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# ZOOLOGICA

## SCIENTIFIC CONTRIBUTIONS OF THE NEW YORK ZOOLOGICAL SOCIETY

DEPARTMENT OF TROPICAL RESEARCH  
WILLIAMS GALAPAGOS EXPEDITION

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VOLUME V, NUMBER 1

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### WILLIAMS GALAPAGOS EXPEDITION

BY WILLIAM BEEBE

*Director, Department of Tropical Research and Honorary Curator of Birds  
New York Zoological Society*

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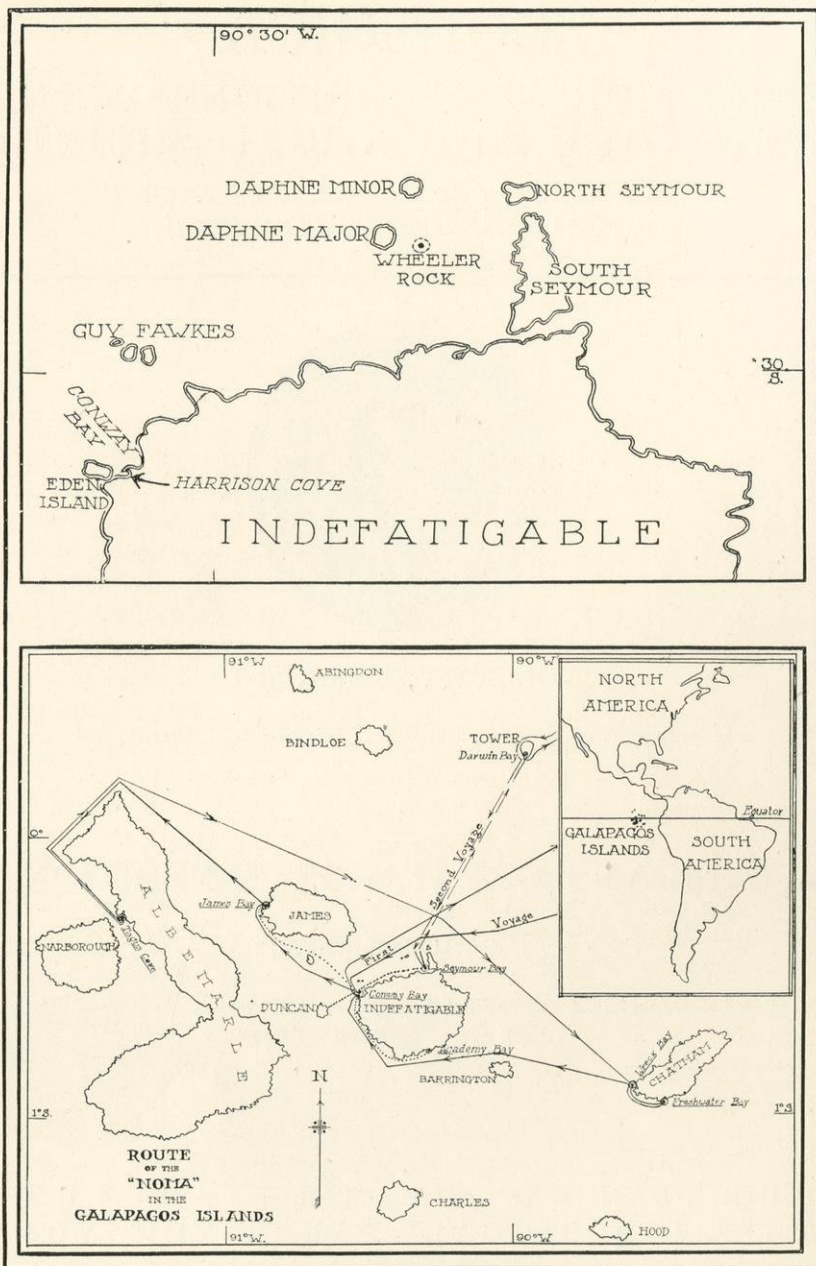


Plate A. SKETCH MAP OF GALAPAGOS ISLANDS  
Route of the *Noma*, and details and location of the Archipelago.

# WILLIAMS GALAPAGOS EXPEDITION

BY WILLIAM BEEBE

*Director, Department of Tropical Research, and Honorary Curator of Birds  
New York Zoological Society*

Photographs by the Author and John Tee-Van

## I. RESUME

This expedition, to one of the least visited corners of the earth, was conceived and achieved in record time, every hope was consummated, every expectation realized. First and last, the credit belongs to Harrison Williams, Esq., who initiated and financed the whole trip, and then to the twelve members of my party, who made possible all that we accomplished during the limited time at our disposal.

We left New York on the steam yacht *Noma* on March 1, and returned on May 16. This was just in time to rush the collections of live mammals, birds and reptiles to the Zoological Park, and to frame and hang for exhibition the one hundred and thirty oil paintings and water colors made during the trip,—in readiness for the Annual Garden Party of the Zoological Society on May 17.

During the trip we steamed a total distance of nine thousand miles, and crossed the equator eight times. Twenty-one memorable days were spent on the Galapagos Islands, and we touched besides at Charleston, Key West, Havana, Colon and Panama.

To the living collections of the Zoological Park were added the following, most of which were new to the collections, some being exhibited for the first time anywhere in the world:

*Mammals*.—5 monkeys, 3 opossums.

*Birds*.—3 penguins, 2 flightless cormorants, 3 gulls, 3 doves,  
1 hawk, 10 parakeets, 2 jays, 3 mockingbirds.

*Reptiles*.—42 lizards.

For the American Museum there was collected material for two lizard groups, including vegetation, rocks, shells, sand and many photographs, together with a giant tortoise, eighteen lizards and a family of sea-lions.

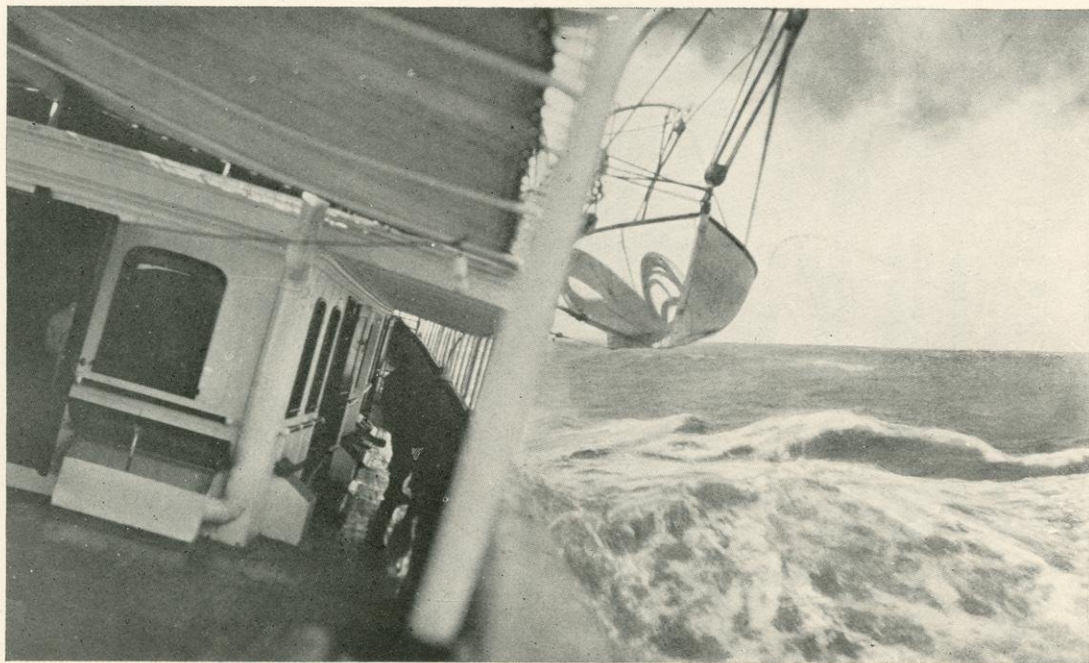


FIG 1. A ROUGH DAY AT SEA

All work ceased when we rolled in the great troughs. It was a glorious sight to sit in the stern and watch the emerald combers seething over the rail.

Photograph by William Beebe.



FIG. 2. FISHING FROM A BOWSPRIT

Strange fish, worms, jellies and even insects can be caught from this swinging seat, at full speed and in rough weather.

For study by the department of Tropical Research of the Zoological Society:

90 water color plates by Miss Cooper.

40 oil paintings by Harry Hoffman.

46 pen and ink drawings by Mr. Broking.

400 photographs and 11,000 feet of moving picture film by Mr. Tee-Van.

160 bird skins.

Many nests and eggs.

150 reptiles.

200 fish.

3,000 insects.

40 jars of specimens.

60 vials and jars of plankton.

200 microscopic slides of plankton.

100 specimens of plants.

300 pages of narrative, records, notes and catalogues by Miss Rose.



FIG. 3. DARWIN BAY, TOWER ISLAND

A sheltered, mile-wide bay which seems never to have been described or mapped. Every niche of cliff, every bush and shrub holds nests of gulls, terns, boobies, doves or frigate-birds.

This material is remarkable both for its rarity, excellent preservation and for the fact that it was almost all collected within a period of three weeks. The various groups of organisms will be studied by members of the expedition or sent to specialists, and the results published in the following numbers of *Zoologica*, while the more general matter has appeared in a volume by William Beebe, called "Galapagos; World's End," published under the auspices of the Zoological Society, by George P. Putnam's Sons.

## II. BRIEF NARRATIVE

The *Noma*, with all the members of the Williams Galapagos Expedition, steamed from her berth in Brooklyn at noon on March 1, but swinging the compass and engine adjustment kept us in the lower bay for thirty hours. This gave opportunity for unpacking and storing our vast quantity of paraphernalia, and in fitting up a laboratory, a fortunate interlude as it proved, for the passage down the coast was rough and stormy. Scientific work on a yacht under way was a new experience to me, and we ran the gamut from comfort to absolute cessation of work. Until we learned to fasten everything down, a sudden terrific heave would sweep the laboratory tables quite clean, and on unusually rough days we would continue our work seated on the floor, as chairs were useless. This was the exception, however, and in the usual calm weather, the twenty-five hundred horse-power, twin-screw engines gave forth not a tremor or vibration so that even high power microscopic research could be carried on.

By the time we were off the Florida coast the sea permitted me to occupy my usual perch in a boatswain's seat, over the bow, close to the water, where, with a long-handled net, I secured sufficient fish and sea-weed fauna for days of study. We put into Key West to pick up Dr. James Mitchell and to obtain additional supplies of coal and water, and then crossed to Havana for a supply of 95 per cent. alcohol for the preservation of our specimens. While in port we dredged sand bars, and caught sharks and various tropical fish from the rail.

From the Windward Passage between Cuba and Haiti, to Colon, we were in the trough of a heavy sea, and rolled steadily, occasionally as much as 34 degrees. At Colon we were overhauled and coaled, giving time for collecting trips to the jungle and coast beyond Fort Sherman, for horseback rides to the Chagres River,



FIG. 4. LAND LIZARDS OF THE GALAPAGOS

On the sandy upland veldt of Seymour Island we caught these great iguanas, red and green, yellow and ivory white,—as eager to bite as their fellows of the surf were innocuous.

tarpon fishing at the Gatun spillway, and trips back and forth across the Isthmus. In Colon we met with the greatest disappointment of the voyage as Mr. Williams was compelled, for business reasons, to return to New York. It was with the deepest regret that we saw him go, for his enthusiasm in the expedition had been great, and now the real excitement of exploration was just ahead.

For a supply of fresh water beyond that which the *Noma* carried, we depended upon the islands, as a supply was marked on the chart in several places, and the pilot book mentioned even a pipeline on the dock at Chatham. We passed through the Canal without special incident, arriving at the Panama end in time to see the final searchlight display of the combined Atlantic and Pacific fleets. On the night of March 24 we steamed into the Pacific, which was as smooth as a lake during the four days it took us to reach the Archipelago. Indeed during our time there and on our voyages to and from Panama this ocean lived up to its name, and we experienced only perfect weather and summer calm, a welcome change from our Atlantic memories.



FIG. 5. A FEARLESS SEA-LION

Like the birds in the background, this big male seal had probably never seen a human being, and could conceive no harm as coming from such a strange creature.

At dawn on March 28 we sighted the islands, and steaming slowly among their misty shapes, recognized Indefatigable, James, Seymour, Daphne, Jervis and Duncan, and dropped anchor about 10:00 A. M. in Conway Bay on the north-west side of Indefatigable. This anchorage, chosen more or less at hazard because of our incomplete information concerning the islands, proved to be a fortunate choice. Sheltered on the west by Eden, an isolated volcanic peak of an island, a sandy beach at the back of a natural lava breakwater provided an easy and safe landing for our small boats. Here we pitched two tents for temporary laboratories, though most of our work in arranging and studying specimens continued to be done on board ship. During our entire stay at the islands we lived on the *Noma*, thus eliminating the extra work of transporting supplies; also we had the benefit of the evening breezes and escaped the mosquitos which on some of the islands appeared at dusk in innumerable swarms.



FIG. 6. THE LAVA SLOPES OF EDEN

Home of the great sea lizards. At low tide they clamber down over the barren cliffs to feed on tufts of seaweed. Indefatigable in the distance.

The shore life at this landing, which we named Harrison Cove, was plentiful and most interesting. The instantaneously arresting feature was the astounding tameness of all the creatures. Having never seen human beings they had little fear, the birds and sea-lions being particularly indifferent to us. Perhaps indifference is hardly the word, since in many cases they showed great curiosity about us. Mockingbirds would follow us along, hopping from branch to branch within arm's reach; little flycatchers would perch a foot from our faces, in close inspection of our mystifying presences. It was found almost impossible to alarm some of the big pelicans or gulls and even among the crabs some individuals would stand as quietly as the lava while we touched or pushed them about. During our first hour ashore a wild duck flew down and alighted at our very feet and a short-eared owl perched on my helmet as I walked through the low scrubby undergrowth.

Our first day at Harrison Cove was rich in interest and no one of our succeeding days fell below its high standard. The fact that a large percentage of the fauna and flora of the Galapagos is peculiar to this Archipelago, and the presence of such rare forms as *Amblyrhynchus*, the only marine lizard in the world, and *Conolophus*, an extraordinary land lizard whose numbers are rapidly decreasing, makes the study of these islands of particular interest.

At Conway Bay we had a wide field from which to choose. Eden, in spite of its small size, yielded a great quantity and variety of specimens. It was here in one small cove that I obtained our collection of living *Amblyrhynchus*, and a host of interesting facts concerning their life history. Insects on the Galapagos are very limited as to numbers as well as species, but some unusual ones were collected here, while tide-pools among the lava shore were inexhaustible mines of beauty and value. Guy Fawkes Rocks to the northeast of our anchorage were favorite haunts of sea-lions and many memorable hours were spent under the over-hanging cliffs in photographing these animals and in delightful tests of their tameness. Later, specimens were secured here.

We had not found fresh water at Conway Bay and our supply was rapidly diminishing. Even now we were on rations, shaving in Whiterock or Poland Water and bathing only in salt water. According to the chart, there was fresh water at James Bay on James Island, not far to the north of Indefatigable, and four of the party went off in one of the larger motor-boats to investigate. They



FIG. 7 TAGUS COVE, ALBEMARLE

The yacht *Noma* in the haunts of the Flightless Cormorant. The bird sits on its nest without fear, seeing for the first time human beings. This individual is at present living in the New York Zoological Park.

returned late the same night, reporting that they had found no water but giving such glowing accounts of the island that we determined to stop there if only for a short time on our way to some other spot in search of water.

At noon on April 4 we anchored at James Island where eighty-eight years ago Charles Darwin had spent a week. In James Bay we hurried ashore in small boats. The landing was a difficult one in spite of a long sandy beach, for the surf was very heavy and a bad undertow combined with swirling cross currents made it a risky spot. This island differed from Indefatigable in that trees of considerable size grew close to the shore, which made it possible with slight effort to reach the forested slopes of the crater. On Indefatigable we had not been able, in the limited time at our disposal, to penetrate the miles of country, covered with jagged broken lava, cactus and thorny scrub, which separated the semi-arid coast from the forested high country of the interior. On James the going was also made comparatively easy by the well-defined donkey trails. Each of the larger islands that we visited seemed to have some sort of animal, once domestic, which had bred and multiplied and reverted to a wild state. Indefatigable, for instance, has its wild dogs; South Seymour its flocks of wild goats; Albemarle its cattle, and James, judging from the number and well-worn condition of the trails, is the home of large numbers of wild donkeys. Here we also found the skeletons and tracks of wild pig and one of our number shot a large sow. Whether these animals were left here by buccaneers or whalers as a future food supply, or whether they are the only survivors of ship-wrecks of long ago, no one knows.

It is an interesting fact that these imported forms, all of which we are accustomed to consider as thoroughly tame, should here, after a few generations of non-domestication, be the only really wild animals. They have reverted to a completely feral state, that is to say, of fear of man, while such creatures as birds or reptiles from which we expect no confidence, are, in these islands, tamer than barnyard fowls. On Indefatigable one glimpse of wild dogs was vouchsafed to me, wolfish looking animals who, on sight, snarled and slunk away.

During our few hours at James Bay we saw only two donkeys, one of which was pure white, though the hills often reverberated to their hearty braying, and the one wild pig was secured only after a stalking as cautious as though a deer had been the object of the

chase. The contrast is great between this sort of pursuit and our experiences in lifting up frigate birds and cormorants from their nests, and patting sea-lions on the head.

We found no fresh water on James, only brackish pools close to the sea, where ducks and herons were plentiful. Here, too, we saw flamingos passing overhead, but there were few seabirds, as the closely wooded shores and absence of islets offered no attraction to them. The water question was sufficiently pressing to prevent us from spending more than one day here, and it was decided to steam for Tagus Cove on Albemarle, which was marked on the chart as a good anchorage, with two places on the shore where fresh water could be obtained.

In returning to the *Noma* that evening, three of our party had a narrow escape from what might have been serious injury. In launching the small motor boat, it was overturned by a big breaker and they had a bad few minutes in the surf. Luckily they escaped with nothing worse than a few cuts and bruises. The boat was smashed and rifles and personal belongings were lost. Later in the evening when their predicament was discovered they were brought off in a lifeboat.

Early next morning we left for Tagus Cove, steaming around the north end of Albemarle and passing between it and Narborough. On these two islands we saw what seemed like the most recent evidences of volcanic activity, great black swathes of lava slashing across the green of trees and undergrowth. It became noticeably colder in passing to the west of Albemarle on the open ocean side, so much so that sweaters were comfortable for an hour or two. At first we were doubtful of the identity of Tagus Cove, it seemed so small and unlike in shape to that anchorage shown on the chart. But once inside, a more perfect shelter would be hard to conceive. Long and narrow, between straight towering cliffs, with deep water up to within a few feet of land, it was a satisfactory and a wonderfully picturesque anchorage. The landing facilities left much to be desired, but that was of small moment compared to our disappointment when the chart was once more proved to be over-optimistic on the subject of water. Not a drop of the precious fluid was to be found, although this was the height of the rainy season, and our only hope now was to go to Chatham, in search of that pipeline of which the pilot book spoke so glibly.

We calculated that with our shortage of supplies it would not be advisable to stay long at Tagus Cove, but our few hours there yielded a rich harvest. Some of the party explored the slopes adjacent to the Cove, finding quantities of nests and eggs of the black finches (*Geospiza*), and other indigenous birds, besides insects, lizards and botanical specimens. Others climbed the steep cliffs around the Cove, carrying with them, by enormous exertion, motion-picture and other cameras, plates and equipment up the almost perpendicular slopes. In this Cove we secured live penguins and flightless cormorants, as well as the nests and eggs of the latter. Boobies, pelicans and terns were abundant and nesting.

We left Tagus and steamed toward Chatham, crossing the equator four times in twenty-six hours. Early the next morning we anchored at Wreck Bay which boasts the only lighthouse in the Archipelago, visible for four miles, which is not bad for a gasoline light on a long pole. Nothing else is to be seen of human occupancy in this Bay except a square white shack where the lighthouse keeper lives, and a very shaky pier. The pipeline of the pilot book did not exist. The lighthouse keeper, an Ecuadorian who said he was also Captain of the Port, came aboard with an old Englishman, and we were told that the only way to obtain fresh water was to have it brought in casks on the back of oxen from a distance of five miles up in the mountains. As we needed forty tons of water, this was an impossible way of obtaining it, and the prospect was very gloomy. The old Englishman who told us he was "Johnson of London" and who had lived so long in Wreck Bay that he had almost forgotten his native tongue, volunteered to pilot us around the island to Fresh Water Bay where he was sure we could get a sufficient supply. So, having stopped hardly long enough to anchor, we got under way again, and cruised around to the Bay with the promising name.

Here we found two cascades of fresh water, one of good size, which plunged over high cliffs and poured into the sea. Against the foot of the cliffs surged a tremendous surf, which kept all small boats a hundred feet off shore. The Bay was such only by courtesy, for there was almost no incurve to the forbidding coast line and it was on the weather side of the island. There was no bottom a quarter mile off shore, and the Captain dared approach no closer. So we watched the tantalizing spectacle of quantities of fresh water running to waste in a spot which for us was utterly inaccessible.

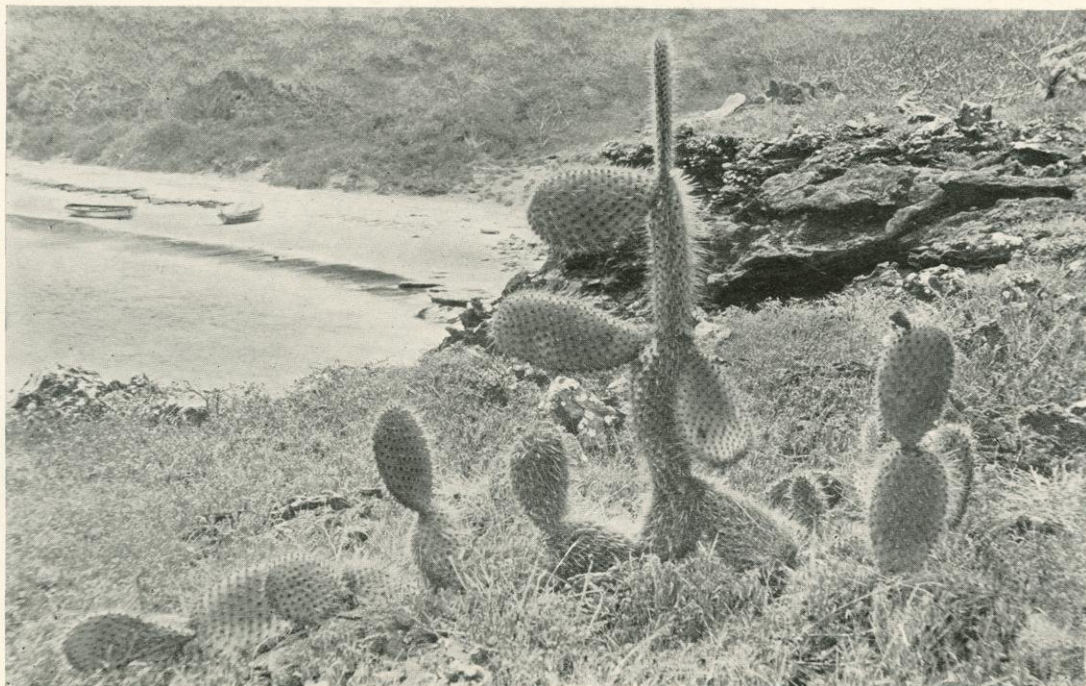


FIG. 8. A SANDY COVE IN THE GALAPAGOS

The site of a submerged crater. Out of the crevices of the tortured, dead cinders spring grotesque cacti, on which perch tamest of mockingbirds, singing their hearts out.

However, with three others I made an attempt upon a bit of low pebbly beach with a mass of green back of it. I leaped overboard and let the roller wash me up on the piled pebbles, and there, immediately behind, was a broad stream of pure water rushing down into the sea. We rigged up the long rubber deck hose, one end being in a lifeboat a hundred feet from shore, and the other on top of the pebbly beach. This end I held as high as possible in the air, while the rest poured buckets of water into a funnel. In an hour we had four tons of sweet water in the life-boat, and we towed this off to the yacht. There we found that, unable to anchor, we were consuming coal at a rate which would still further curtail our stay. So we had to give up our hard-earned plan of filling the tanks on the next morning.

After landing "Johnson of London" who had given us so little in return for the enormous quantities of food and cocktails which he had consumed, we steamed back to Conway Bay for a last clean-up of the specimens which we needed. Then on to Panama which we reached on the last ton of coal in the bunkers and the last gallon of fresh water.

At Panama we added to our party Prof. William Morton Wheeler of the Bussey Institution, Harvard, who had been with me at Kartabo in British Guiana, and whose philosophical grasp of evolution and life on the earth makes his presence on any expedition a tremendous asset and pleasure. We coaled again, covering the lower decks with great sacks and besides laid in quantities of bottled water.

When we again sighted the Galapagos it was decided to try another anchorage near Indefatigable, farther to the east, in the shelter formed by the two Seymour Islands. During the first day ashore two attempts were made to penetrate to the crater, but both were defeated by the terrific going. We realized that two or three camps must be established to accomplish this feat, and in the limited time which we had, it seemed infinitely wiser to concentrate on the vast mass of material ready to hand along the shore, rather than give up precious days to the mere performing of a stunt.

Here we again found the small islands in the vicinity to be far more interesting than the large one. South Seymour, to the east, was geographically quite unlike any other island, as back from the shore it consisted of open veldt-like country. This was covered with grass and dotted sparsely with cactus and fair-sized trees, where moving flocks of spiral-horned goats took the place of ante-



FIG. 9. SEYMOUR ISLAND.

Where hawks are so tame that one may walk around them and choose a suitable background.

lope in corresponding places in Africa. This, too, was the only place where we found *Conolophus*, the giant land lizards.

Daphne Major, five miles to the north, was visited twice. It is a perfect island crater, and after landing on its most inhospitable cliffs, we climbed its precipitous sides covered with loose, easily-sliding shale and looked down into the deep crater. The floor covered with white sand was dotted everywhere with hundreds of nesting boobies, all of the blue-footed species. We went down and walked about among them, collecting a chick, or an egg or an adult here and there, and taking photographs at close range without causing more disturbance among them than an occasional gurgling protest. Except for one dead pelican we saw no other kind of sea-bird on the floor of the crater, though on the outside slopes were numbers of nesting tropic-birds, terns, *Creagrus* and Galapagos gulls.

In all our wanderings we had seen no tortoise nor traces of one anywhere, although not so many years ago they were probably the most usual sight on the islands. The whaling ships used to carry them away by the hundred to provide a welcome change of diet on long voyages. Oil hunters from the mainland have made great inroads on their numbers and wild dogs and pigs have probably accounted for numberless eggs and newly-hatched young. Where the tortoises are not actually extinct, the survivors have evidently betaken themselves to the craters of the interior. In 1907 it was reported that these reptiles were most numerous on Duncan, so five members of the expedition went to Duncan in a large motor boat, thirty-six miles away, hoping to verify this report. They beat over the land near the shore and much of the interior of the lesser crater and found only one moderately large tortoise, which, after the most exhausting labor, they managed to carry back to the boat. It seems certain that another unique form of life is well on the road to extinction, thanks to the efforts of man.

Our last anchorage in the Archipelago was at Tower Island, in Darwin Bay, a hitherto unmapped bay which we discovered and named. The bay is over a mile square, with deep water up to the very foot of the high cliffs with which it is surrounded. Our one landing beach was extraordinarily beautiful and interesting, fronting a nesting place for hundreds of frigate-birds, boobies, gulls, doves and other native birds, as tame as we had come to expect all the creatures of these islands to be. Here were also deep pools and



FIG. 10. THE ISLAND OF INDEFATIGABLE

Twenty-five miles across, reaching an altitude of 2300 feet, with dozens of craters, the center of this island is wholly unexplored. Where buccaneers once buried their treasures, wild dogs now roam—waifs from many wrecks.

wave-made wells in the rocky lava coast where inconceivably brilliant parrot and angel-fish swam in crystal clear water, and tiny sheltered sandy coves where families of sea-lions basked and played. Here we spent four unforgettable days, working from dawn to dusk to learn all we could of the life of this no-man's-land.

This is one of the series of scientific papers of the Harrison Williams Galapagos Expedition, under the directorship of William Beebe, sent out by the Department of Tropical Research of the New York Zoological Society. The general account and narrative of the expedition, together with the natural history and photographs of the fauna, are embodied in a volume by William Beebe, published by G. P. Putnam's Sons, under the auspices of the Zoological Society. Its title is "Galapagos; World's End."