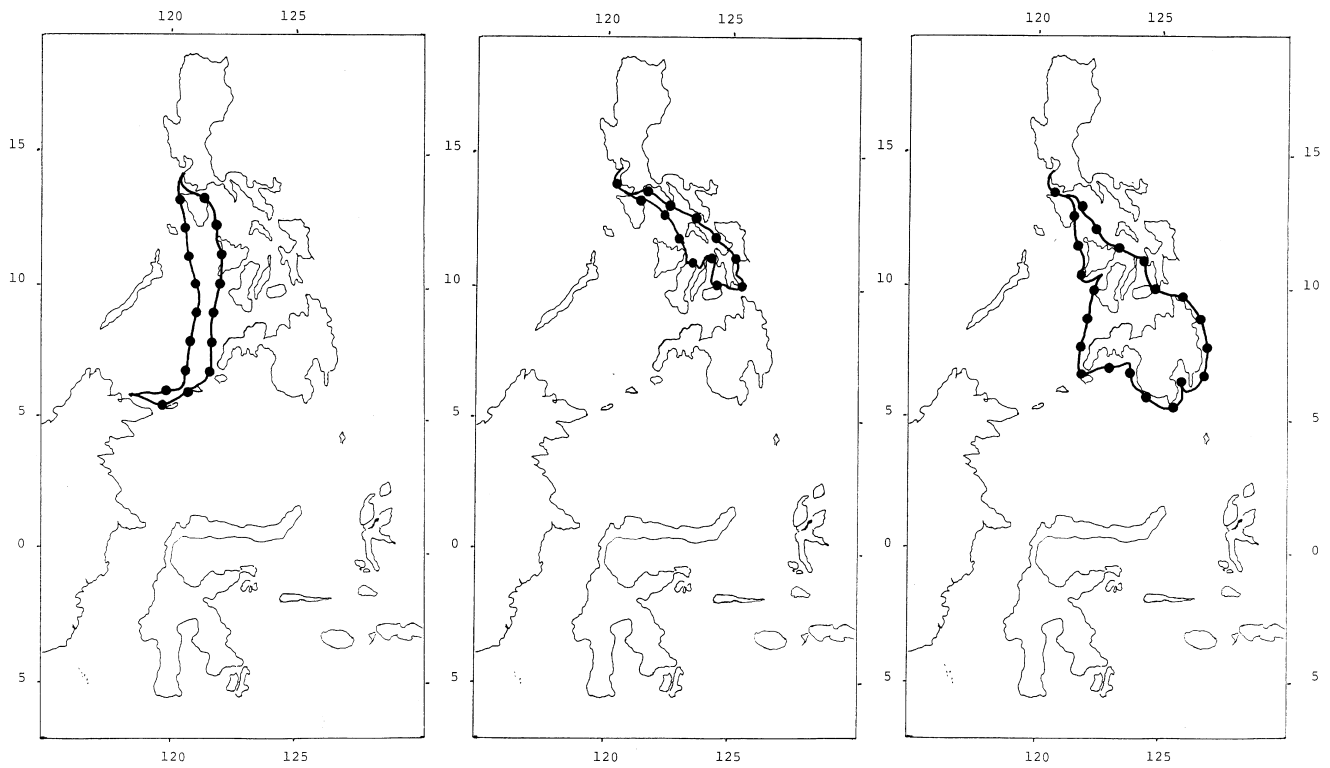


Figure 4.—First three cruises of the Philippine Expedition, from February to June 1908.

There are no entries in the journal for 19 and 20 October. On 21 October, Bartsch resumed his entries and explained the two-day gap: he was seasick! Smith, traveling separately, was already in Japan; he would join the vessel in Manila, along with the Japanese artist, Kumataro Ito.

The ship stopped at Hawaii, Midway, and Guam, making small collections along the way. On 28 November 1907 she steamed into Manila Bay, which would be her home base for the next two years. Smith arrived on 3 December, and the expedition proper could now begin—or at least it could have if all the equipment had been in place. Much of the major equipment had not yet arrived from the United States, and the ship was limited to short excursions in the immediate vicinity of Manila for the first month or so. The gear finally arrived, and on 1 February 1908 the first real cruise began.

The Philippine Expedition consisted of a series of individual cruises, each

beginning and ending in Manila. The first cruise (Fig. 4), from 2 February to 10 March, went south from Manila around the eastern side of Mindoro, west of Panay, and through the Sulu Archipelago to Sandakan, British North Borneo (now Sabah, Malaysia). The second (Fig. 4), from 23 March to 24 April, explored the central islands, including Panay, Negros, Cebu, Leyte, Samar, Masbate, and Marinduque. The third (Fig. 4), from 4 May to 9 June, worked in the same direction but extended the coverage to the southern island of Mindanao.

The *Albatross* used a wide variety of collecting equipment. The most commonly and successfully used bottom trawl was a 12-foot Agassiz beam trawl. For deep work, a reversible net was used, which would fish regardless of which side it landed on. A mud bag was often attached to bring back quantities of bottom sediment along with the organisms it contained. A larger, 25-foot

version was also available for use on smooth bottoms. Other bottom trawls included a 12-foot Tanner beam trawl, a 9-foot Albatross-Blake beam trawl, 6-foot and 9-foot Johnson oyster dredges, a 6-foot McCormick trawl, and a 2-foot Blake trawl, which was used in shallow water from a steam launch or a rowboat. Tows were made as deep as 2,275 fathoms (4,163 meters), although most were much shallower. Several varieties of pelagic nets were used. Ring nets came with mouth openings of 5.5 and 10 feet and with different combinations of lining and codends; some were rigged so that they could be closed at predetermined depths. Small plankton nets with various mesh sizes were used, often being towed concurrently with a bottom trawl. When the ship was at anchor, collections were often made with dip nets and night lights. Except for very shallow stations, depths were determined by a Tanner-Blish sounding device.

Parties were often sent away from the ship for shore collecting. Seines of various sizes were used, the most common being 130 and 150 feet in length. Reef fishes were normally collected with dynamite:

“The method was to locate the desirable fishes in the coral growth by means of a view glass (a glass-bottomed box) used from a boat. A small charge of dynamite with electrical connections was carefully lowered and discharged. Such fishes as floated were at once collected with a dip net, and the place marked by a buoy. As soon as the bottom had cleared it was searched and the dead fish gathered by diving or more usually by means of long-handled spears” (Anonymous, 1910:5).

Other methods included gill nets, hand lines, and traps. In addition to all these methods, many specimens were purchased from local fishermen and in markets.

After each collection, the catch had to be prepared and preserved. This was before the days of formalin, and the fishes were preserved directly in ethyl alcohol. Large specimens had to be individually injected, and the alcohol would be changed several times. One can imagine the amount of fluid that had to be taken on board. The larger specimens were individually tagged with uniquely numbered metal or linen tags. The tag number was entered in a ledger along with information on the date and place collected, or the station number if it was from a trawl station, and a preliminary identification. A total of 24,389 linen tags and 6,231 metal tags were painstakingly attached to specimens, and virtually all of them are still firmly fixed to the specimens today. The brilliant colors of the fishes and invertebrates were as ephemeral then as they are now, but color photography had not been invented. Thus the artist had a vital role to play, and he prepared hundreds of color sketches of freshly caught specimens.² Mud bags accompanying the bottom trawls would be emptied into a hopper with screens of

varying mesh size. This would then be washed with a hose, and as the organisms were revealed, they were removed for preservation. Of course, collection data were taken and recorded from each station. In addition to the date, time of day, position, and depth, information included bottom type, water temperatures and densities, length and direction of tows, and any noteworthy events that happened during the station.

Bartsch (1941) published a brief account of his experiences, taken from his journals, and provided a good impression of what it was like to be a participant in the expedition. When not actually in Manila or some other port, the ship was constantly on the move, rarely spending more than a day or two at any one place. “This,” Bartsch reported, “gave us a wonderful contact with Philippine life in that day as we always came unannounced into the harbor serving for a night’s anchorage.” He added:

“At daylight, after a cup of coffee and a bite in the galley, a boat would be put over-board and an effort made to enter some stream, if such were present, near our anchorage. On this trip collections would be made of fresh-water organisms when fresh water could be reached, as well as land animals, stressing birds, and among the plants, ferns. A vigorous blast of the siren if we failed to return to the ship by 8 a.m. would tell us that the ship was about to put to sea. The rest of the day up to about 5 o’clock would be spent in dredging operations, the number of dredge hauls varying with the depth of the water in which the work was being done, greater time being required for the deeper hauls” (Bartsch, 1941:212).

If time permitted after the ship anchored for the night, a boat might be sent out for more shore collecting. Night lighting was a favorite activity, which

² Images of 15 color paintings by Kumataro Ito can be found on the World Wide Web page of the National Museum of Natural History, at the following internet address: <http://www.nmnh.si.edu/vert/albatross/albatross.html>

Bartsch reported “at times kept us so interested that we would fish the night through, gathering plankton hour by hour.” On one occasion, Bartsch was so impressed by a living hatchetfish caught at the light that he awakened everyone on board, including the captain, so that they could see it. “The fact that I had not swung from the yard-arm next morning or been put in the brig, showed that the fish must have been interesting” (Bartsch, 1941). All the material collected would have to be processed, of course, a job that might continue far into the night.

On 9 June 1908 the *Albatross* returned to Manila to complete the third cruise of the expedition. Wear and tear had taken their toll on the ship, and it was determined that she needed extensive repairs, more than could be made in Manila. After some further trawling in the immediate vicinity of Manila Bay and southern Luzon, operations were suspended, and in August the *Albatross* was sent to Hong Kong for servicing. The material collected up to that point was packed and prepared for shipment back to Washington. Three of the scientists also departed around this time. Hugh Smith was the first to leave, in April, after the ship had returned from its second cruise. He was later followed by Radcliffe and Bartsch, who had stayed on for the third cruise. The loss of Bartsch is particularly unfortunate for us, since it meant the end of his meticulous journal entries.

It is uncertain who replaced these three men and what their term of service was. We can find no manifest listing the crew, and the published summary of the dredging and hydrographic records (Anonymous, 1910) does not list personnel at all. The ship’s log sometimes recorded the arrival or departure of the scientists, but not in any complete or consistent way. Schmitt (1945: 24) mentioned three others: Alvin Seale, Albert L. Barrows, and Roy Chapman Andrews. Seale, a former student of David Starr Jordan at Stanford University, was working at the Philippine Bureau of Science in Manila and joined the ship for the first cruise during February–March 1908. We have no direct evidence that his participation extend-

ed beyond that. The *Albatross* log³ reported that Barrows arrived on 19 October 1908, while the ship was in Hong Kong. We presume that he stayed on for the remainder of the expedition, as the ship's log does not mention his departure. We do know that Andrews participated only in the last cruise, from November 1909 to January 1910. It is reasonable to assume that Chamberlain, the ship's Resident Naturalist, would have served as chief scientist during the latter phase of the expedition, and we further assume that he served for the duration of the expedition.

By October 1908 repairs had been completed, and the *Albatross* left Hong Kong to begin what can be considered the second half of the expedition. From Hong Kong she went to Pratas Reef, an isolated outcrop beyond the continental shelf off the coast of China, then to waters off southern Taiwan, the Batanes and Babuyan Islands, northern Luzon, and back to Manila (Fig. 5) by the end of November, almost exactly a year from the day she had first arrived in the Philippines. During the following year, she undertook seven cruises. The first six completed the survey of the Philippines proper, and the last extended the exploration south through the Dutch East Indies, around the island of Suluwesi and up the east coast of Borneo (Fig. 6, 7).

During this last cruise, the grand finale of the expedition, Roy Chapman Andrews joined the ship. Andrews is best known for his central Asian expeditions during the 1920's, especially the discovery of the first known dinosaur eggs, in the Gobi Desert, but he began his scientific career studying marine mammals. It was his work on whales that brought him to the attention of the Bureau of Fisheries, and with it an invitation to join the Philippine Expedition. In 1909, Andrews was 24 years old, a doctoral candidate at Columbia University working his way up the ranks at the American Museum of Natural History in New York City, literally: his first job at the museum was cleaning floors, and eventually he would become its direc-

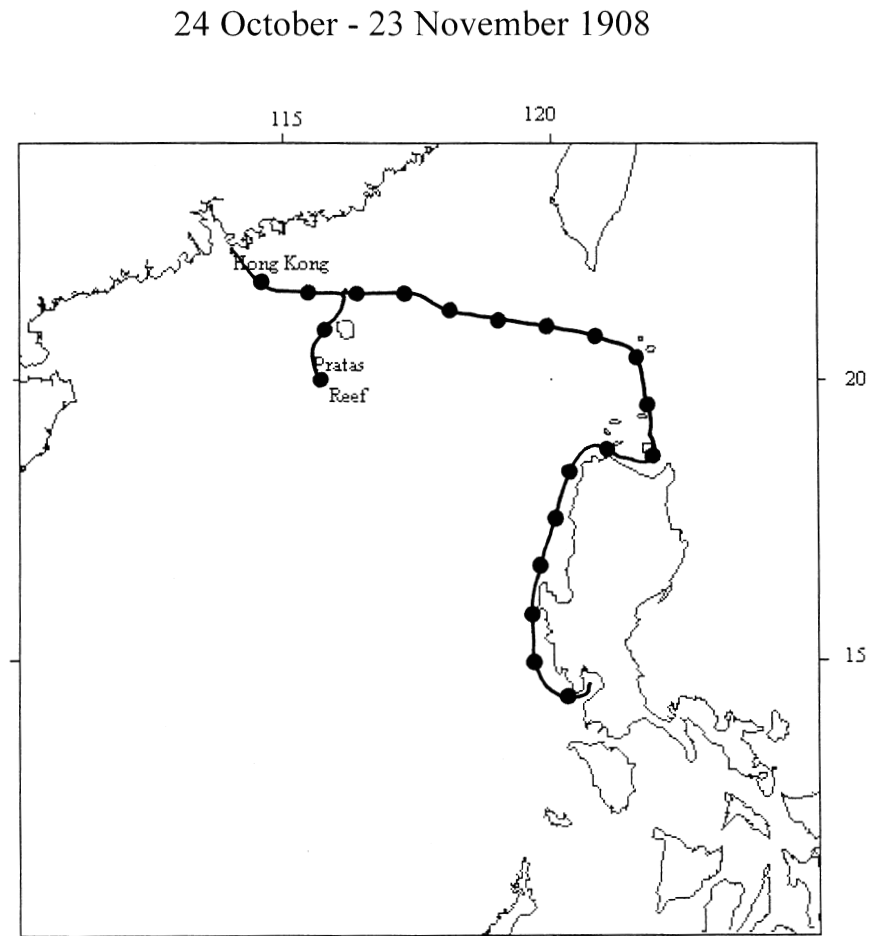


Figure 5.—Cruise from Hong Kong to Manila, October–November 1908.

tor. He was also a prolific writer and included a segment about the *Albatross* cruise in his autobiography "Under a Lucky Star" (Andrews, 1943). This and Bartsch's article in *Copeia* seem to be the only narrative accounts of the expedition that were ever published.

In June 1909, the director of the American Museum, H. C. Bumpus, called Andrews into his office and asked him if he would like to go to Borneo. To Andrews, the question was hardly worth asking. "It was ridiculous," he wrote, "to ask me if I wanted to go anywhere. I wanted to go *everywhere*. I would have started on a day's notice for the North Pole or the South, to the jungle or the desert. It made not the slightest difference to me" (Andrews, 1943:50). To join the *Albatross* was a special honor. As Andrews put it:

"The *Albatross* was the most famous ship of her kind afloat. No other exploring vessel was so well equipped for deep-sea dredging and her personnel had included some of America's most distinguished naturalists. To be numbered in that group was sufficient in itself even without the prospect of voyaging among the enchanted islands of the East Indies" (Andrews, 1943:50).

Needless to say, Andrews accepted. After a cross-country trip to Seattle, Washington he boarded a liner for Japan, and from there worked his way south via Hong Kong to Manila.

When Andrews arrived, the *Albatross* was still at sea, so to fill in the time usefully he had himself dropped off on a

³The ship's logs are filed with U. S. Navy records at the National Archives, Washington, D.C.

11 December 1908 - 14 January 1909

19 February - 9 April 1909

7 - 11 May 1909

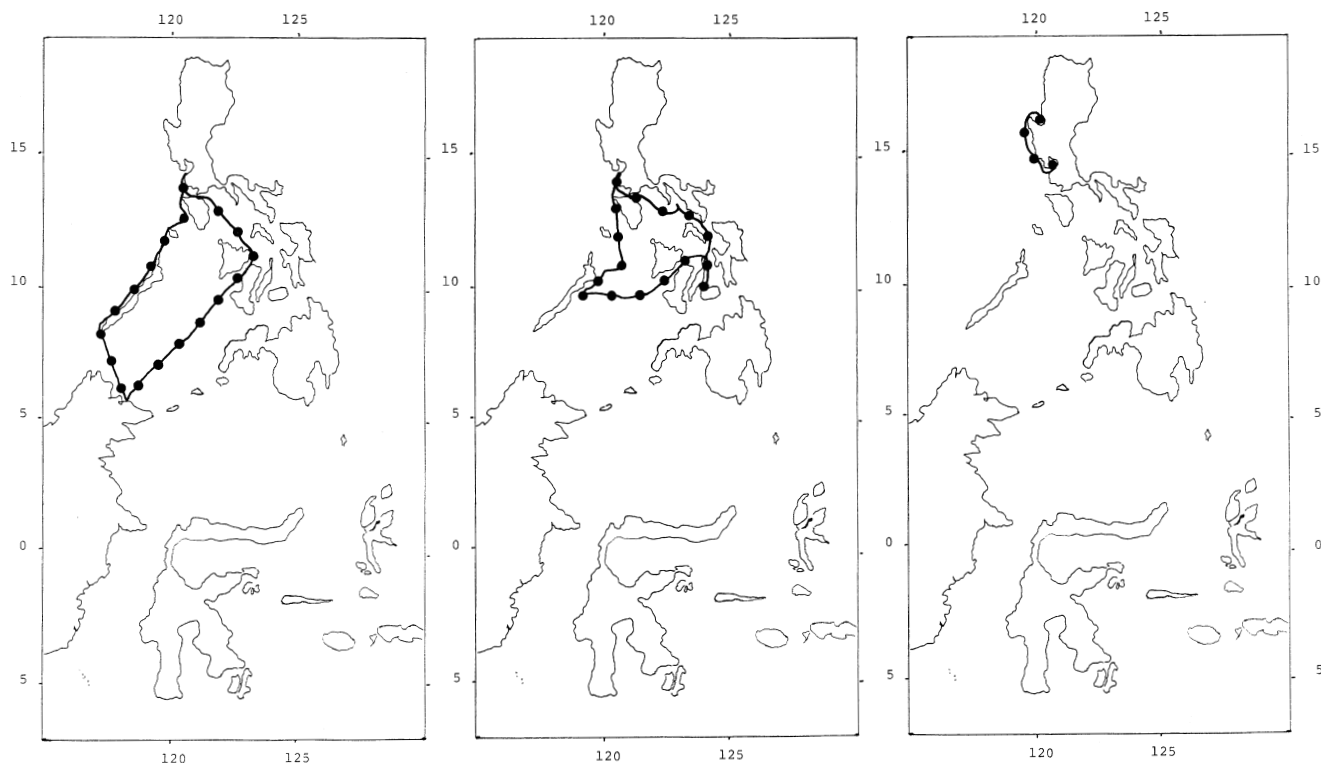


Figure 6.—Cruises from December 1908 to May 1909.

small uninhabited island along with two Filipino assistants for a week of collecting birds and small mammals. The week turned into 2 weeks when the boat that was supposed to pick him up failed to arrive on time. He returned in time to join the *Albatross* in Manila, however, and was greatly impressed by what he found:

“She was a beautiful ship, built like a yacht, with a wide after-deck where the officers slept on camp beds when the night was hot. It seemed almost a dream when I awoke the first morning in the brilliant flush of a tropic dawn to hear the boatswain’s silver whistles piping the men to quarters on half a dozen warships riding at anchor a few fathoms away” (Andrews, 1943:66).

Andrews brought a fresh perspective to the enterprise, and although his enthusiasm was boundless, he could not

fail to notice the darker side of things. The *Albatross* was known in the U.S. Navy as a “bastard” ship; although she was crewed by officers and men of the regular Navy, she was owned and operated by the U.S. Bureau of Fisheries. This led to an unavoidable culture gap. To the scientists, service on the *Albatross* was an honor and a highlight of their careers. To the Navy officers, by contrast, it was not a popular assignment, since it was not viewed as something that would advance their careers. Furthermore, noted Andrews, “It wasn’t a ‘happy ship.’ Most of the scientific staff as well as the officers had been aboard her too long and friction had developed to such an extent that several were not on speaking terms with the others” (Andrews, 1943:67). Unfortunately, he did not mention names, and we are left to guess who was not speaking to whom. Andrews himself got off on the right foot when he joined the ship’s baseball team. The executive of-

ficer, Lt. B. G. Barthalow, had been a pitcher at the Naval Academy. He was so good that nobody on board could handle him behind the plate. They needed a catcher, and Andrews, who had played baseball at Columbia, volunteered. With Andrews filling the missing link, the *Albatross* team played and beat the team from the Admiral’s flagship. From then on, Andrews was on good terms with the officers and men.

Everything was new and exciting to Andrews. His job was land collecting, but he was fascinated as well by the material brought up by the deep-sea trawls. “In those waters, blue as indigo, she dropped her nets sometimes a mile, or even two, straight down to the ocean floor.” The mass of mud would be dumped on deck and washed away, revealing creatures he had never seen before. “There were fish with eyes far out on stalks; others bearing phosphorescent spots along the sides like the glowing portholes of a lighted ship; fish

31 May - 24 June 1909

26 July - 12 October 1909

7 November 1909 - 7 January 1910

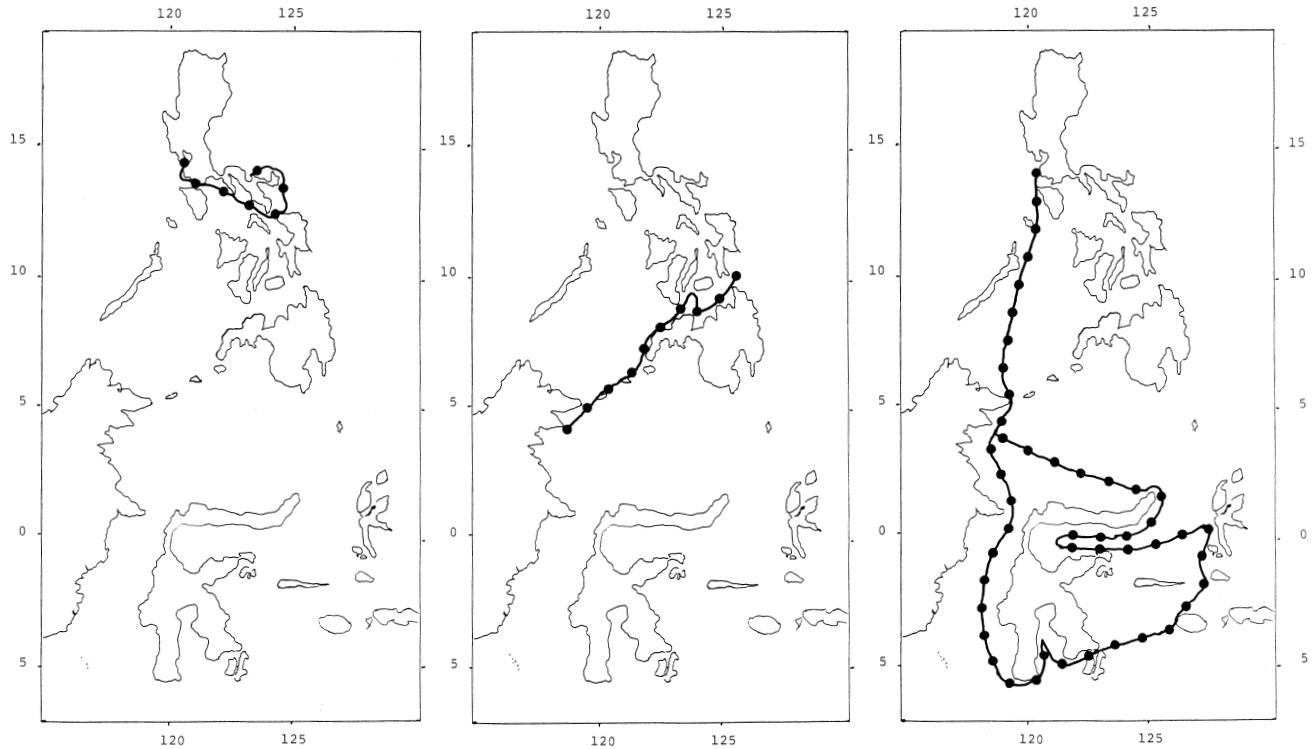


Figure 7.—Cruises from May 1909 to January 1910.

carrying little lanterns in front of their noses to light the way. Sometimes in the sudden ascent to the surface and release from the terrific pressure they were turned almost inside out” (Andrews, 1943:71). On 4 December 1909, the *Albatross* anchored at Ambon, where she would spend the next 4 days. Andrews described how he went ashore and found a deep canyon where he collected birds and small forest animals:

“A flock of hornbills flew overhead making a noise exactly like airplanes. . . . I shot a huge lizard lying on a branch over a deep pool from which I collected several fish of a new genus. And then in the late afternoon...I climbed to the top of a hill where the bay and town lay spread out before me like an aerial photograph” (Andrews, 1943:74)

Andrews was clearly enchanted by the picturesque native villages he vis-

ited and by the friendliness of those he met. The only sour note occurred on the island of Buro. Landing there, accompanied by two sailors, he found only deserted huts. Still-burning fires and half-eaten food indicated that the village had been suddenly and recently abandoned. Following a stream into the jungle they found more settlements, all eerily empty. He felt the presence of “unseen eyes peering from the jungle,” but “never could we catch sight of a human being.” Returning along the trail, Andrews, his suspicions aroused, stopped to examine it closely. He found sharpened bamboo stakes, “probably poisoned, set at an angle along the trail, so they would jab us in the thighs” (Andrews, 1943:75). They abandoned the path and returned to the coast along the stream bed.

On Christmas Day, 1909, he went on a crocodile hunt in Makassar with the governor, the captain, and the ship’s doctor. The doctor was the only one

who got a shot at one, but he only hit it in the tail. The enraged reptile flung itself off the bank onto the outrigger of the doctor’s canoe and charged with its mouth open. The doctor managed to place the muzzle of his rifle between the crocodile’s jaws and pulled the trigger. This time, the animal died.

On 7 January 1910 the *Albatross* returned for the final time to Manila Bay. After a couple of weeks of rest, recreation, and resupply, she sailed away for the last time, heading north to Japan. The plans originally called for further collecting around Taiwan and the Ryukyu Islands, but persistent bad weather and other problems cancelled most of these operations. On 30 January, the ship herself was very nearly cancelled. Leaving the port of Soo Wan, Taiwan, the *Albatross* sailed straight into the teeth of a typhoon. Weather had been bad for some time, but without any of the technology we take for granted today—indeed without even a

radio—there was no way to know what was coming. Andrews (1943:77–78) described the scene in graphic detail:

“The *Albatross* was headed directly into the seas which broke over the bow and swept the deck every time the ship dived into one of the mountainous green waves. A mile away, sheer cliffs rose like a wall above a narrow beach, smoothed in white foam. For some reason, the captain had decided to fight his way against the rising storm instead of riding it out in the open sea. Keelung was only twenty miles away, but often we barely held our own. Foot by foot, the old ship crept forward, sometimes losing more than she gained, but always coming back for another assault upon the crushing waves. There was something distinctly personal about the fight. It was man against nature. Everyone on the ship was a part of the battle. I don’t think I was frightened; no one seemed to be. All our minds and hearts and strength went out to help the *Albatross* when she staggered drunkenly after a smashing blow in the face.”

As daylight ended, the ship finally made it through the entrance to Keelung harbor. The next day, Andrews discovered why the captain had been so determined to get into the harbor. While steaming to the inner anchorage, the starboard engine died. If that had happened the previous day, the ship probably would not have survived.

After a week at Keelung for repairs, the *Albatross* resumed her northerly course, stopping briefly at Okinawa and finally at Nagasaki, where the expedition ended. From there, she headed eastward across the Pacific, steaming under the Golden Gate and into San Francisco Bay on 4 May 1910, 2½ years after departing. The final tally shows that during the expedition, she had made 487 bottom trawls, 272 dynamite stations, 117 tows with pelagic nets, 102 seine hauls, 75 night-light/dip-net stations, 17 gillnet collections, 6 poison stations (using copper sulfate

in tide pools), 3 traps, and 1 handline. In addition, many specimens were purchased in markets or from local fishermen. This does not include all the terrestrial collections of birds, mammals, reptiles, various invertebrates, and plants. In addition, data were collected on fisheries all over the islands. This enormous wealth of material now had to be worked up and reported upon. In this sense, the work of the expedition was just beginning.

The Fish Collections

It is difficult to get an accurate estimate of the number of fishes that were actually collected on the Philippine Expedition. Paul Bartsch (1941:211) mentioned 400,000. This figure has been repeated, but with little effort to substantiate it. Papers that accompanied the main accession into the U.S. National Museum mention approximately 100,000. Unfortunately, about a third of the collection in the Division of Fishes, National Museum of Natural History, has not yet been entered into the computer database. Even more unfortunately, this includes the bulk of the marine perciforms, which constitute much of the Philippine material. Hence, we cannot do a simple computer search. All of the material seems to have been ledger cataloged, however, and this affords us a method of getting at the numbers.

There are 28 ledger books that were entered after 1908, which is the earliest that any of the material from the cruise could have been returned. Each ledger contains about 5,000 catalog numbers. By going through these books page by page, we were able to compile the number of lots (a lot usually consists of one species collected at one time and one place) of fishes from the *Albatross* Philippine Expedition. Our total is 27,404 cataloged lots, including 1,291 type lots. Using an estimate of between three and four specimens per lot, this brings us easily to 100,000, which is probably close to the real number. An unknown factor is how much material was exchanged with other museums, but it is unlikely that this could change the total by much; certainly, it is difficult to conceive how the number could be in-

creased to 400,000. At any rate, 27,404 lots represent between 7 and 8% of the entire cataloged collection in the Division of Fishes today. The 1,291 type lots represent about the same percentage of total type lots (17,323). At the time the last of the Philippine material arrived in Washington, around 1910, the entire cataloged collection in the museum totaled fewer than 70,000 lots. In other words, the fishes from the Philippine Expedition equaled nearly 40 percent of the entire existing collection!

The Bureau of Fisheries desired to keep the collection together to be studied and published as a unit. Space was provided at the Smithsonian Institution for storage and study, and this space seems to have been in regular use during the years immediately following the return of the expedition. The National Museum’s Annual Report for 1913 (Rathbun, 1914:59) notes that “Dr. Hugh M. Smith, U.S. Commissioner of Fisheries, and Mr. Lewis Radcliffe, of the Bureau of Fisheries, made constant use of the collections in connection with their researches on the fishes of the Philippine Islands.” Between 1911 and 1913, Smith and Radcliffe, either separately or in collaboration, published 12 papers in the Proceedings of the United States National Museum describing various groups of fishes from the expedition (Smith and Radcliffe, 1911, 1912; Radcliffe, 1911, 1912a, b, c, 1913; Smith, 1912a, b, c, 1913a, b). Smith published an additional short note in the Proceedings of the Biological Society of Washington (Smith, 1917). These barely scratched the surface of the immense collections, however, and other aspects of their official duties took up more and more of both Smith’s and Radcliffe’s time. Smith was promoted to U.S. Commissioner of Fisheries (head of the Bureau of Fisheries) in 1913, and Radcliffe was given additional responsibilities of his own. Then in 1923, Smith resigned his position and went off to Thailand. Before leaving, he had the collections formally transferred to the Smithsonian. At this point, the Bureau of Fisheries ceased to be the caretaker of the Philippine collection.

Responsibility for the collection now fell to the Assistant Curator of Fishes at

the National Museum, Barton A. Bean (there was no Curator of Fishes during this period). Bean was the younger brother of Tarleton Bean, longtime collaborator with G. Browne Goode and coauthor of their classic "Oceanic Ichthyology" (Goode and Bean, 1896). Although at one time Tarleton Bean had been listed as "Honorary Curator" of fishes at the Smithsonian, he spent the years after the turn of the century working on fish culture in New York.

Barton Bean had first come to the Smithsonian in 1881 and had gradually worked his way up from Aide to Assistant Curator. Although he was never promoted to full Curator, he functioned in that role for much of his career. Barton Bean was by all accounts a man of distinctly limited talents, and his shortcomings were compounded by an abrasive personality. Leonard Schultz, Curator of Fishes from 1938 to 1968, described Bean's tenure as a period of stagnation (Schultz, 1961:121); others used harsher words. Certainly, compared to the 19th century, when the U.S. National Museum was home to such men as Goode, Spencer Baird, Tarleton Bean, and Theodore Gill, the first part of the 20th century seems like the Dark Ages.

Still, Bean appears to have taken his responsibility seriously, and when he found a job he knew he could not do himself, he recruited someone who could. In this case, it was the prolific Henry W. Fowler of the Academy of Natural Sciences of Philadelphia. Indeed, in the entire history of ichthyology, Fowler is probably the only individual who could have been expected to take on a job of this magnitude and actually complete it. In 1918, Bean had persuaded Fowler to work up the fishes of the Wilkes Expedition. Fowler dutifully turned out a manuscript of some 750 pages, which, for one reason or another, was never published.⁴ He ultimately published a condensed summary on his own (Fowler, 1940).

Bean first mentioned the Philippine collection in a letter to Fowler dated 15 February 1921:

"I have inherited the vast Philippine collections for their safety, but cannot say who will work them up. I unofficially told Dr. Smith what you and I can do, but he did not commit himself; it is an enormous collection, and if taken now can be fairly well preserved. Great quantities of duplicates in the lot. . . ."⁵

The wheels must have turned very slowly, for on 6 March 1925, Fowler sent this plaintive question to Bean. "Do you have any hope for me with the Philippine problem next fall or has it entirely fallen through?" It had not fallen through, however, and Fowler was shortly notified that it was agreed to have him work up the collection. In an undated letter, which must have been written in early to mid-March, Fowler wrote the following to an unidentified recipient at the Smithsonian, possibly Bean himself:

"Dear Sir, In accordance with your suggestion I have made a rough survey of the Philippine Fishes. It is evident that the Pomacentridae, Labridae and Callyodontidae form a natural bloc which could readily be studied together. The last family is represented by about 3 barrels as they are large, and these with most of the Labridae could be studied best here in the museum [i.e. Philadelphia]. As an estimate \$700 would seem to be a fair price for the work and I am therefore prepared to offer that bid for the work".⁵

On 24 March Fowler received official confirmation from the Administrative Assistant to the Secretary of the Smithsonian Institution:

"Dear Dr. Fowler: I beg to enclose herewith an official order for the working up of three families of Philippine fishes, which is in accordance with your proposal of March 21, 1925. We are very glad

indeed that you have been able to undertake this work, and it is hoped that you can begin at an early date. Any additional assistance that will be required beyond that rendered by Mr. Bean and the other employes [sic] in the division will be cheerfully furnished you".⁵

The official order, No. 70375, called for "making a systematic study of 3 families of Philippine fishes in the National Museum, comprising about 15,000 specimens; arranging the collection into three distinct sets, for facilitating their study, etc. furnishing complete report on above collection, suitable for publication by the National Museum."⁵ Fowler, incidentally, charged extra for illustrations, and the Smithsonian was supposed to supply him with writing paper. Periodically Fowler would write to Bean saying that he was out of paper and please send him 500 or 1000 sheets, which Bean promptly provided.

On 26 April 1925, six barrels of fishes arrived in Philadelphia, and the work began. The manuscripts were to be published in several volumes of Bulletin 100 of the U.S. National Museum, which would contain the papers relating to all the organisms collected on the *Albatross* Philippine Expedition. The first volume appeared as Volume 7 (Fowler and Bean, 1928), and covered the Pomacentridae, Labridae, and Callyodontidae (= Scaridae). Volume 8 (Fowler and Bean, 1929) treated the Caproidae, Scorpidae, Monodactylidae, Platacidae, Ephippidae, Toxotidae, Scatophagidae, Chaetodontidae, Acanthuridae, and Siganidae. Volume 10 (Fowler and Bean, 1930; volume 9 was not on fishes) covered the Amiidae (= Apogonidae), Chandidae, Duleidae (= Kuhliidae), and Serranidae. Volume 11 (Fowler, 1931) treated Pseudochromidae, Lobotidae, Pempheridae, Priacanthidae, Lutjanidae, Pomadasysidae (= Haemulidae), and Teraponidae. Volume 12 (Fowler, 1933) dealt with Banjosidae, Lethrinidae, Sparidae, Girellidae, Kyphosidae, Oplegnathidae, Gerreidae, Mullidae, Emmelichthyidae, Sciaenidae, Sillaginidae, Arripidae, and Enoplosidae.

⁴ Unpublished manuscript located in the Smithsonian Institution Archives, Record Unit 7180.

⁵ Correspondence between Bean and Fowler is on file in the Smithsonian Institution Archives, Record Unit 213, Division 2.

The first five volumes were published in rapid succession, but after that the process began to slow. By now, the country was in the Depression, and one of its casualties was Barton Bean. On 8 July 1932, Fowler received a letter from an unidentified correspondent at the Smithsonian: "The reason I am writing you is, as you have probably heard, due to the recent enactment of the economy bill which automatically retires all employees over retirement age. This caught Mr. Bean, and several others in the Museum."⁵ Whether through lack of money or the lack of an active participant at the Smithsonian, the project languished. Hugh Smith returned to the museum from Thailand in 1935 but appears to have taken no further hand in the fate of the Philippine fishes. He was plainly preoccupied with writing his monograph on Thai fishes (Smith, 1945). In 1933, George S. Myers was hired as the new Assistant Curator of Fishes at the Smithsonian. He brought great energy to his brief tenure, but he had never had anything to do with the Philippine Expedition and found his time fully occupied in bringing the Division of Fishes up to standard. Three years later, Myers departed for Stanford University, and Leonard P. Schultz became the new Assistant Curator (later promoted to Curator). Like Myers, Schultz felt no special responsibility for the Philippine manuscripts and soon was busy with his own projects. Volume 13 (Fowler, 1941) was not published for another eight years, and it was the last full treatment that ever appeared. Six additional manuscripts have lain unpublished to this day.⁶ Fowler (1934, 1938, 1943) extracted some of the new species and published them separately.

Conclusion

And so the story of the great *Albatross* Philippine Expedition ends on an incomplete note. The ship is long gone, as are the men who sailed on her. Like Douglas McArthur's "Old Soldier," the *Albatross* just faded away into the mists of history. Decommissioned in 1921 and

sold to an organization that operated her as a school ship, she was seized in Germany in 1928 and held for nonpayment of wages (Hedgepeth, 1945:13). After that, all record of her is lost.

Hugh Smith served with the U.S. Bureau of Fisheries for another 13 years after returning from the Philippines, then in 1923 resigned and went to Thailand to study the fishes and fisheries there. This ultimately resulted in his posthumous monograph, "The Freshwater Fishes of Siam or Thailand" (Smith, 1945).

Paul Bartsch returned to a long and distinguished career at the Smithsonian. He participated in many more expeditions, principally in Cuba and the Caribbean, keeping voluminous notes on each.

Roy Chapman Andrews left the *Albatross* in Nagasaki, Japan and stayed on to study whales and see as much of the world as he could before returning to New York. He fell in love with Asia and spent much of his career exploring the unknown interior of China and Mongolia. He wrote about his travels and shared with his readers the excitement of exploring unknown territories and making new discoveries. His books inspired many a young boy to learn more of the fascinating world he described and try to follow in his footsteps—among them the senior author of this paper.

Barton Bean lived on in retirement for another 15 years, ignored and virtually forgotten by the ichthyological community in which he had worked for so many years; he finally died at the age of 87 in a fall from a bridge.⁷ Henry Fowler lived to exactly the same age, continuing his productive career without letup, working and publishing almost up to his death in 1965.

What remains as a permanent legacy of the *Albatross* Philippine Expedition are the magnificent collections. Even today the fishes and other organisms are a living resource, providing grist for scientific papers still being published.⁸

⁷ Washington Sunday Star, 20 July 1947.

⁸ Photographs of some of the specimens from the Philippine Expedition, as they appear today, can be found on the World Wide Web site of the National Museum of Natural History, at the following internet address: <http://www.nmnh.si.edu/vert/albatross/albatross.html>

Perhaps never again will a single oceanic expedition return so much valuable material.

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⁶ Fowler's unpublished manuscripts are held in the Smithsonian Institution Archives, Record Unit 7180.

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