

CRUSOES OF CANTON ISLAND

Life on a Tiny Pacific Atoll That Has Flashed Into World Importance

BY IRVINE C. GARDNER

EVERY MAN has a secret yearning to be a Robinson Crusoe. To us opportunity to satisfy this desire came when we landed on Canton Island to observe an eclipse.*

Our adventure began as soon as the National Geographic Society-U. S. Navy Eclipse Expedition of 1937 left Honolulu. Our ship, the Navy seaplane tender *Avocet*, was traveling southward, and the heavens began the change which was to continue until we reached our destination.

BLAZING SUN BUT NO SHADOWS

At noon of the second day out, the sun was neither north nor south of us, but exactly in the zenith. Several of us left our noon meal to check this unusual spectacle. The dictionary has a name for us, ascians; that is, beings who cast no shadows.

During the remainder of our voyage the sun each day was farther and farther north of us.

The pole star sank toward the horizon until it finally remained quite out of sight, and Alpha Centauri, one of our nearest fixed stars (distant 4.3 light years, a little more than 25 million million miles), first appeared above the southern horizon and finally attained considerable height. The Southern Crosses, both the true and the false, replaced our familiar but now invisible constellations of the northern sky.

On the morning of the seventh day, after sailing a course 27° west of south, we reached Enderbury, a coral island approximately three miles long and one mile wide (page 750). This was the spot originally selected for our eclipse observations, but unfortunately it afforded no anchorage.

Balked by these unfavorable conditions, we were obliged to proceed 43 miles farther to Canton, another island of the same group (page 751). We anchored at Canton in the early afternoon and a landing party went ashore.

* See "Nature's Most Dramatic Spectacle," by S. A. Mitchell, and "Eclipse Adventures on a Desert Isle," by J. F. Hellweg, in THE NATIONAL GEOGRAPHIC MAGAZINE for September, 1937, and Color Plates IV and V, accompanying this article.

Those of us who remained on the *Avocet* enjoyed the most remarkable angling of our lives. The water was literally alive with fish. Schools of them could be detected by modifications of the ocean surface a half mile away, and when they approached the ship we saw that they were all of a size and packed together like sardines.

Possibly the fact that the ones in the center are safest from enemies accounts for this crowding. In the aquarian world the law of survival is ruthless, creatures of each size serving as food for the next larger.

Projecting above the surface of the water were the dorsal fins of many sharks. We had been told that the sharks were not particularly dangerous to a living person and that if one came too near us while we were in swimming, our proper procedure was to kick it in the nose. Authority for this can be found in print.

However, after about 30 minutes of sport that first afternoon, Dr. Paul A. McNally pulled out the head of a large fish which he had just hooked. A shark had bitten off 20 or more inches of the catch while it was being landed. Enthusiasm for kicking sharks in the nose was greatly dampened. The nose and mouth are too close together. When in swimming, everyone immediately compromised with any shark that appeared by giving the shark the water and taking the land.

FISH THAT STRAIGHTEN HEAVY HOOKS

Even more dangerous than the shark was the sting ray, also called the stingaree. We saw this large, flat creature swimming horizontally, with its body, perhaps six feet long and four feet wide, just below the surface, suggesting a floating blanket. Several were hooked at Canton but none was pulled ashore. They swam very rapidly and could dispose their bodies to offer vigorous resistance when caught on a hook. Heavy hooks, specially forged on the ship, were used, but they always straightened out and released the fish.

Canton Island is an atoll, a coral island with a lagoon in the center. It is shaped, as George Hicks described it in a broadcast,



Photograph from U. S. Department of the Interior

TWENTIETH-CENTURY PIONEERS RAISE THE STARS AND STRIPES ON
ENDERBURY

A contingent under direction of the Department of the Interior touched at this South Sea atoll in the Coast Guard cutter *Taney* on March 6, 1938, and left behind four Hawaiians as permanent residents. Their dwelling, erected close to the flagpole, was built of material unloaded from the cutter. A tall signal tower, however, will be constructed of coral rock.

like a hollow pork chop. The strip of land is from 50 yards to a third of a mile in width. The distance around the lagoon, which is some nine miles long and three miles wide, is about 27 miles. The quiet stretch of water is almost encircled by the coral strip.

The Pan American Airways has surveyed Canton Island, which promises to be an important commercial airplane base in the South Pacific.

On the island are two beaches. The one

inside is a smooth stretch of sand sloping rather steeply to the lagoon floor. That facing the ocean is a narrow sand strip sloping downward to the fringing reef, which extends perhaps 200 feet from the shore and upward to a sea wall of jagged pieces of coral, each larger than a football.

Walking along this strip of sand, one could find large numbers of small cowrie shells and the larger scalloped clamshells. In places the beach was broken by projecting ridges of dark-colored rock which I at first thought were parts of the original mountain or island rising from the bottom of the sea and upon which the coral island had grown.

Later I learned that this could not be the case, because borings on similar islands have shown that

the coral rock extends as far as a thousand feet below the water. Since reef-building corals do not live more than 200 feet beneath the surface, that found at greater depths must have once been much nearer the surface.

The building of a coral island above the water requires the action of waves, and consequently the land seldom rises more than 30 feet above sea level.

This flatness of the island presents a peculiar appearance from a distance. Canton



Photograph from U. S. Department of the Interior

PERMANENT U. S. SETTLERS ARRIVE ON CANTON ISLAND

Boats from the Coast Guard cutter *Taney* pushed into the lagoon March 7, 1938, with seven colonists, supplies, and building materials. A radio station, residences, and a lighthouse of coral rock, similar to those recently completed on Howland, Baker, and Jarvis Islands, are being constructed.

appears as three narrow horizontal lines—the lowermost the bright sand; next, a dark line corresponding to the broken fragments of coral; and above that the beautiful blue of the quiet water in the lagoon. Much of the lagoon was very shallow and contained coral ridges which extended to within a few inches of the surface.

Only a few coconut palms have been hardy enough to survive the small rainfall. These formed a small cluster near where we camped and, under each tree, there was the debris of fallen coconuts and broken-off leaves that had accumulated, almost undisturbed, over a period of years. The sparse grass is poorly rooted, and has a dusty, bedraggled look such as is characteristic of the vegetation on mountains just at the timber line.

The remaining prominent plant is a large kou tree, pyramidally shaped, with a base perhaps 30 by 15 feet that serves as an apartment house for birds. On parts of the island there are low-lying bushes that also serve as nesting places, although the majority of the birds are content to rest on the bare ground.

About our camp, the most ubiquitous, entertaining, and persistent animal was the hermit crab (page 763). This queer creature furnished the comic relief. He is shaped like our fresh-water crawfish, about five or six inches long, but, unlike the crawfish, he lives in an appropriated shell which he constantly drags along with him. The hermit crab may be said to be the original trailer inhabitant, and he formed the habit long before we had automobiles.

Each tiny hermit crab, shortly after being hatched, instinctively searches for a particular kind of spiral shell shaped like our snail shells and backs into it. It does this to protect its hind body, which, unlike its armored fore body and exposed appendages, is soft and vulnerable.

The tail is curled into the spiral so that the shell becomes a part of the crab and is dragged along with it, trailer fashion, wherever it goes. As the crab grows, the shell is traded for a new and larger one. The full-grown crabs have shells about as large as the closed fist.

I saw a few large piles of these shells, unoccupied, and imagined that they might

be trade-in places where the crabs assemble each season to barter their old shells for new ones.

One day I saw such a trade take place. One crab had apparently abstracted the shell from another by force. The successful crab was wearing one shell and carefully examining the other to see if it offered any improvement. He balanced it in his pincers and carefully examined it from all sides, turning it, feeling it with his claws, and inserting his head into the interior.

After a most painstaking examination of several minutes the crab decided to make no change and moved on, leaving the extra shell. I placed it in front of the despoiled crab. A cursory examination apparently convinced him that it was the shell of which he had been dispossessed, or at least that it was much better than no shell at all. He quickly turned, backed into it, and went off rejoicing.

The portion of the crab that normally projects from the shell is a bright red similar to that of a boiled lobster, but the portion that is shielded from the sun by the shell appears anemic, lacking in color and strength.

The action of the crab indicates that he realizes his vulnerability when deprived of his shell. When frightened, he retreats into the shell and folds his large pincers across the opening, so that he is well protected. To clear the shell, his legs grow forward from their point of attachment to the body and then down, giving him a curious underslung appearance when traveling.

To us the marked characteristic of the hermit crab was his persistency. He was harmless, but the continuous scraping of his shell on the coral sand as he dragged it after him on his endless peregrinations through the tents was most annoying, particularly when we were trying to sleep. The remedy was to pick him up and throw him out, but he, or one of his colleagues, was again present in a surprisingly short time.

UNWELCOME BEDFELLOWS

The crabs are instinctive climbers and, like experienced mountaineers, they carefully reach upward with one claw and secure a firm hold which they test before they let go with the first. A blanket hanging down from an army cot to the tent floor presented a cordial invitation to the crab to climb up into the bed, and the invitation was always accepted!

Soap had to be placed out of reach or the crabs would gnaw it to pieces or carry it away. At evening they gathered in large compact masses at the water's edge as if holding a convention and, when the sun rose in the morning, they advanced up the beach to our tents, to seek shelter in the shade of the tent walls. Usually as many as a dozen could be found lying closely in a row on the shady side of the tent walls.

Mr. Charles Bittinger, the artist of our expedition, began marking the crabs on their shells with prominent numbers in India ink. This was soon discontinued, for it was evident that he would need a crew of file clerks to record the visitors to his tent alone. The tracks left by the crabs on the sand gave evidence of their large numbers and untiring activity (page 762).

NEEDED, A PIED PIPER

The rats on the island were less amusing, although probably more plentiful than the hermit crabs. When we first arrived, they did not seem particularly numerous. As they became familiar with our refuse pile that accumulated near the mess tent, they increased in number until it appeared that they might have sent emissaries to summon all their fellows on the island.

These rats were not like the native species of our country, but of a smaller variety found on many of the South Sea islands. They were unbelievably tame and showed no hesitation in taking food from a washpan held in the hand.

I never saw more than two rats in my tent at once, although one member of the expedition insisted that there was a well-attended reunion in his tent each night. Some of the men awakened to find them on their cots. At any time after dark hundreds could be seen at the garbage pile.

Captain J. F. Hellweg had been forewarned about rats and had brought a shotgun with 500 shells. Few were shot, however. With only 500 shells one could do little more than fire a salute in the creatures' honor.

Several cans of rat poison had been brought by one member of the party and this, mixed with crackers, was fed to them for several successive nights. The rats partook willingly, and hundreds should have died, but the number returning each evening increased instead of diminishing.

At evening a powerful flashlight would show hordes of rats approaching from all

UNFURLING OLD GLORY ON CANTON ISLAND



STARS AND STRIPES REFLECT SUNRISE AND SUNSET ON CANTON ISLAND

Capt. J. F. Hellweg, U. S. N., and Dr. S. A. Mitchell hear George Hicks broadcast the ceremonies of unveiling the marker on Memorial Day, 1937. President Roosevelt placed Canton and Enderbury Islands under the Department of the Interior on March 3, 1938. Colonists landed and found intact this monument erected by the National Geographic Society-U. S. Navy Eclipse expedition.



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Finlay Photographs by Richard H. Stewart

ON THE ASTRONOMER'S FRONT LINE, "MICHELANGELO" PLIES HIS BRUSH

Charles Bittinger, member of the National Academy of Design, the expedition artist, sets up his easel between Dr. Irvine C. Gardner's corona camera (left) and Dr. F. K. Richtmyer's clock tower.

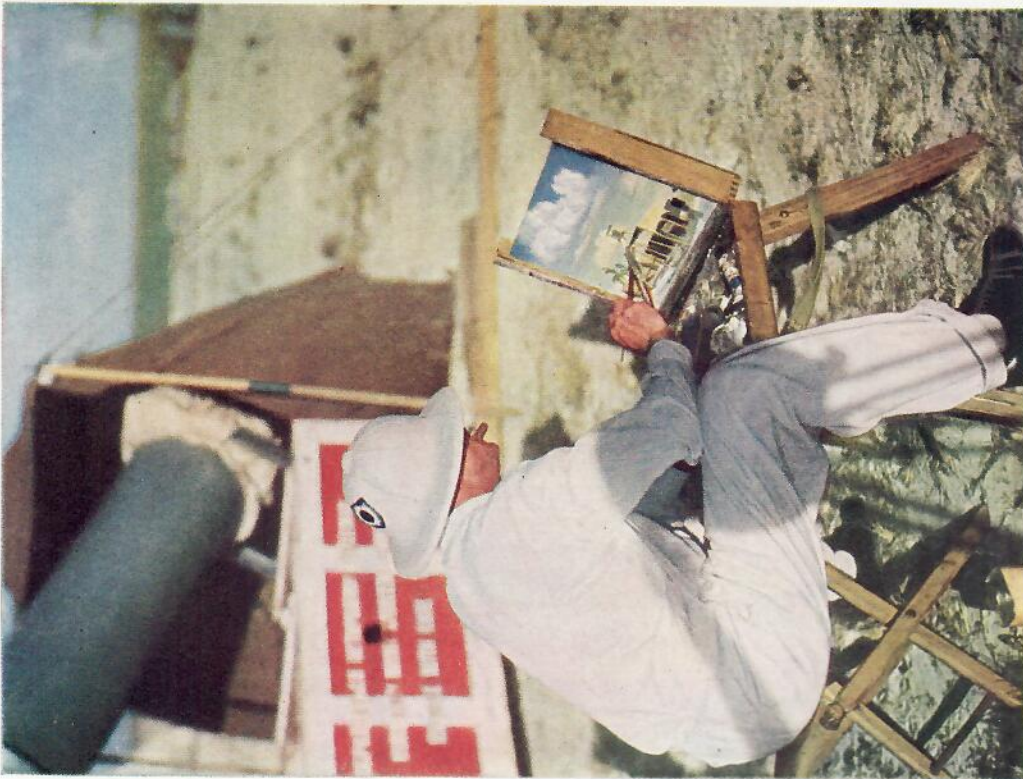


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Finlay Photograph by Richard H. Stewart

UNDER A BLAZING TROPICAL SUN, THE EXPEDITION UNVEILS A STAR-SPANGLED MARKER ON MEMORIAL DAY

Captain Hellweg, in uniform, is about to remove the National Geographic Society flag from the concrete block. The flag, of porcelain enamel on steel, embedded on opposite sides, were presented to the expedition by Representative Virginia Jenckes, of Indiana (Plate I). Canton Island, on the route from Hawaii to New Zealand, is a potential mid-Pacific base for seaplanes. A coral ring encloses a quiet lagoon, natural berth for flying boats.



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PAINTING IN THE LEE OF CANTON ISLAND'S "CANNON"

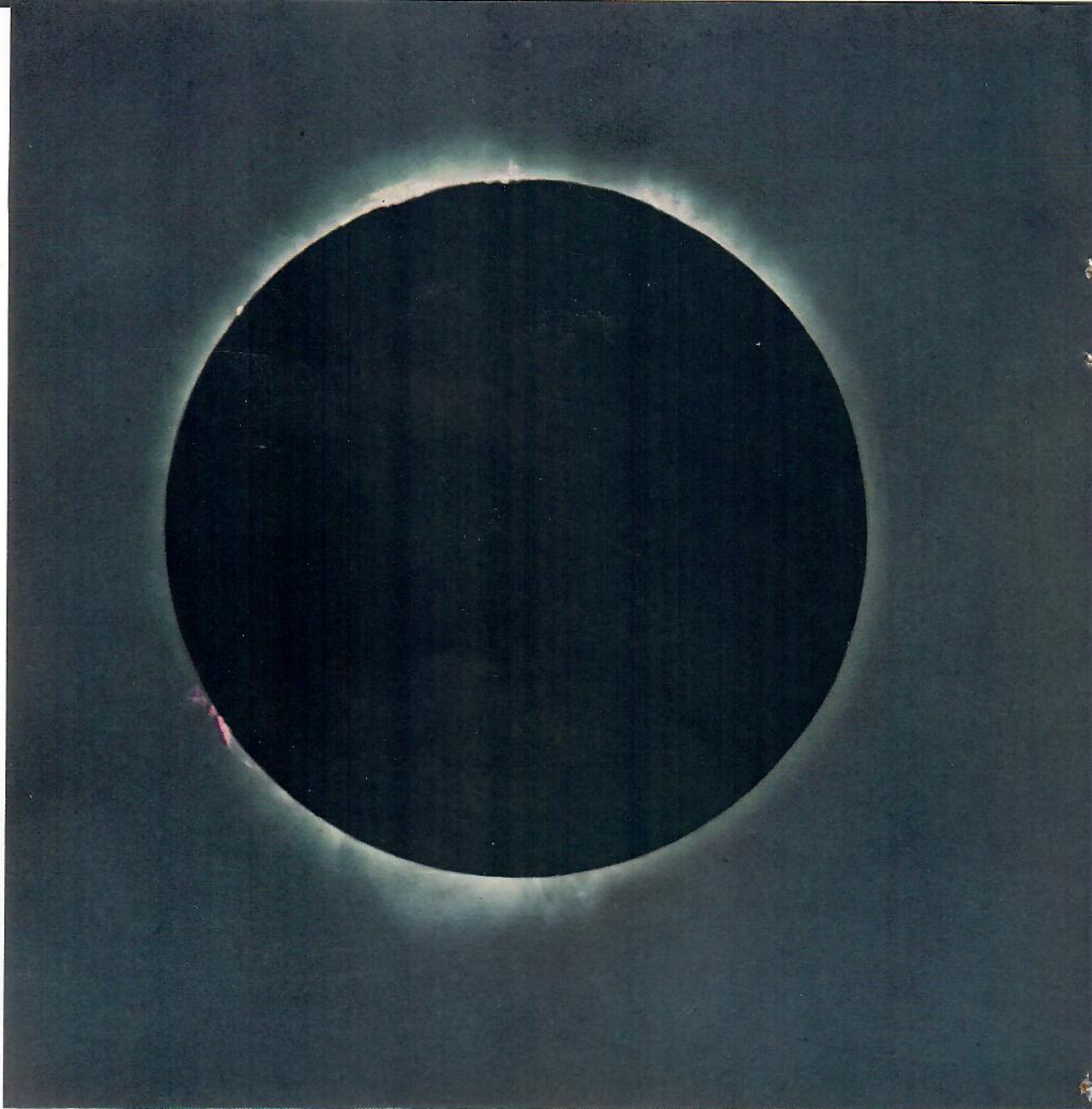
Mr. Bittinger portrays on canvas Dr. Richtmyer's driving clock nicknamed by his colleagues the "oil derrick." The structure houses equipment for studying the polarization of corona light. In the background stands Dr. Gardner's corona camera.



Finlay Photographs by Richard H. Stewart

SUCH RED QUILLS GRACED GIRLS' HATS OF THE GAY NINETIES

Polynesian chiefs also decked their headdresses with the long, wiry feathers which distinguish the red-tailed tropic- or boatswain-bird. To snatch the scarlet median tail quills, the purloiner waves one hand to attract the bird's attention, and quickly plucks them with his other.



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Kodachrome Photograph by Dr. Irvine C. Gardner

ONLY WHEN THE SUN IS HIDDEN DOES THE MYSTERIOUS CORONA APPEAR

As the elusive mantle came into view, this natural-color photograph of the solar corona was made by the same camera that caught the 1936 eclipse in Russia (See "Observing an Eclipse in Asiatic Russia," National Geographic Magazine, February, 1937). The large black disk is the unilluminated face of the moon, which has come between the earth and sun. The red projections, termed prominences, are tongues of glowing hydrogen reaching tens of thousands of miles from the sun's surface. The greenish glow extending beyond the prominences comes from matter which is reflecting sunlight. To the eye the corona appears pearly white, but its spectrum has a prominent green line which may account for the tint shown. Because this photograph was made by a series of intermittent exposures equivalent to about 1/15 of a second in all, the brilliant prominences stand out clearly, but the extensions of the corona are not so long as those shown in the painting on the opposite page. A longer exposure would have recorded the streamers, but the brighter prominences would have lost their detail.



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Painting by Charles Bittinger

LIKE A FLOWER BURSTING INTO BLOOM, THE CORONA BECOMES VISIBLE AT TOTALITY

As the sun was blotted out on June 8, 1937, Mr. Bittinger, artist with the expedition on Canton Island, recorded his impressions on canvas. Through high-powered binoculars, shafts of white streamers, some extending as far as 5,000,000 miles, were seen. Streamers are of a mysterious composition, still undetermined, and their activity may be likened to the violent eruptions of a volcano. Rose-colored prominences close to the edge of the moon are hydrogen. The duration of the eclipse on the island was 3 minutes and 33 seconds. Twelve hundred miles out to sea, maximum duration was 7 minutes 4 seconds, the longest since 699 A. D. The artist, to capture as much as possible of the detail in this short space of time, prepared in advance half a dozen backgrounds. The only variations in these sketches were in the sky. Some were blue, some violet, and others greenish, corresponding to the actual variations which were likely to occur. When the moon started across the face of the sun, he could devote his time to capturing the effect of the streamers, prominences, and similar phenomena.



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Finlay Photograph by Richard H. Stewart

OLD GLORY AND THE GEOGRAPHIC FLAG FLEW ABOVE AMERICA'S NEWEST COLONY DURING THE SOCIETY'S ECLIPSE EXPEDITION

Four Americans, including a radio operator and three Hawaiians, settled on Canton Island under Department of the Interior instructions on March 7, 1938. A group of four Hawaiians was placed on Enderbury Island, 32 miles away, the day before the U. S. colonists landed at Canton. American officials visited the two islands in October and November, 1937, to prepare for the arrival of the permanent residents.



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SEA AND SKY MINGLE IN A GLORIOUS COLOR RHAPSODY AS THE SUN SETS IN THE PACIFIC

Kodachrome Photograph by Dr. Paul A. McNally

Just as Kipling's dawn "comes up like thunder," so does the sun go down on Canton. Because the island is near the Equator, the sun's descent is rapid and almost vertical. As a result, twilight is short. On these waters American whaling vessels sailed more than a century ago. Canton Island was named for the sailing ship *Canton*, out of New Bedford, Massachusetts, which was wrecked there in March, 1854. In the manner of Captain Bligh of the *Bounty*, the crew of 31 rowed in open boats northwestward for 49 days, finally reaching Gnam.



Kodachrome Photograph by Dr. Irvine C. Gardner

LIKE WHITE GLIDERS AGAINST AN AZURE SKY, LOVE TERNS SOAR OVERHEAD
Fluttering within arm's reach, the curious birds would peer under the brims of men's hats to inspect their eyes. Several members of the expedition tried to entice the coy visitors with bits of food.



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Finlay Photograph by Richard H. Stewart

ALL PUFFED UP WITH PRIDE, ANGER, AND LOVE IS A MAN-O'-WAR-BIRD

Enormously inflated is the blood-red throat sac of the male during the breeding season. Despite the size of the balloon, expanded by a gas of strong odor, its owner is not hampered in the air. Mr. O. E. Sanders spreads the bird's wings, which measure about seven feet from tip to tip.

directions as far as the ray could be followed. Perhaps the rats lived on bird eggs. If so, this would explain why the bird population on Canton is less dense than on Enderbury.

BIRDS OBSERVE THE INTRUDERS

As soon as we set foot upon Canton, the beautiful white terns came in pairs and poised in the air just out of reach, watching us curiously to see what we might be planning. After a few days the terns near our camp ceased to find us interesting and returned to their usual occupations, but as soon as we wandered away from the camp to seldom visited parts of the island the less sophisticated terns would repeat the investigation.

It is a curious sensation to be followed by a pair of terns that remain not more than four feet distant. I unsuccessfully tried to induce them to alight on my outstretched hand. Their curiosity, however, enabled me to obtain the colored picture shown on Plate VIII. This was not taken with a telephoto lens, but with one of 50-mm. focal length on a 35-mm. film, and the entire picture, without trimming, is reproduced. These white terns are considered the most beautiful of the terns and are sometimes called "love birds" because they usually fly in pairs.

The boobies are very numerous, but are not dramatic in action or manner. They resemble domestic ducks in general appearance and exist on Canton in two species, the blue-faced and the red-footed. They are industrious, hard-working birds that devote their time to caring for their young. One evening a school of flying fish entered the lagoon, and the boobies busily swooped down upon them as they emerged from the water.

NATURE'S MAJESTIC AIRPLANES

The hermit crab may have been the most amusing, but the most kingly of the animals was the frigate bird, sometimes called the man-o'-war bird (Plate VIII). The male is characterized by a large red pouch on the throat which can be inflated to nearly the size of a football to project even beyond the powerful hooked beak of the bird. This pouch is a secondary sexual characteristic and the bird can fly with it inflated or with it half inflated and flapping from side to side.

In its construction the frigate bird has

prior claim to many of the features of our most recent airplanes. His wings are narrow and very long, a wing span of seven feet being attained in one species. The body is small and streamlined. In flight his feet are pressed to his body like the retractable landing gear of a plane. The frigate bird is a marvelous flyer, one of the best in the world.

When this bird has a fish, he does not carry it in his bill, because that would produce extra wind resistance. Instead, the fish is swallowed; that is, stored in the fuselage, and regurgitated to feed the young at the nest. This practice is also followed by the booby and other water birds.

Curiously enough, these birds, although they nest on small islands and fly over the water, do not take off from it. Consequently, a frigate bird must catch its fish, if it secures them honestly, by swooping down to the surface of the water without making a landing.

By nature also it is a hijacker and obtains many of its fish by attacking the booby and other birds in the air and frightening them until they drop their prize. The frigate bird then deftly catches the falling fish and returns with it to its own nest.

Canton also has the red-tailed tropic-bird, or bos'n-bird. These birds are white with a tinge of pink and from the white tail project two long, narrow, red feathers.

So ardently were these feathers sought as souvenirs by the sailors that probably most of the tropic-birds on the island are now flying without them, awaiting the new feathers which will grow the following year (Plate III).

Sooty terns, upper parts dull black in color, plover, and bristle-thighed curlew were also seen, but not in large numbers. All of the larger birds were relatively tame and would remain on their nests while one approached as close as three or four feet. They could be caught with considerably less difficulty than a chicken loose on the average American farm. These birds do not rise from the ground readily and are more easily captured on a still day or when chased down the wind.

Contrary to my expectations, Canton was not unduly hot when one had shelter from the sun. We were there in June, which is midwinter for points south of the Equator, and at that time the sun was actually nearer the zenith at Washington



Photograph by Dr. Irvine C. Gardner

NOT TRACTOR TRACKS—JUST THE TRAIL OF AN ARMY OF HERMIT CRABS!

Soon after they are hatched, the scarlet creatures seek a small, spiral shell for a home. As they grow, they discard the old houses for larger ones. Captain J. F. Hellweg was amused one afternoon by one Canton Island veteran which took 35 minutes to make up its mind which of two shells it wanted. It inspected them carefully. Finally the crab made a choice, walking off with the new dwelling and leaving the old behind.

(sun about 16° south of the zenith) than at Canton (sun 26° north of the zenith). The air temperature was approximately 85 degrees in the daytime, and the trade winds provided a decidedly strong breeze at all hours. The sky was a deep blue with beautiful white cumulus clouds that show in most of our photographs.

The coral sand reflected light almost as well as the water, with the result that a photographic exposure meter registered higher illumination when directed at the sand than when pointed at the blue sky. Because of the bright sand, one was exposed to radiation from all directions, and it was very uncomfortable in the sun; but, with an overhead shelter for shade, one even felt chilly at times.

A pleasant feature was the absence of flies, mosquitoes, and similar pests. The trade wind made it impossible for them to remain on the island. The nights were delightful and we could sit outside in the evening and read by the light from our portable electric light plant in perfect comfort.

One aspect of Canton that appeals strongly to the Crusoe instinct is its relation to man in the past and the evidence remaining of earlier visitors.

ISLANDS KNOWN TO NEW BEDFORD
WHALERS

Canton and Enderbury Islands are not shown on maps published in London in 1791 and were presumably undiscovered at that time.

The American whaling ships captured most of the whales in the neighborhood of the Equator, and the islands were certainly known to the whalers prior to 1828, for they are listed in a report to the Secretary of the Navy, prepared by Captain J. N. Reynolds in that year.

Captain Reynolds, who served several terms in Congress as a Representative from Ohio, partly based his report on conversations with New Bedford whaling captains.

At that time Canton was known as Mary Balcout's Island, and it has also borne other names, such as Swallow, Mary, Balcout, and Bulcot Island.



Photograph by Richard H. Stewart

HERMIT CRABS ENJOY SUN-BROILED SNAPPER FOR BREAKFAST

Carefully dragging their shells with them, the scarlet creatures find a fish that has been washed ashore on Canton Island during the night. The constant scraping of their "houses" as they pulled them along the beach was annoying (page 751). Snappers (Lutianidae) are common in the South Pacific and are closely allied to the red snappers of the Atlantic coast.

The New Bedford whaling ship *Canton* was wrecked on the island in 1854. Interesting details regarding the wreck are set forth in a letter from Horace Guild, of Boston, Massachusetts, who writes: "The information has been largely derived by word of mouth from Captain Wing and others of the crew to my mother (Mrs. Clara Wing Guild, of Medford, Massachusetts) and various members of her family.

THE "CANTON'S" EPIC VOYAGE

"The whaling ship *Canton*, of New Bedford, Massachusetts, sailed from that port on August 12, 1852," continues the grandson of Captain Wing. "Her clearance papers indicated that she was to fish for whales in the Atlantic and North Pacific Oceans.

"The captain of the vessel was Andrew Johnson Wing, of what was then Fairhaven and now Acushnet, Massachusetts. (The town of Acushnet was set off from the town of Fairhaven at a later date.) At that time he was 32 years of age and had been at sea in the whaling industry on several voyages.

He was an experienced navigator and familiar with conditions in and on Pacific equatorial waters.

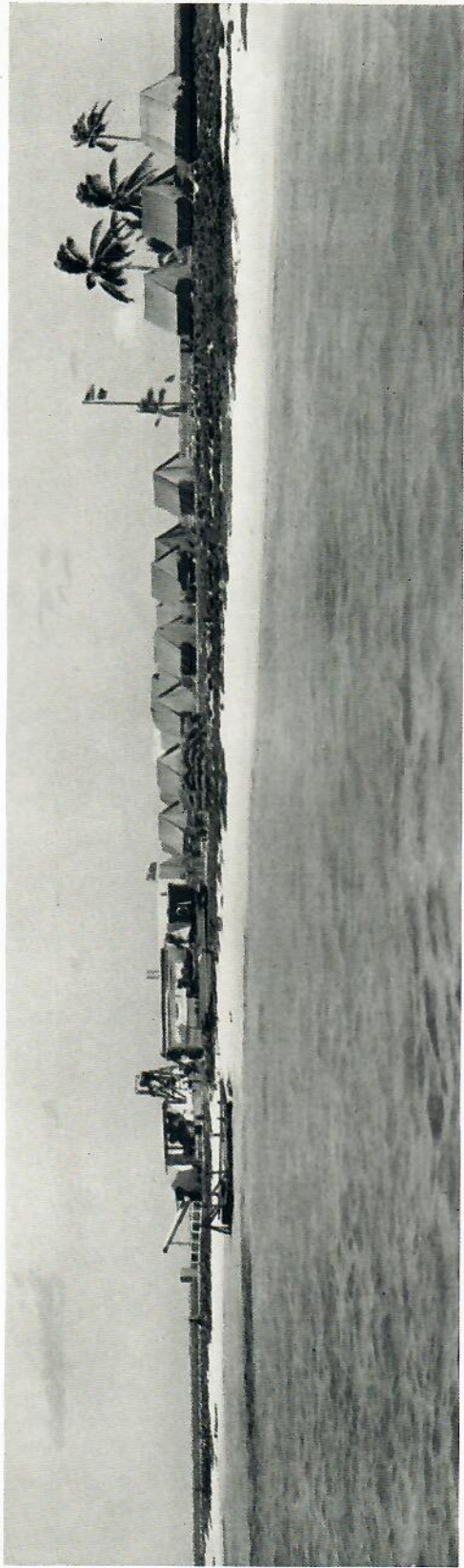
"The vessel was reported at Tahiti on January 27, 1854.

"On March 4, 1854, the vessel was struck by a severe equatorial storm. Her position at that time was supposed to be 2° 04' south latitude, 172° west. The charts which they had indicated nothing of danger within 90 miles, but at 1:30 a. m., March 5, 1854, the vessel struck. At 6 a. m. the ship bilged, the larboard quarter washed away, and she began to go to pieces.

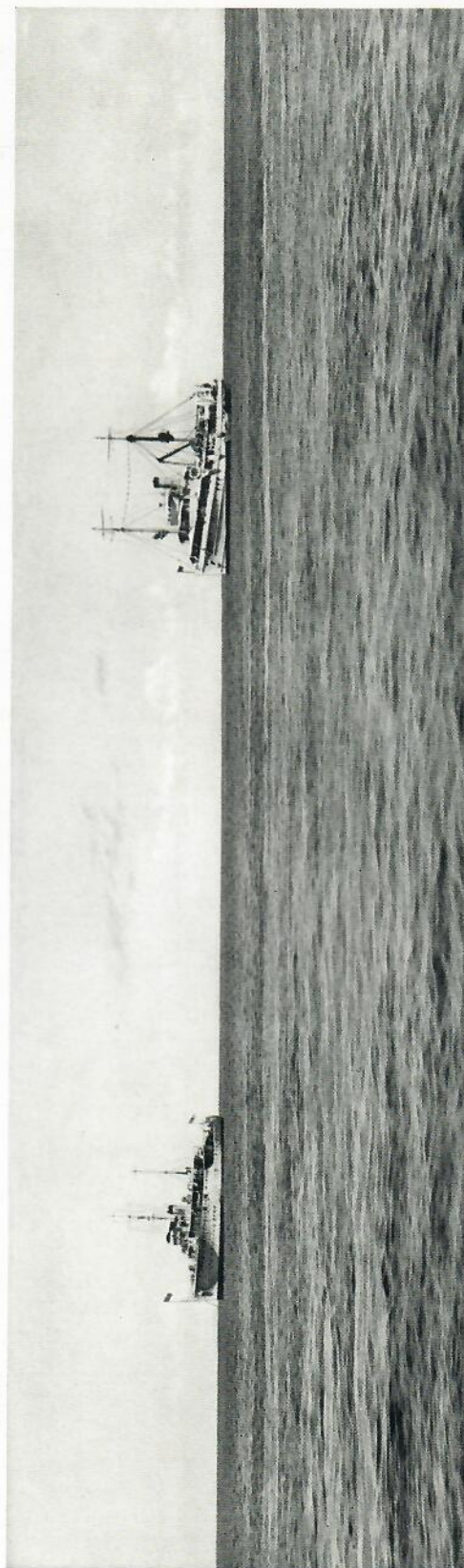
"William B. Carrol of New Bedford, first mate, volunteered to go through the surf to the sand bar, which had become visible, with a line, which he succeeded in doing with great difficulty.

"By the help of this line and the four small boats which the *Canton* carried, all 32 men reached the sandbank in safety, and later they were able to bring off a quantity of water and provisions.

"The place was a small uninhabited island. The men remained there until March 30, 1854, by which time their pro-



PERHAPS SOME DAY THIS BIT OF QUIET LAGOON WILL BECOME A BUSY MID-PACIFIC HAVEN FOR FLYING CLIPPERS
A city of tents has mushroomed overnight to house the Eclipse Expedition's scientific apparatus and personnel. The Stars and Stripes and the National Geographic Society
flag flutter from the same pole.



ANCHORED BEYOND THE SURF, MOTHER SHIPS OF TWO EXPEDITIONS STAND BY OFF CANTON ISLAND
U. S. S. *Avocet*, right, carried the National Geographic Society-Navy eclipse party to the coral isle in May, 1937. H. M. S. *Wellington* brought New Zealand scientists.

Photographs by Richard H. Stewart



Photograph by Richard H. Stewart

MAROOINED ON BARREN ENDERBURY ISLAND, A HORSE AND MULE SUSTAINED THEMSELVES FOR SEVERAL YEARS

Captain J. F. Hellweg and the eclipse group mascot, Jerry, inspect a cut on the island where guano was dug for export. In the latter half of the nineteenth century an American company gave up operations here and left the animals behind. When another firm renewed the work some years later, they found both alive and well. The mule was caught and used to pull trucks. Enderbury is 43 miles southeast of Canton.

visions and water had begun to run low.

"On the latter date, the 32 men set out in the small boats, intending to make the Kingsmill Group of islands in the hope of being rescued from that point, as it was often frequented by whaling vessels at that time.

45 DAYS WITHOUT A LANDFALL

"Having insufficient navigating instruments, they missed their destination entirely and found no land until they reached the island of Tinian, 45 days later. This is one of the Ladrões, or Marianas Islands, and at that time was Spanish territory. The representative of the Spanish Government on that island would not believe the story of their voyage, but, after permitting them to take on board some coconuts and fresh water, forced them to leave.

"Four days later, on May 19, 1854, they arrived at Guam. All four boats made the entire trip safely. No lives were lost, but great hardships of hunger and thirst endured.

"The four small boats in which this remarkable journey was made were 30 feet long, 6 feet beam, with the gunwale 22 inches above the water amidships. They were propelled by 5 oars and each had a small spritsail which could be used in favorable weather.

"Captain Wing, the first and second officers, and two seamen reached Hong Kong August 22, 1854, from which port notice of the loss was sent to the owners, which notice included a location of the island upon which the *Canton* was cast away.*

"No logbook of the *Canton* is extant. Such a thing was not preserved through so difficult an experience.

"Captain Andrew J. Wing has been dead for many years. I do not believe any of the crew are still alive. The youngest man on the boat at the time of the wreck probably was Thomas E. Braley. He would be close to 100 years of age if still living."

In commemoration of this epic adventure, the island was renamed Canton by Commander Richard W. Meade of the U.S.S. *Narragansett*, who tells of it in his report of 1872-73.

Enderbury Island was worked for guano

* Captain Bligh and 18 men went from Tofua, Friendly Islands, to Timor, in an open boat, 23 feet long, in 42 days. The distance was 3,618 nautical miles. The crew of the *Canton*, 31 men, went from Canton to Guam, in open boats, in 49 days—distance 2,900 nautical miles.

by an American group in 1858 or shortly thereafter. At this time guano apparently was not taken from Canton Island, possibly because the deposit was not considered rich enough to justify the expense and labor. In the eighties John J. Arundel and Company of London reworked the guano deposits at Enderbury and also collected guano from Canton.

Sailing vessels were used to transport the guano. They anchored in the lee of the island, necessarily close to shore, and, on the relatively rare occasions when the wind changed its direction, the sailing boats were quite helpless and unable to keep off the reef. On Canton the guano vessel *Howard de Troop* went ashore in this manner in 1884-85.

Today, when one approaches Canton, the most prominent object seen on the beach is the steam winch from this ship. At the place where the ship struck, not much remains except a large number of iron spikes approximately two feet long which lie in profusion on the reef.

The hollow metal mast lies near the shore of the lagoon and has been rolled across the island by waves or been carried into the lagoon with driftwood and washed ashore. With it there are many long, heavy timbers, some still sufficiently firm to be used in constructing the wharf where our apparatus was unloaded.

The metal parts from a large number of old sheaves were on the island and were used by Dr. Richtmyer to supply additional weight to drive the clock that operated his camera (Plate III). The huts used by the guano collectors are entirely flattened, only the corrugated roofing remaining.

A lonely grave, protected by coral slabs turned on edge in the ground, tells of the death of one of the natives employed in the collection of guano.

These islands that have been lightly touched by history at long intervals in the past now apparently have an interesting future. Formerly of value only for the deposits of guano which have been exhausted, they may become important as steppingstones for the flying Clipper ships which navigate the South Pacific Ocean (page 764).

The United States Government has recently reasserted its claim to Canton and Enderbury, and colonists have been sent to occupy the two islands (Plates I and II and pages 750-51).



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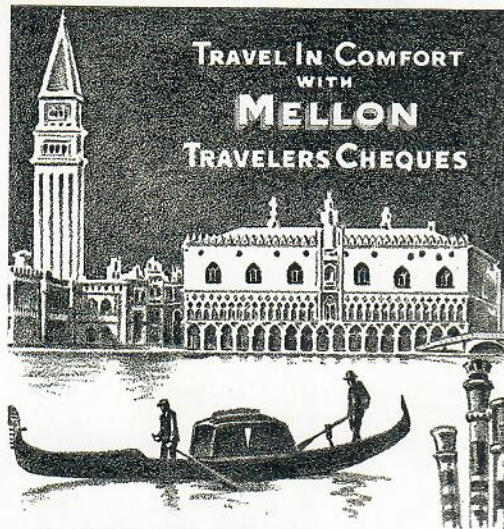


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To carry out the purposes for which it was founded fifty years ago, the National Geographic Society publishes this Magazine monthly. All receipts are invested in The Magazine itself or expended directly to promote geographic knowledge.

Articles and photographs are desired. For material which The Magazine can use, generous remuneration is made. Contributions should be accompanied by addressed return envelope and postage.

Immediately after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

The Society cooperated with Dr. William Beebe in a deep-sea exploration of undersea life off Bermuda, during which a world record depth of 3,028 feet was attained August 15, 1934, enabling observations of hitherto unknown submarine creatures.

The Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole, and contributed \$100,000 to Admiral Byrd's Antarctic Expeditions.

The Society granted \$25,000, and in addition \$75,000 was given by individual members, to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees in the Giant Forest of Sequoia National Park of California were thereby saved for the American people.

The Society's notable expeditions to New Mexico have pushed back the historic horizons of the southwestern United States to a period nearly eight centuries before Columbus crossed the Atlantic. By dating the ruins of the vast communal dwellings in that region, The Society's researches have solved secrets that have puzzled historians for three hundred years. The Society is sponsoring an ornithological survey of Venezuela.

On November 11, 1935, in a flight sponsored jointly by the National Geographic Society and the U. S. Army Air Corps, the world's largest balloon, *Explorer II*, ascended to an officially recognized altitude record of 72,395 feet. Capt. Albert W. Stevens and Capt. Orvil A. Anderson took aloft in the gondola nearly a ton of scientific instruments, and obtained results of extraordinary value.