

CHAPTER VI

Espinosa Point

Espinosa Point is one of the unique and beautiful places in the Galápagos, quite apart from being a jumping off point for an assault on Fernandina. Here it is possible to observe the first steps in the revegetation of a volcanic coast, and the progression from a rooted mangrove seedling on a cracked lava shelf to a thicket of young trees, and ultimately a forest of thick trunks and stilted roots under a golden-green, leafy canopy. The way corals and shell beaches are formed is also evident. Under the influence of pounding surf and tidal currents the refuse of shattered shells, the exoskeletons of polyps, and the broken tubes of marine worms are heaped into bars and deposited between submerged pinnacles of lava to form sheltered coves that harbor the animals from whose calcareous deposit the sands are ground. Sand is washed in about the mangrove roots making a firm ground that acts as a filter to collect an organic detritus derived from animals of the sea and plants of the land. From this is manufactured a mud which cements the developing soil and which in turn attracts a whole new spectrum of animal populations from mollusks and fiddler crabs, insects and spiny-body spiders, to various small fishes and green herons. In the course of these developments regressions also occur. A storm or a tidal wave may destroy a grove of trees, leaving only a gaunt framework of blasted trunks on a spit of sand in witness to the caprice of nature.

Herds of marine iguanas have come to occupy the rocks of Espinosa Point, where together with the scarlet crabs they make

short diurnal migrations from basking ledges above the waves to pastures of marine weeds at low tide. They feed on a leafy alga either above or under water, cropping the weed off short, leaving a tight mat over the rocks as sheep mow grass in a pasture down to a green plush. At high tide they collect in vast gray assemblages to absorb the warmth of the sun. They are packed closely together and even heaped one upon the other. This behavior is a necessary routine of their daily lives that performs a function and provides a need not well understood, but without which as demonstrated by iguanas kept in captivity they refuse food, waste away, and die.

The feeding habits of the scarlet crabs are also attuned to the tides. They migrate back and forth with the rises and fall of the sea, living an amphibious life neither always in nor always out of the sea. Their breathing is by means of gills like other crabs, but they maintain an envelope of sea water around these organs so that in a local sense they are constantly submerged, carrying a bit of the sea with them onto the land. Their food is not the seaweed that the iguanas eat; it is small organisms that live closely associated with it, and they feed themselves ambidexterously with their claws. They can be seen doing this at almost any time except high tide as they sit on a mossy rock awash, picking at the surface under them and conveying to their mouths what they find alternately with their claws like a man eating greedily with both hands. Like the iguanas they are very alert to their surroundings, especially to anything that moves, and will quickly get out of the way of a person or a sea lion; and they can make a burst of speed with an agility to frustrate any attempt to catch them. On the other hand, a vulnerability that leads to

their downfall, to becoming food for herons, is an inability to recognize motionless objects or enemies. Thus if you sit still near them they may approach to within a few inches of you.

The iguanas have a better sight but are not quite so wary. If you walk into a herd of basking iguanas unknowingly because their gray bodies are almost perfectly camouflaged on the dry gray lava - a likeness that seems to have arisen fortuitously for they have no enemies - the rock will suddenly come to life as the reptiles retreat to either side opening a path for you. Then all of a sudden you notice how thickly they are gathered together covering the entire surface of a ledge. Some of the larger ones may stand fast for a moment, nodding their heads in a threatening sort of gesture and squirting salt water from their nostrils. But they are not aggressive and will never bite when captured. The head nodding is a behavior that has significance during the breeding season when rival males engage in pushing contests in the defense of their territories. The water they eject is said to be more concentrated than the sea and is the last stage in the mechanism developed for the elimination of salt from their bodies by special desalinization glands, essential to animals that drink only salt water.

On the shores of Fernandina, across the waters of Canal Bolivar in Tagus Cove, and along the adjacent coast of Isabela - in this small area of the whole earth - the Galápagos cormorant makes its home. Occasionally members of the species are seen on the east shore of Isabela or in James Bay on San Salvador where at one time they may have been more numerous, but they are not widely ranging birds for they are flightless. The cormorant population suffered in the past from thoughtless persecution at the hands of ship crews to whom the tameness and helplessness of the birds was

an irresistible invitation to kill them. Now they are protected by Ecuadorian law and international agreement but still suffer depredations at times from fisherman, or men under the aegis of science which too often sanctions in its name the collection of exhibition specimens or a series of study skins from a limited stock. The Galápagos cormorants are the largest of their kind; they are entirely brown with no orange throat-pouch like the double-crested cormorant, and they have china-blue eyes. Their bodies are covered with a thick, fur-like coat of short, narrow feathers resembling those of the penguin more than any other bird, and their wings are small, vestigial appendages, showing many gaps between the useless feathers, completely inadequate for flight. They are clearly becoming adapted to an aquatic life such as has long since been attained by the penguins and is in progress among the auks. Having long ago colonized the Galápagos Islands as flying birds they found an environment without land enemies, with space, and with abundant food. They lived more in the sea, from which they obtained their living, than on the land where they occupied only a narrow zone above the tide. Gradually, as flight and the need for it became less, an adaptive change took place in their physical structure which in turn fostered a further accommodation to an aquatic existence. Genetic changes favored by a close relationship with the sea became an endowment that conferred selective advantage, on the average, and dominated other less advantageous traits. Thus feathers becoming hair-like and unused wings undergoing genetic atrophy were such developments. The evolutionary process had taken a turn towards a more efficient mode of life within the framework of the conditions under which

it was developing, but it was an irreversible trend towards higher and higher specialization leading inevitably to extinction. Any too rapid change or catastrophic event in the cormorants environment could speedily bring on this outcome. The advent of man in the Galapagos is perhaps just such an event.

A small group of cormorants had settled at Espinosa Point, which at this time of year, in early April, was just beginning its breeding activities. A few pairs had nested earlier and we found newly hatched young in one nest, but the great majority were still in the process of courting, mating, and nest building. The nests are rather skimpy affairs made largely of seaweed, but also containing a variety of flotsam arranged as a shallow saucer to receive the eggs. One nest was built entirely of dried starfish arranged in a ring. The starfish must have been retrieved from rather deep water since they were not the kind seen in tidal pools. The courtship behavior consists of a number of complicated maneuvers including strutting, posturing, and mutual neck rubbing but it also overlaps nest-building rituals. Several times I saw one of a pair come ashore with a long strand of seaweed in its bill and waddle up to its mate at the site where the material was being assembled for a nest. The partner accepted the gift, placing it absent-mindedly in the circle of previously collected weed, acknowledging it by strutting and neck stretching. Sometimes the contribution was dropped near the nest and forgotten while the two birds postured in physical contact with their necks arched. Gifts of seaweed continue to be brought to the nest after the eggs are laid when they seem to be associated with the place-changing ritual during incubation. A similar behavior is common among

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double-crested cormorants. In this case the returning bird, with much guttural croaking, presents a stick to its incubating mate before they change places on the nest. And like all other cormorants, the Galápagos birds when they emerge from the sea will stand with their tiny wings spread wide to dry. They look very bedraggled in this pose as though they were in the midst of a heavy molt showing many gaps between the inadequate flight feathers.

After two more days at Espinosa Point we sailed across the channel to Tagus Cove, famous as a harbor for its good anchorage, deep water and sheltered position. The cove is surrounded by cliffs, which have been disfigured by the names in white paint of all the yachts and vessels that ever dropped anchor here. Some of the ships' names, a hundred years old, were nearly obliterated by time, and interesting only because of their antiquity, but were not, it seemed, a valid precedent for later voyagers to despoil the rocks to gratify that unfortunate human conceit that all the world is interested in them. We landed at the end of the cove to climb over a low ridge that separated the bay from a small salt water crater lake, sunk like a great blue eye in a socket of wooded hills. The aspect here was autumn, a gusty wind darkened the water with roughened streaks; the slopes around were sere and gray, and the falling yellowed leaves of the bursera trees, turned sienna brown, rasped and crackled under our feet. We sailed for James Bay from here, stopping for only an hour at Caleta Black to photograph the dark sand, and anchored for the night off Albemarle Point on Isabela where a radar station had been set up during the war.

In James Bay Steve and Fiddie went goat hunting to replenish our meat supply and returned in the evening with two doe

they had shot. I spent the afternoon taking photographs on the beach and the lagoon behind it where a flock of flamingoes commonly feeds. The lagoon also supports a flock of Galápagos ducks which are quite tame and apparently not persecuted. They are an endemic variety of pond duck, the size of the blue-winged teal, very pretty little birds that inhabit all the salt marshes on the shores of the islands and are found in the interior wherever ponds and marshy places exist. They live in the crater lakes on Fernandina and San Cristobal, and share the muddy marshes on Santa Cruz with the remaining giant tortoises. James Bay beach is occupied by a large population of ghost crabs that live in burrows from which they emerge at low tide to feed on organic matter in the sand. The method is curious, and leaves an intricate, beautiful pattern on freshly washed sand. The crab scratches into his mouth with his claws little packets of sand from which he extracts the edible material. The bulk of the scrapings, after being sorted over in his mouth, is discarded beneath him in the form of small pellets. The pattern produced is a network of double parallel scrape marks with a row of dark pellets down the middle. A worked over area looks like a greatly magnified section of an etched plate.

That night we visited a pole fishing tuna boat from San Diego come into James Bay looking for bait, and were treated to American coffee - not as good as Galápagos coffee - and doughnuts. The next day we started for home, our minds full of plans for an excursion into the interior of Santa Cruz to see the tortoises, the uplands of grass and bracken, and the forests of giant sunflowers.