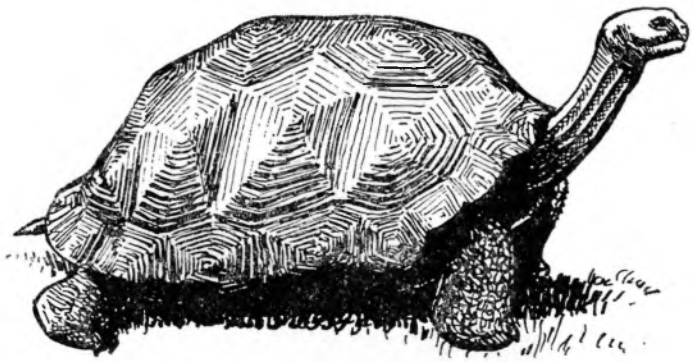


Giant Tortoise

BBC/IUCN DARWIN CENTENARY EXPEDITION

to the British Virgin Islands, Trinidad, Panama, Ecuador and the Galapagos Islands. January—March 1959

Peter Scott

THAT pretentious title was given, almost in jest, to our latest filming excursion. My wife and I were accompanied by Tony Soper as cameraman. We left England on 5th January, 1959, spent ten days in the British Virgin Islands, as the guest of H.H. the Administrator, Mr. Geoffrey Allsebrook, a week with Dr. William Beebe, the veteran American explorer and zoologist at Simla, his remarkable tropical research station in Trinidad, a week at the equally famous research station on the island of Barro Colorado in the Panama Canal Zone, a few days in Ecuador and five weeks in Galapagos. All our major journeys were by air.

Of the Anatidae only three species were seen—the Masked Duck *Oxyura dominica* (L.) in Panama, the Colombian Torrent Duck *Merganetta armata colombiana* Des Murs in Ecuador and the Galapagos Pintail *Anas bahamensis galapagensis* Ridgway.

The British Virgin Islands

Our stay in the British Virgin Islands was perhaps chiefly memorable to us for the fishes on the coral reefs. We distinguished something over a hundred species, most of which we have since been able to identify. I made drawings of them underwater using wax pencils on plastic sheets and the sketches were transferred to a notebook in watercolour. We also filmed underwater using aqualungs. The water was not as clear as it sometimes is in those parts, because of a storm immediately before our arrival, but in spite of that the reefs were full of interest, and as ever, fantastically beautiful.

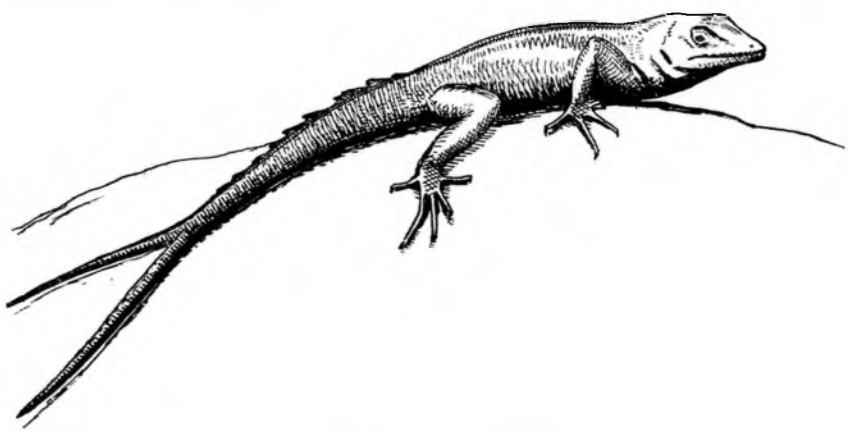
In the garden of Government House at Road Town, Tortola we learned the entertaining and exciting game of fishing for large ground spiders in their holes with the fluffy flower head of a grass which the spider grips and by which it may be jerked out into the open. This technique enabled us to catch

and film spiders which were more than four inches across. We filmed Brown Pelicans diving for their food, plunging in spectacularly from thirty or forty feet up, and went on horseback to a Nature Reserve on the top of Sage

Peripatus

Mountain in the centre of Tortola where to my delight we found a Peripatus; it was the first time that I had ever seen this strange caterpillar-like animal which bridges the gap between the worms and the arthropods, and catches its prey by squirting a sticky viscous jet at it. On our return to sea level my horse, Blackie, ran away with me for a mile along the wrong side of the road, narrowly missing a head-on collision with a Land Rover; but fortunately I managed to stay on until he got home.

On the bole of a tree on Bellamy's Key—a tiny island in Trellis Bay—we discovered a male Anolis Lizard with two tails, the second evidently regenerated from a crack rather than a clean break in the original tail. The result was a symmetrical Y shaped tail. This lizard became the emblem of a beautiful holiday hotel on the island.



Anolis cristatellus Male with double tail

Trinidad

The Tropical Research Station of the New York Zoological Society is in the Arima Valley in northern Trinidad. Simla is its name and Dr. William Beebe is its Director. At 82 Dr. Beebe (one of the original explorers of the deep-sea in his bathysphere) is still very much the driving force of the station. Dr. Jocelyn Crane, his second-in-command, welcomed us in a most friendly fashion, and we stayed there a week. Dr. Crane is working on the evolution

of the behaviour patterns of certain invertebrates, especially fiddler crabs, butterflies of the family Heliconiidae and praying mantises.

Dr. David Snow, the ornithologist of the Research Station, took us to see the Guacharos or Oil Birds *Steatornis caripensis* which live in caves through which the Arima River runs and emerge only at night to feed principally on the fruit of the oil palm. They are about $2\frac{1}{2}$ ft. across the wings and are distantly related to the Nightjars. The name Guacharo seems to come from their loud and eerie cry, but more interesting is their high pitched clicking noise whose echo provides a system by which they can safely fly in caves which are completely without light. They also have interesting bristly whiskers which no doubt help them in feeling the whereabouts of eggs and young.

Dr. Snow also showed us the nests of three species of hummingbirds and the striking display of the Black and White Manakin *Manacus manacus* which he has been studying. We filmed and recorded a display ground, where in the half light of the deep forest about 25 males each have a 'court' in which they bob up and down and dash about like little squibs, making a noise like a whip-crack with their wings.

Panama

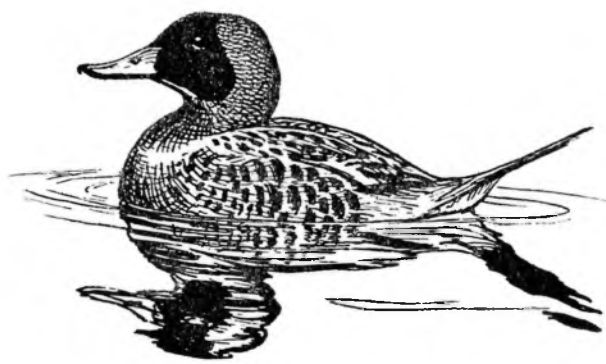
At the U.S. Air Force Jungle Survival School in Balboa the Director, Mr. Morgan Smith, showed us a number of animals brought in by his students from their jungle exercises. These included some interesting snakes including two very large Boa Constrictors, an interesting and rare lizard subsequently identified as *Mornnasaurus annularis,* and a Three-toed Sloth, green with the algae which live in its grooved hairs and plentifully supplied with the parasitic moth (about twice the size of a clothes moth) which I had never seen before. Later Mr. Smith took us to a place where I hoped to get underwater film of tropical fish. It was a feeder to the canal, thickly overhung with forest. I was about to enter the water with mask and flippers when we made the discovery that we were standing on a recently hatched cayman's (crocodile's) nest. Mr. Smith assured me that these caymen were " quite docile " (in American pronunciation the word rhymes with fossil) and so I took to the water. Almost at the same time there was a rustle and a splash a short distance up the bank. The water was not very clear, and there were practically no fish, so after an excursion fifty yards down stream and back I returned rather thankfully to shore. I could not see how in the muddy water even the most docile crocodile could be expected to distinguish me from its legitimate prey. As we withdrew along the bank we found the tracks of the basking cayman we had disturbed. Mr. Smith estimated it was 7-8 feet long.

The Smithsonian Institution's Research Station at Barre Colorado, an island in Lake Gatun in the Panama Canal Zone, is remarkable for the number of native mammal species. Staying at the Headquarters on the island we were awoken before dawn on the first morning by the echoing cries of a band of Howler monkeys in the trees immediately round the station. Coatis were common in the island and a band of them lived round the buildings as scavengers, becoming quite tame. Also semi-tame were a couple of young Collared Peccaries or Wild Pigs and a young Tapir.

At night ultra-violet and white lights were burning outside the main buildings and great numbers of moths and other insects were attracted, including several beautifully adapted leaf-mimicking Bush Crickets and an equally perfect leaf-mimicking Mantis.

Swimming in Lake Gatun from the island's jetty we identified several species of tropical fresh water fish including a *Molienesia,* two species of Tetras and a fine blue Cichlid.

But perhaps the most important day in the Canal Zone we spent going up the Chagres River in an air-thrust boat to look for the Masked Duck, one of the six remaining species of the 147 species of Anatidae which I had never previously seen alive.



Masked Duck *Nomonyx dominica*

Dr. Martin Moynihan, the Director of the Station, who is studying behaviour in monkeys, but had also previously studied the Stiff-tailed Ducks, took us to a place above Gamboa in order to find them. My diary records the day as follows:

'On Friday, 30th January, set off in the dark by boat to the Railway Station at Frijolles. Freight train to Gamboa, where dawn was breaking as we embarked in an aluminium boat with air-thrust propeller. Mosquitoes were bad at first light, but as the dawn broke they departed and we buzzed up the Chagres River with the boatman Chi-chi at the helm. Many little black Jacanas with yellow-tipped red bills and yellow primaries and secondaries were along the floating weeds at the edge of a wide expanse of shallow river. Frogs were singing loudly in one spot although we could never manage to see the animals themselves. Close behind a small log I saw the head of a Cayman (local crocodile) with eyes just above water. He must have been about three feet long. There was a very tame young Blue Heron *Florida coerulea* (the juvenile plumage is pure white) catching insects and fish quite unconcernedly within about four yards of us. We saw Purple Gallinules, a Moorhen, American Coots, a tiny rail, three kinds of grebes, an Osprey and some Hangnests. I swam in spite of the crocodile risk and saw Mollies and Tetras, and Cichlids and a Gudgeon-type fish (probably an Eleotrid). The Cichlids were a foot long and chunky with a blue pattern and I met what appeared to be an albino.

There were big Terrapins which were exceptionally wild. They went off the log on which they were basking at fifty yards.

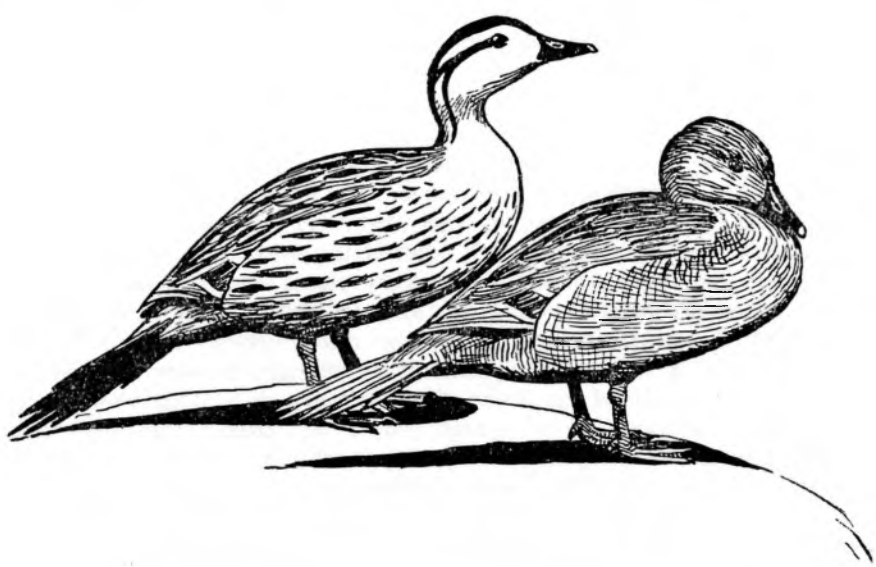
After my swim we crossed to a new area of pools and white water lilies and water hyacinths and there, as the air-thrust engine stopped, we looked at five little reddish-brown ducks swimming slowly away from us through the thick weed. We saw at once that they were Masked Ducks—the object of our day's excursion—two males and three females. They were not unlike what I had expected them to look like. Two of the five carried their tails up, the other three down on the water. They soon went to sleep again and we sat and watched them. Their heads were flat topped and seemed very large—about half the length of the body; the tail was long, otherwise in shape they looked rather like *Thalassornis*, the African White-backed Duck. The female's heads were most strikingly marked so that I thought of young Great Crested Grebes or of the Labrid Fish *Scarus croicencis*, the Mud Belly. We watched them for perhaps twenty minutes during which they did practically nothing. Then we tried rather ineptly to get closer and they flew up when we appeared at thirty yards. There were striking white patches in the wings which showed only when they flew. We never saw them again though we hunted the marsh in the direction they took. We found a flock of fifty Lesser Scaups and had lunch on a forest point which offered a dry shod landing where I sat down in an ant's nest and was badly bitten . . . '

Ecuador

Most of our time in Ecuador was spent preparing and making arrangements for our trip to Galapagos but we had time to make a short excursion to look for Torrent Ducks. Mr. Robin Copping of the British Embassy, who is an excellent amateur naturalist, took us to the San Pedro River on 5th February, 1959.

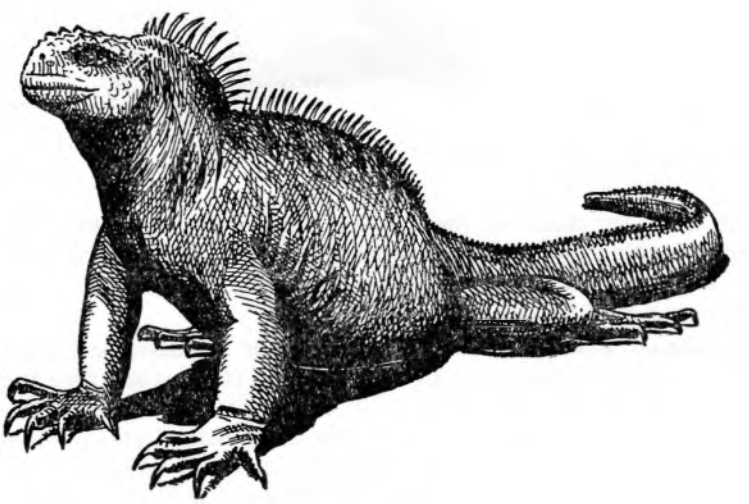
' We stopped the cars where the road and railway cross a large fast flowing river by a natural bridge. The river was far below and on stones beside it there was a pair of slate grey flycatchers behaving exactly like wagtails. Sr. Ponce, a local ornithologist who came with us as guide, said that the Torrent Ducks were to be seen on this stretch in the early morning. We began to work our way down the left bank of the river; there were frequent sets of rapids and fine vertical cliffs in many places with a marvellous red flowered Bromeliid growing on them attended by a large dull-coloured hummingbird. A sandpiper, many doves, an oriole—yellow and black and white—and three or four other species of hummingbirds were all that we saw. There was no sign of the ducks. We had lunch on a slope overlooking the river and Sr. Ponce said he thought that at this time of day the ducks were resting on some rocky ledge under the banks and the time of day to see them was seven a.m. We finally decided to strike on towards a river junction some way further down stream. At the next corner we were taking a short rest when two young Ecuadorians appeared with muzzle-loading guns and offered some beans called Guava, the pod is olive brown and furry and

inside the beans are surrounded by a soft cotton-woolly substance which tastes as Robin Copping said of flowers. You suck it off the bean, which you spit out. The two young hunters moved off and presently we heard them shout and saw them waving on the hillside a quarter of a mile away, from which point they could see down the next reach of the river. Sr. Ponce went off at the double then came back at the double for Tony's camera which he had been carrying, and was off again. We followed trying to keep in touch along tortuous tracks through the thick underbrush, tracks evidently made by cattle, which became in places low tunnels through the dense cover; often we had to bend double to get through. Eventually scratched and breathless we reached the group overlooking the river and they pointed excitedly down stream. There sure enough was a female Torrent Duck fishing at the edge of the rapids. She kept jumping up on to a stone then into the torrent again to dive at once. She stayed down for about ten seconds and then emerged and hopped up on to the next stone, all the time working upstream. Then I saw another female nearer to us; she fished up towards us until out of sight under the cliff below. Suddenly Sr. Ponce spotted another upstream near to where we had eaten our Guava beans and where Robin and the little Ecuadorian boy were still sitting. This turned out to be one of a pair and we had a fleeting glimpse of the male at fairly long range. We planned to creep into position by the river and then get Sr. Ponce to move the birds gently past us. This Phil and Tony explained to him in impeccable Spanish and we set off. As we reached the river we saw a pair of the ducks on some rocks opposite and quite close to us, but they did not stay long enough for us to film them. They dived at once and were away down stream. We hoped that the upper pair was still undisturbed but we found that Robin had been trying to drive them down to us so that in fact the ones we'd seen were the same birds, which established that only four Torrent Ducks were present, one male and three females. They seemed to be just as elusive here as we had found them in Bolivia in 1953. As all four had now disappeared we started back. We were



Pair of Colombian Torrent Ducks *Merganetta armata colombiana*

only a few hundred yards from the road and the cars when I spotted a single drake fishing in a set of rapids. We watched him preening on a stone for ten minutes or more, then stalked down through a field of maize emerging about thirty yards from the rock where he was sleeping. Eventually he moved downstream after which, although only 60 yards away, he was unwilling to move any further but remained on a ledge of the cliff two or three feet above the water apparently asleep with his head to one side but not under his wing. During the preening and in walking up the side of the rock he had frequently used his tail as a support almost like a woodpecker. We had had a very good look at his plumage. There was no suggestion of a dark neck ring as in the southern races and this was as far as I could tell from both male and female a typical Colombian Torrent Duck. We left him sitting on his ledge, and so back to Quito.'



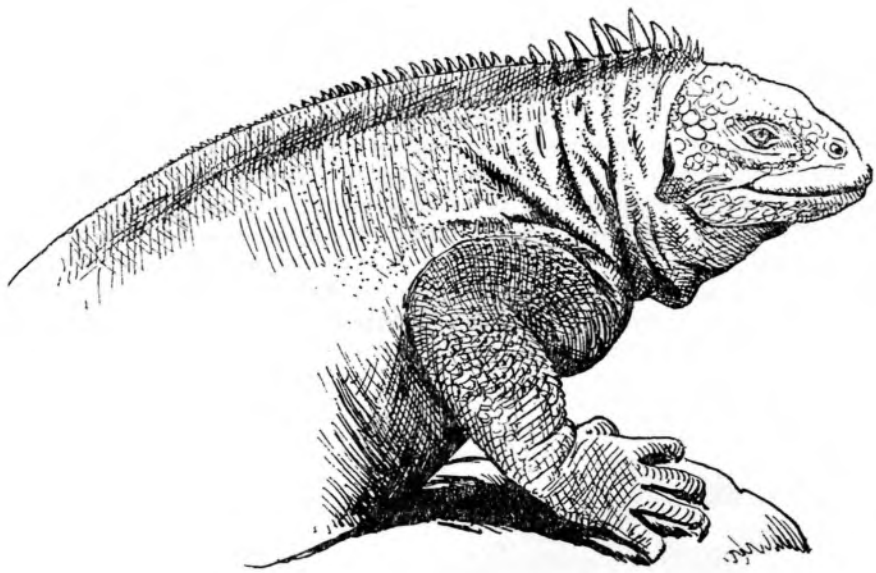
Marine Iguana *Amblyrhynchus cristatus*

Galapagos

We flew the six hundred miles from Guayaquil to the Galapagos Islands in a Curtis freighter of the Ecuadorian Airline, L.I.A. The islands are volcanic and lie astride the Equator, but for most of the year they are cooled by the Humboldt Current sweeping up the coast of Chile and Peru from the south. We were there however in the rainy season when it was often very hot.

The name Galapagos means Tortoise, and the Giant Tortoises are called Galapagos by the Ecuadorians. All the islands have two names—the modern Ecuadorian name and an old English name dating from the days of the pirates and buccaneers. Thus the seat of government is at Wreck Bay on the island of San Cristobal or Chatham.

The largest island, Isabela or Albemarle, is seventy miles long, and nine of the archipelago are more than five miles long. Only four of them are



Land Iguana *Conolophus subcristatus*

inhabited and on three of these there are colonies of several hundred Ecuadorians with a sprinkling of European settlers. The craters of some of the islands rise to five thousand feet and a volcanic eruption took place in late 1959 (after our visit).

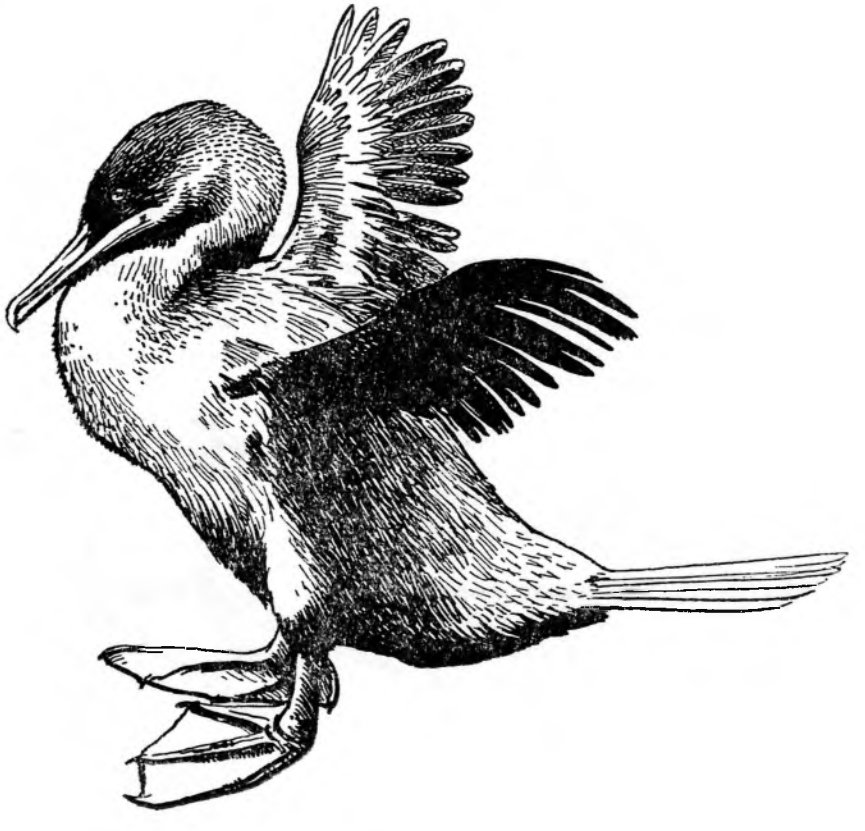
The islands show astonishing contrasts: for the most part they consist of dry lava rocks with extensive growth of Cactus (*Cereus* and *Opuntia*) which in some places become thirty-foot-high trees. But the higher central parts of the islands are much damper due to the cloud (called *garua*) which hangs over the peaks for much of the year. In some cases the highlands consist of a green moorland but the lower slopes are thickly forested with rich tropical 'moss forest.'

The Galapagos Islands played an important part in Darwin's conception of the theory of Evolution. During the voyage of the Beagle he noticed that not only were the Galapagos species different from those of the mainland, but that on each island they were slightly different from those of neighbouring islands. This could not be reconciled with the current belief that species were created and immutable. His observations of the finches and mockingbirds and the land reptiles, perhaps more than any other single influence, convinced Darwin of the fact of evolution.

The Galapagos are oceanic islands which have never been connected to the South American Continent. Presumably the terrestrial species such as the Giant Tortoises *Testudo,* the Land Iguanas *Conolophus,* the Lava Lizard *Tropidurus,* the Snake *Dromicus,* the Gecko *Phyllodactylus* and the native Rat *Nesoryzomys,* originally reached the islands by very rare accidents, riding perhaps on rafts of dead timber and weed which come drifting down the mainland rivers. One such accident might bring more than one species at a time but it seems certain that there have been several separate 'arrivals' of

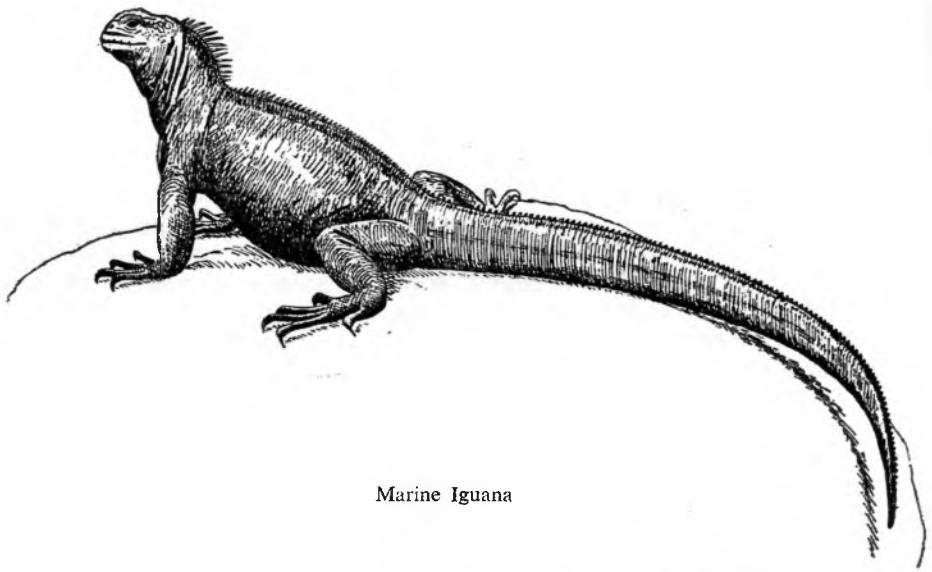
this kind. At one time the main part of the archipelago was probably a single much larger island upon which the initial colonisations took place. Subsequent subsidences left only the tops of the mountains as separate islands, on which the various species developed racial and even specific characters. A number of sea level changes of this nature in both directions may have played an important part in the startling adaptive radiation shown by Darwin's Finches. On the island of Isabela there are five volcanic peaks and five different races of Giant Tortoises have been reported from this one island (all are believed to be either extinct or on the edge of extinction). On this island the marks of marine molluscs (*Chiton*) and echinoderms have been found at more than 300 feet above present sea level. Clearly there have been many changes in sea level since these islands first appeared.

Darwin described the fauna of Galapagos as eminently curious and this it most certainly is. The native animals are almost all unique to the islands even if only as in some cases a Galapagos subspecies. A number of them are still probably as numerous as they have ever been but others are seriously threatened by the direct and indirect effects of human colonisation. A good example of the difficulties which they face is given by the Tortoises already extinct on several of the islands and clinging on by the narrowest margin on others. On the island of Santa Cruz or Indefatigable we were lucky enough



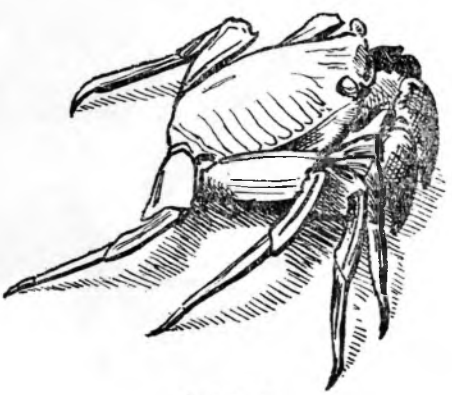
Flightless Cormorant *Nannopterum harrissi*

to see seven of these magnificent reptiles, the largest about 4 feet 6 inches long. They are hunted for their flesh and for their oil by the Ecuadorians; their eggs are dug up by the hordes of feral pigs which have run wild on most of the islands; their young, while their shells are still soft, are eaten by the feral dogs; and their green food is eaten (in some places bare) by feral goats, donkeys and cattle.



Marine Iguana

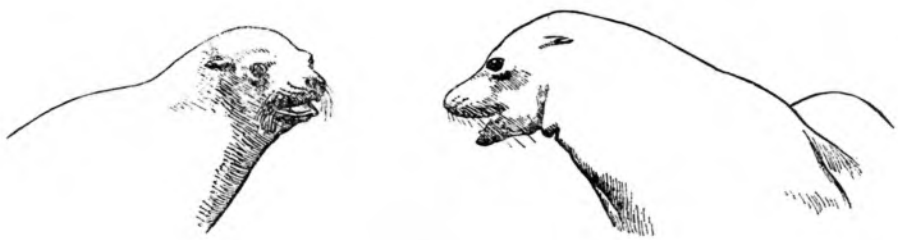
Other species whose numbers are dangerously small are the Flightless Cormorant *Nannopterum harrisi*—the largest cormorant in the world—and the little Galapagos Penguin *Spheniscus mendiculus;* it is doubtful whether more than a few hundreds of either exist. Two more very rare species are the Flamingo, which may be no different from the West Indian Flamingo *Phoenicopterus ruber* (though it may prove to be distinct), and the Fur Seal *Arctocephalus galapagoensis* which is confined to a very small number of colonies. The Land Iguana *Conolophus,* a splendid nearly three-foot-long brown lizard with yellow head and legs, is now to be found only on four islands.



Red Crab

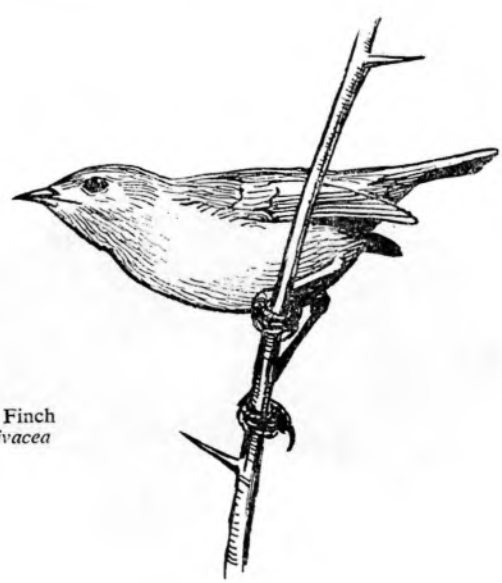
Happily the Sea Iguanas *Amblyrhynchus cristatus,* the most striking of all, are still common on most of the islands. Although the races have not yet all been described, the populations are clearly distinguishable on each island. The Iguanas of Tower Island in the north are small and pitch black for example, while those of Hood and Floreana are rose-pink with black spots, a green crest and green front legs. The race which lives on Fernandina or

Narborough is brownish black and has the habit of collecting together in very large colonies; we found nine hundred of them in a solid mass on the top of a rock about twenty yards long at Punta Espinosa at high water, with the scarlet and blue shore crabs climbing all round and over them. At low tide these Iguanas go out to forage on seaweed up to ten and possibly twenty feet down on the outer reefs. We found that they normally lay only two eggs, buried in the sand at the tops of the beaches. We filmed the females digging their burrows and actually laying the eggs—with an eight minute pause between first and second. The hole is then filled in and covered over by the female with great care. The Galapagos Sea Lion *Zalophus wollebaeckii* is



Galapagos Sea Lions *Zalophus wollebaeckii*

still quite common; we swam with them and filmed them underwater, and were twice chased out by the very aggressive bulls. The Galapagos Dove *Nesopelia* a beautiful little bird which is rather disastrously tame, is numerous only on some of the uninhabited islands, having been greatly reduced on the inhabited ones. The Hawk *Buteo* and the herons of three species seem to be holding their own as indeed are the finches and mockingbirds. Unfortunately we did not see the famous Woodpecker Finch *Camarhynchus pallidus*, which



The Warbler Finch
Certhidea olivacea

uses a cactus spine to pry insects out of cracks in bark just as a woodpecker uses its bill.

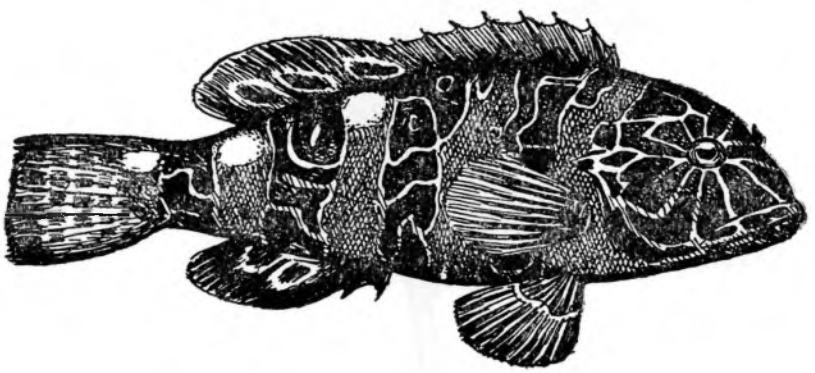
The Lava Lizard and the small non-poisonous Snake, both of which seem to vary from island to island, do not appear to be in any danger of extermination though the snake is less common than the lizards; but the interesting native Rats are unable to compete with the introduced Black and Brown Rats and may well be on the way out. Breeding stocks should if possible be established in captivity.

The status of the small dusky Galapagos Albatross *Diomedia irrorata* which breeds on Hood Island and nowhere else in the world is rather obscure. None were present during the period of our visit though it is understood that many had returned only a month later. Hood is rarely visited but the entire species appears to be represented by one or two hundred individuals.

Santa Cruz Mockingbird
Nesomimus

Our base of operations in Galapagos was at Academy Bay on the island of Santa Cruz or Indefatigable. From here we made two ten day voyages to the other islands in the Patrol Boat kindly put at our disposal by the Ecuadorian Navy. Altogether we landed on eleven of the islands in the group.

Although living conditions during our trip never descended to the level of hardship, there were many times when they could have been described as

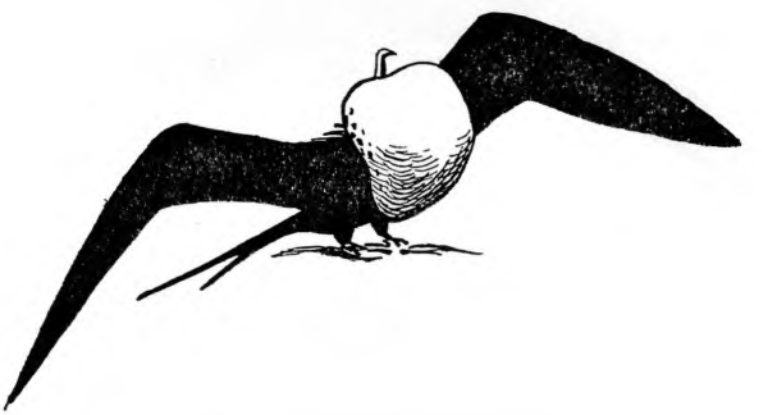


Hieroglyphic Grouper of Galapagos *Cirrhitus rivulatus*

'rugged.' Fresh water and food are both scarce and many nights we slept out in spite of a minor mosquito nuisance.

We swam frequently among magnificent fish shoals, marine iguanas, sea lions and penguins, and were not unduly troubled by sharks—which are quite numerous. The sea lion bulls were reputed to be the most dangerous animals we were likely to meet, but although they looked aggressive they never actually attacked in the water, and one which did so on land came to within a few feet as I filmed him and then stopped. It was only when the film shot was ended and I looked up from the view finder of the camera that I realised he had been charging me.

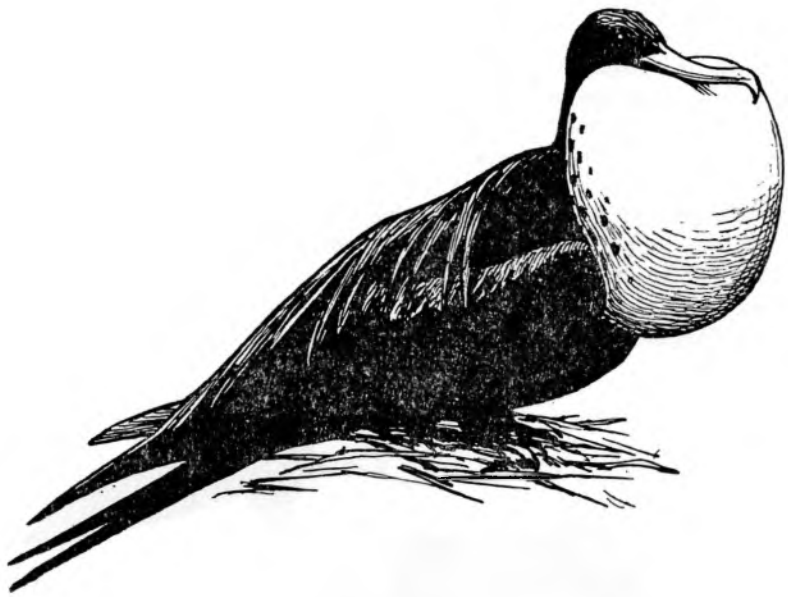
Some of our best film was made of the ecstatic courtship of the seven foot wing-span Frigate Birds on Tower and Hood.



Ecstatic display of male Frigate Bird

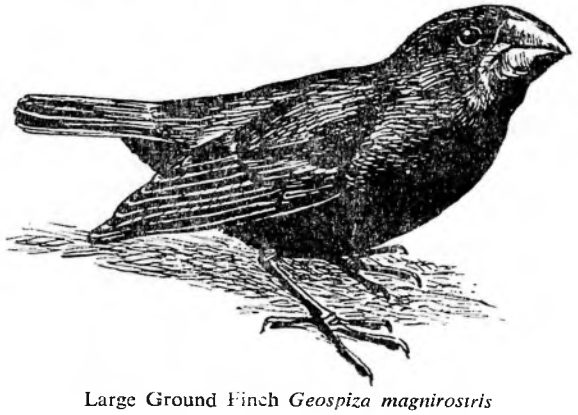
On Wednesday, 11th February we landed in a small cove at the back of Darwin Bay, Tower Island. Darwin Bay is a remarkable natural anchorage—a crater which is tipped sideways so that ships may enter over one lip into a circular harbour a mile in diameter. The cliffs overlooking the cove in which we landed were painted with the names of visiting yachts and the years of their visits. Rough white lettering was daubed across all the accessible vertical rock faces, which at first sight seemed to us to be inexcusable vandalism; but later when we thought about it more carefully we came to a more tolerant conclusion. The Galapagos Islands are remote and for any but a naturalist uninhabited Tower must be a forbidding and desolate place. The loneliness was lessened by the untidy white names which peopled the anchorage in imagination.

There was also, as we landed, a stink of fish on the beach from decaying fish-heads left by a fisherman's gutting party some months before. The shallow cove was full of large sharks, and walking on the white coralline beach were a few rather small, quite black Marine Iguanas. The rocks on one side were red with shore-crabs and in the small bushes above the high tide mark there were nesting Frigate Birds, the males with their huge red throat sacks inflated, already courting while the young of the previous year with



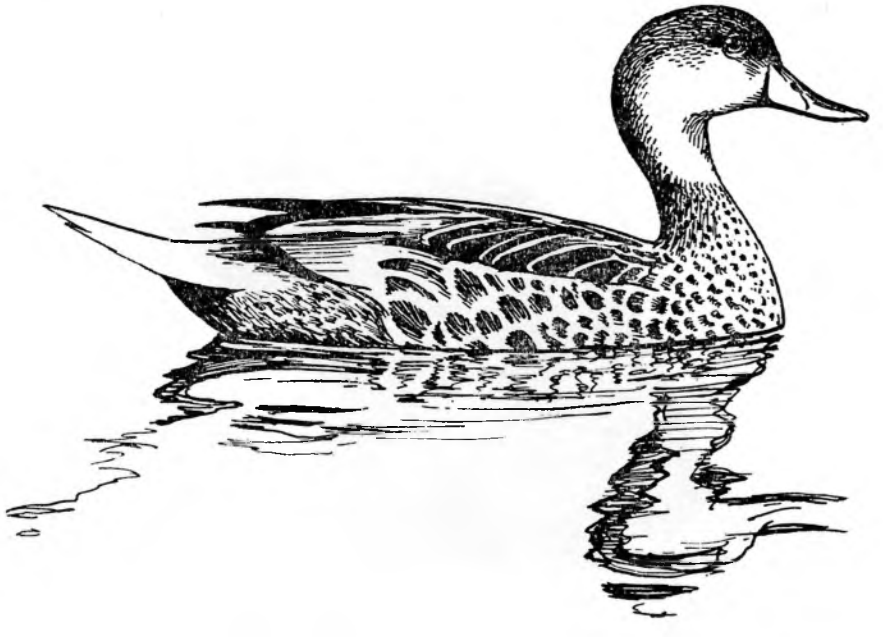
Male Frigate Bird *Fregata minor ridgewayi*

whitish heads still hung about near their old nests. Dimorphic Red-footed Boobies *Sula sula* some white some brown, but always with blue bills and red feet sat about in the stunted shrubs; Blue-faced Boobies *Sula dactylatra* with large young looked almost exactly like our northern Gannet *Sula bassana.* But the most graceful of the sea birds there, with a beautiful sad evocative cry, was the Galapagos Fork-tailed Gull *Creagrus furcatus* with a sooty black head, a sharp white spot behind the bill, almost like a drake Goldeneye, scarlet eyelids and an orange red gape—altogether a strikingly handsome gull. The quite common dusky Lava Gull was also on the beach at Tower. Although much less beautiful it is of a particular interest because its nest has not so far been found. It may breed high on the mountain tops. But in the pool behind the beach was the most exciting thing, our first pair of Galapagos Pintails. They are much as I had expected except that the female is duller; there was no red on the bill of this one and very little white on the cheek. In fact she was more like a Grey Teal *Anas gibberifrons* than a Bahama Pintail. They were quite tame and we finally filmed the pair at 25 feet in the clear water of the tidal pool which had filled by filtering through the coralline beach. Also on this pool were a family of Yellow-crowned Night Herons *Nyctanassa violacea* and a small blue Reef Heron *Butoides sundevalli.* The Tower Island Mockingbirds hopped round our feet and on to the camera tripod and among the Opuntia trees were two species of Black Finches (*Geospiza magnirostris* and *G. difficilis*), one with a very large bill and the other with a much smaller one. On the following morning there were thirty Pintails on this pool and I established that yesterdays female was duller than most. Several females had quite prominent red spots. Later when we climbed to the Crater Lake we saw a lot more, so that there might have been fifty or sixty altogether on Tower.



Large Ground Finch *Geospiza magnirostris*

On a lagoon behind the beach at James Bay on the island of James or Santiago there was a little group of twenty Galapagos Pintails near a flock of 21 surprisingly wild Flamingos, and we saw some display which to me was indistinguishable from that of the Bahama Pintail. We met a pair later up in the tortoise country in the interior of Santa Cruz, where they were sitting on a little pool among the rain sodden woods; a few yards away a Giant Tortoise was feeding. I saw one more pair on Hood, in a puddle on the path on the way up to the old war time radar station now deserted and in ruins in the centre of the island. The Galapagos Pintail is perhaps a little smaller and more slender, and if anything more graceful, than the Bahama but it is less smartly coloured; the bills of the females seem usually to show less red and the sharp line dividing the white cheek and the brown crown in the



Galapagos Pintail *Anas bahamensis galapagensis*

Bahama Pintail is much softened and blurred in the Galapagos race. In overall colour the bird may be a little reddish brown though in the field there does not seem to be very much difference.

The Charles Darwin Foundation for the Galapagos with Sir Julian Huxley as President of Honour, Dr. V. Van Straelen as President and Dr. J. Dorst as Secretary has been in existence for only a few months. Its first objective is to set up a Research Station in the islands—a project originally suggested by the International Union for the Conservation of Nature, and a well-found research vessel will be needed to extend the work. Monsieur Raymond Lévècque, a young Swiss scientist, arrived in the Galapagos in March 1960 to make plans for its establishment. This is clearly the first and most important step which can be taken to improve the chances of survival of the Galapagos fauna and will, it is hoped, ultimately enable science to make a proper use of this 'living laboratory of evolution.' The Ecuadorian Government has established a number of Protection Laws and once the Darwin Station is established there will be a much greater chance of enforcing them. The Government has also declared two large Nature Reserves but without some control they are Reserves in name only. Scarcely less important however than steps to protect the endemic species is a campaign to destroy the introduced mammals. It is clearly not realistic to imagine that all of them can ever be removed from all the Islands, but reductions would be helpful and it might be possible to exterminate them completely on certain islands to the great benefit of the native fauna.

At present the law prohibits the killing of any animals, including those introduced; and when, a few months after the declaration of the Nature Reserve in the western half of Santa Cruz last year, new settlers were allowed to occupy part of the Reserve, firearms were not permitted. As a result Tortoises, which can be killed without firearms, provide the only readily available meat. It is to be hoped that these anomalies will soon be corrected.

Galapagos Fur Seal *Arctocephalus galapagensis*