

Chapter IX

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Buccaneer Cove

At one time in the birth and ^{growth} ~~evolution~~ of the Galapagos Islands Isabela was two islands: the southern mass of Sierra Negra and Gerro Azul were one; the northern chain of volcanoes from Alcedo ^{composed} ~~were~~ the other. During the course of eruptions lava flowed into the straight between them narrowing the passage and filling it in until by the coalescence of the flows a land bridge of jumbled frozen rock sealed the gap ~~of~~ separating the sister islands. This low ^{named Perry Isthmus} ~~waiste~~, which has existed since ^{long} ~~before~~ historical times, is steadily being widened by ^{occasional} ~~continually~~ outpourings until from either side/it is now six miles across. The east side of Perry Isthmus combines with ~~the shores of~~ the land masses to north ^{from} ~~shores~~ and south to ^{make the boundaries of} ~~the boundaries of~~ Cartago Bay, ^{which connects two} ~~it is not a bay~~ that embraces sandy beaches and ^{under no} ~~a~~ good anchorage. The latter must be chosen with ^{care} ~~caution~~ to avoid losing an anchor ^{to} ~~on~~ the rough, rocky bottom; and the ^{shore} ~~coast~~ is a labyrinth of ~~intricate~~ channels and inlets between ^{forming a barrier} ~~solidified~~ ~~velvet-black~~ lava. ^{On} ~~the~~ fingers of ~~lava~~ jagged, ^{canopy} ~~all but the most recent flows mangrove has spread a green fence on~~ stilted ~~buttressed~~ stems that completely ~~to~~ ^{be} ~~hide~~ the back country from a person in a small boat. Where recent flows have penetrated this belt of vegetation. Gaunt, charred and ~~bleached~~ whitened trunks of mangrove stand ^{But the denudation is short lived; every} ~~where~~ among the tangled dead branches and along the water's edge of the fresh lava, seedling ~~are popping up~~ with twin terminal, apple-green leaves are popping up. It ~~will~~ ^{be} ~~not~~ be long before the gaps in the mangrove barrier will ~~have been~~ healed. These inlets are ^a ~~favorite~~ haunt of the green sea turtle who finds in them ~~an~~ abundant forage ^{of} marine algae. They also harbor the white tipped shark whose faint

outlines and swift minatory ^{darts} (spurts up) from the murky-green, opalescent deeps warn us not to dangle our hands in the water.

Behind the mangrove wall an undulating plain of pahoehoi lava stretches inland towards the steep slopes of Sierra Negra. On this barren surface, sheltered from sea breezes, the ^{sun's} absorbed ~~radiant~~ ~~delivered by direct conduction~~ energy ~~of the sun is radiated back into the air~~ ~~from the hot rock to the over-heated air~~ transformed into ^{trembling heat} ~~vibrating~~ waves of ^{heat} ~~heat~~ that rise from the ~~hot~~ rock as from the top of an ^{hot} iron stove. Nothing but a few hardy clumps of brachycereus grow on this baked and dehydrated plain. A mile or two from the shore the flow of lava was split by a ^{comet} ~~hill~~ of ~~ash~~ older ash and cinders formed during a more ancient volcanic event. The lava flowed around the base of this on both sides, hill/leaving on the down stream side a shadow of unflooded ground before the two streams rejoined in their onward ^{crash} ~~rush~~. On this island in a sea of lava, saved by geological accident, animal and plant life survived. The vegetation in ^{upward area} ~~the shadow at the foot of the~~ ~~chiefly~~ ~~hill is largely~~ bursera, croton bushes, and giant opuntia cactus; and living in burrows in the yellow-brown ashy soil are large numbers of brightly pigmented land iguanas Conolophus pallidus.

These lizards are colored in different shades of yellow, brown, and orange the distribution of which varies somewhat from individual to individual. In some the head and shoulders are a pale, almost canary yellow, blending into white on the ~~throat~~ ^{to dole} with a shading ~~through~~ oranges ~~and~~ brown on the hind quarters and tail. Others have much darker heads but retain the pale yellow on their spiny crests.

These Isabela iguanas are quite distinct from the Plaza Island average darker in drab shades of gray and ^{burnt} ~~burnt~~ ~~umder~~ ~~umder~~ race which ~~tend to be more drab with much more burnt umder~~ brilliantly pigmented They are even more ~~brilliant~~ than the Santa Cruz iguanas of "Dragon ~~Hill~~ Hill". As with ~~coloring in so~~ variations in coloring in so many animals species the pigmentation of Conolophus may also be related

to dietary factors.

The members of this colony were also decidedly less shy than those of the colonies on Plaza and Santa Cruz islands. If approached slowly, ^{movement} avoiding sudden motions, it was possible to get to within a few feet of them. ^{But} They were alert, and ^{was left} would watch you intently without fear, following every ^{concealed if any} ~~motion~~ ^{movement} you made with their eyes until your position required them to turn their heads. Sometimes they licked their lips with a thick red tongue ^{like} ~~with~~ the nervous ^{behavior} ~~gesture~~ of a person under ^{emotional} ~~nervous~~ strain. When the tension ~~the~~ at last became too great the animals reacted ^{suddenly} ~~as~~ as though a ~~tightly~~ coiled spring had ^{suddenly} ~~instantly~~ been released; ^{snapped loose} they ~~dash~~ ^{dash} away ^{their} for his burrows, or for a rock crevice, or for the ~~safety~~ ^{relative} safety of a fallen branch.

The place where they live out their confined and seemingly monotonous lives at the foot of the hill is a park-like grove of mixed Palo Santa and cactus. The trees are rather widely spaced leaving grassy swails ~~between them~~ and patches of bare ochre ground between them. The ~~grass grows in~~ tufts and bunches of yellow grass are dry and lifeless, and scattered around is the usual forest litter of dead branches and brown fallen leaves giving the park land a unkempt very autumnal appearance. Around the edges of the grove where ^{long ago} spread in and was being ^{upon} the lava had ~~encroached it formed~~ encroached by the younger trees if ~~formed~~ a pavement of scalloped wrinkled lobes like a rough mosaic ⁱⁿ of ancient fishscale design. The fall character of the scene was enhanced by the dried leaves ^{collected in} accumulated in the cracks in the lava, and by the yellowing foliage still clinging to the branches above, which contributed a curious anachronistic contradiction to the May season. One has the feeling of changless permanence here, that Melville described, with the undetached aversion of a New Englander,

as No doubt after the gaura or following the winter rains, if or when they occur, the trees put out new leaves and the grass becomes green ~~to introduce~~ ^{to} a fleeting mood of spring, but for most of the year ~~an atmosphere of~~ ^a sere and withered ~~condition~~ ^{condition} prevails, an atmosphere of perpetual autumn, when in ^{Melville's} the words of Melville rain never falls.

Across the Cannal de Isabela on the island of Sabtiago a bay, as different from Cartago as their common volcanic origin give birth to could ~~produce~~ ^{produce}, has been fashioned by a longer period of submission to the forces of the sea. Named James Bay, by English sea Captains more than a century ago, is a wide cove along whose shore a mile of steep, brown beach absorbs the ~~moderated~~ ^{attenuated} waves of the strait which mold its profile into ~~a series of~~ ^{billow} gently shelving hollows and ~~mounds~~ ^{series of bulges & hollows}. Hundreds of ghost crabs have dug their burrows ~~in~~ here this beach into which they retreat at high tide, but emerge when the sea has withdrawn to scratch their living from the packed sand, leaving a complicated tracing of parallel scars and dark pellets to mystify a first-time observer uninitiated into the ~~secret~~ ^{of future, arcane} of their habits. They are a wary crew with ~~periscope~~ ^{stethoscope} eyes trained always on an approaching ~~person~~ ^{object}, and cannot be surprised by stealth. I tried to creep up on them, but they always stopped feeding when I was still a dozen yards away, and ~~looking at~~ ^{looking} me with what I began to feel, after several futile tries, was ~~more akin to animosity than~~ ^{a hostility} as ~~from calculation~~ ^{from calculation} to a ~~surveyors' judgement~~ ^{surveyors' judgement} of distance, they would ~~dash~~ ^{scamper} for their burrows. ~~When~~ ^{But perhaps} the gap between us ~~was~~ ^{had been} reduced to a certain crustacean estimate of minimum safety. In any case from the security of their ~~invisible boundary~~ ^{invisible boundary} doorways they continued to watch until another ~~lesser distance had~~ ^{lesser distance} was crossed, when they would pop out of sight. To test my theory that motion was more alarming to the crabs than the presence of a

strange object, I sat myself down beside a hole which I could observe without turning my head. I waited a long time while other crabs tiptoed or dashed across my field of vision, some indeed ^{Came} ~~coming~~ so close that I could study their method of feeding. I began to suspect that my crab had another exit from his home, and was about to give up when I noticed ~~that~~ two stalked eyes with pink tips just showing over the sand rim in the shadow of the hole. How long he had been watching me I had no ~~idea~~ way of knowing - perhaps from the beginning of my vigil. Apparently reassured by my hour-long motionlessness he tentatively crept out leg by leg and began to feed. ^{The process is} ~~What they do~~ to scrape up alternately ~~is alternately~~ with their two front legs ~~scrape up~~ ^{transferred} ~~claw-fulls~~ of sand which are ~~carried~~ ^{crab's} to the ~~mouth~~ and there sorted over by the mandibles to remove edible material such as small crustaceans, plankton, etc. ^{cleaned} ~~The/sand~~ is then dropped ⁱⁿ ~~as~~ small round pellets as the animal moves forward.

During the course of these observations I noticed ^{Interpreted to be as} ~~what~~ might be ~~construed as~~ a kind of social intercourse or code of manners among ghost crabs. Inevitably while feeding at random a crab will find himself near the entrance of another crab's burrow. He sidles up to the hole and furtively reaches over the edge with one or two claws tapping the sides gently, whereupon the occupant if home will come to the entrance. There is no apparent conflict; it is like knocking at the door of a neighbor to say good morning. The visitor then moves away of his own accord. In situations of alarm crabs will take refuge in the nearest ^{available} ~~burrow~~, and so as might be expected more than one crab may ^{occupy} ~~enter~~ a hole without seeming to cause undue disturbance to the ^{one another} ~~first occupant~~. This ~~seems~~ sharing of a house can be interpreted as the right of ~~of~~ asylum. But perhaps ghost crabs do not suffer from a strong sense of property or ~~territory~~ ^{territory}.

Except for the cactus the vegetation is sparse; a few white trunked ^{trees} ~~bushes~~ cling to the dark face of the wall to accent like bird lime the most stable ~~niches and~~ ledges. But the cactus ~~trees~~ have pre-empted all the prominent sites where they stand ^{as} ~~like~~ sentinels guarding ~~on guard on~~ their crumbling fortress. At the very tip of the peninsula they are crowded on the last ~~remnants of~~ fallen blocks, ^{they occupy} tip of the ~~finger~~ while above ^{on the} ~~very peak of the narrow~~ headland they occupy in ^{which to} ~~a rank of~~ expectant watchfulness ^{as though} ~~as though~~ prepared to make a final ^{desperate} ~~hopeless~~ effort to repel the forces of nature to which paradoxically they too belong.

The beach at Buccaneer Cove ^{because of} its steepness ^{from} and the constant surf, is a difficult place to land in a small boat, but ^{from} ~~in~~ a sailing ship's long boat ^{the kind used by pirates} it could probably be done without much danger of swamping. Now-a-days, those who wish to go ashore use the smaller beach on the north side of the narrow peninsula where the waves break with less force. The sand on this beach ^{a color} has a pinkish cast, which is derived no doubt from the material of the peninsula. The Buccaneer Cove beach is brown; ~~the grains of its~~ sands are derived from a different source and contain a considerable admixture of olivine. The ladd behind the beach rises at first ^{then more gently} ~~and~~ abruptly ^{then more gently} ~~to an~~ inclined plain of stratified volcanic ~~material~~ deposits now densely cemented ~~into a hard~~ on the surface into a hard layer which extends for a considerable distance into the interior. It is ^{from} ~~from~~ these strata that ^{supply} the olivine ~~is~~. An overhang of moderate height at one end of the beach permits a view almost directly down onto the ~~beach~~ waves that break (and swirl) ~~and weave~~ across the sand. They come in ^{from} ~~at different~~ several directions ~~as they are~~ deflected by the cliffs on the sides of the cove to make a criss-cross pattern of foam as they shoot across the sand ^e ~~losing~~ energy and ^e ~~fall~~ sliding back.

The endless churning and ^{swirling} ~~weaving~~ of the ~~dissipating~~ waves, that ~~bill~~
~~in shallow edies~~, flatten and disappear in thin sheets streaked
 with ~~bubeting~~ bubbles, stir the sand, dislodging the life beneath
 the surface which then is ^{vulnerable} ~~exposed~~ to predators. As I stood on the
 low promontory watching the ^{quiet & steady} ~~changing~~ ^{shifting glitter shimmer} ~~patterns~~ off from the evening sun
 on the beach below, a small flock of oyster catchers came swooping down
 to alighting ~~just ahead~~ ^{in front} of an advancing wave ~~and~~ ^{nimbly}. Nimbly they
 ran just ahead of the water, and when it fell back followed down
 probing the sand with their ~~flat~~ blunt, heavy, coralline bills for
 the creatures left ^{exposed} ~~uncovered~~. Never hesitating, never getting caught
 by ^{the} ~~a sudden~~ ^{rush} ~~dash~~ of a wave, they dance back and forth with the swirling
 water in perfect harmony and with ^{perfect} ~~unhesitating~~ assurance.
 They play this game with the ^{sea} ~~waves~~, scarcely wetting their feet,
 always ^{maintaining} ~~closing~~ the margin to the narrowest ^{margin} ~~thread~~ between them and the
 advancing or retreating waves ~~to the narrowest~~ ^{margin} ~~thread~~ of safety, but
~~there is no danger for them~~, ^{and} for if their calculation is in error
 they lightly take to wing, coming down again in a flash of black and ~~white~~
 white plumage at the tip of ~~an~~ ^{and} ~~advancing~~ ^{and} tongue of foam. Back they
 go when it ~~retreats~~ pecking here and there in the sand for the food
 the wave uncovered or left stranded.

The making of a living at the edge of the sea is the
 result of long genetic ~~experimentation and~~ trial. For ages these
ⁱⁿ ~~birds~~ ^{at the edge of the sea & retreating waves} ~~ancesters~~ of these birds have been learning the art of foraging
 in the swirling foam on a beach. Their living descendants follow
 the patterns bestowed on them, unconscious of their heratage, obeying
 an instinct that has not let them down. It cannot be claimed that
 they know as individuals a livelihood is available from the rush
 of the sea; they know in a more enduring sense with a knowledge
 embedded in their nervous systems by generations of experience

that a quickness of foot and an alertness of eye, when applied to
 which separates that
 the boarderline ~~between~~ land and sea, to ~~the~~ rich zone between the
 tides, will keep ~~them from~~ ^{away} hunger and starvation. Here we see
 a phenomenon not of our day alone, but with roots that have
 transmitted its meaning across the ages to connect ~~but~~ with theirs
 our own misty origins.

Under the overhang from which I watched the oyster catchers,
 the sea has carved out a long gallery where sealions retreat from
 the heat of the sun to sleep and nurse their pups. At low tide
 one afternoon after bathing I saw ^{a lava lizard} ~~on a~~ stalk a yellow butterfly
 the ^{sealion gallery} ~~sealion's cave~~, a lava lizard, who had come down to the beach
 for ^{flies} ~~insects~~ attracted by the sealions. stalk a yellow butterfly.
 He crept up on ^{his victim} ~~it~~ like a cat ^{after} ~~on~~ a bird while the ^{insect} ~~butterfly~~ stood in
 the sun unnoticing, slowly opening and closing ^{its} ~~his~~ wings. With a
 sudden rush the lizard had ^{it} ~~him~~ squarely by the body, head first in
 his mouth. The ^{butterflies} ~~insects~~ wings gave a few convulsive twitches and
 then were still. Slowly the process of ^{swallowing} ~~engulfment~~ ^{then} ~~now~~ began.
 Releasing his grip slightly ^{Tropidurus} ~~the lizard~~ gulped at his prey and with
 each spasm it entered farther into his mouth until the body was
 hidden and only the yellow wings projected from either side of his
 jaws. As the gulping continued the wings were folded forward like
 a closing fan and finally they too disappeared from sight. For a few
 minutes ~~more~~ before dashing off the reptile stood quietly, eyes closed, with a slightly
 goitreous, dispeptic look as though he regreted his meal.

Later that same afternoon on the cindery slope above
 the beach we discovered a small Bromicus, the only ^{who} ~~snake native~~ ^{Tropidurus} ~~to~~ in
 the Galapagos, ~~that~~ had just caught a lava lizard ~~that~~ nearly half
 as big as himself. ^{The snake} He had the lizard by the neck and was ^{working} ~~struggling~~
 to shift his hold to its head while the ^{little} ~~lava~~ lava lizard was struggling
 to ~~be~~ free ^{himself} ~~itself~~. In spite of the not great discrepance in size

the contest was ~~an~~ unequal ~~one~~. The snake's grip with his fine sharp teeth could not be broken, and when inevitably *Tropidurus's* head ~~had~~ entered the elastic throat of *Dromicus* his struggles ~~had~~ ceased. for *Dromicus* From then ~~on~~ the process of getting ^{the} a meal was simply one of all swallowing, at which snakes are ^{all} adept. Their jaws become unhinged to permit the passage of objects much larger than the ^{throat could} ~~resting gullet~~ normally ~~could~~ accommodate, and the skin of their necks ~~and throats~~ stretches ^{enormously} until the spaces between the scales become ^{occupied by} many times the area ^{of the} scales themselves. By ^{the} peristaltic pumping ^{with in and} in which ~~the~~ most of the snake's body musculature was enlisted, ^{engulfed} ~~the~~ body of the snake ^{is involved} is ~~involved~~ the now dead lizard was engulfed ^{its} to encompassment by *D's* mouth gradually consumed. ^{as they were folded} ~~its~~ legs presented a momentary obstacle which was overcome by their ^{the lizard's} being folded back against ^{into a neat package} ~~its~~ sides as the wings ^{amongin unecomplicated much simplified} the butterfly's had been folded by ^{inter} his contemporary a few hours before. ^{comport} The food chain ~~even~~ in the ^{inter} simplified biotic relationships of the Galapagos Islands is ~~long~~ shorter than it would be on the main land. A butterfly's in its larval stage is a vegetarian drawing its energy requirements from the photosynthetically stored ^{relative from} energy of the sun, ~~which~~ the foundation on which all life rests. Once removed from this herbivorous insect ultimate source the ~~butterfly~~ became food for a lizard which in its ~~turn~~ nurished another reptile, a small snake, ^{if} Did the food chain end here? ^{it} may have, the snake ^{dies and its substance} entering ~~the substance of the soil~~ ^{But a small fraction of org. & inorg will} through bacterial ~~actions~~ disintegration, ^{its} chemicals ~~to~~ reappearing in the structure of plants at the bottom of the scale to start their progress up the ladder of life once again. On the average only one molecule in ten advances from each rung to the next higher rung, ^{inefficient} so ~~wasteful~~ is the process ~~of~~; all the rest fall back to the lowest level in a constant rain of ^{mother} ~~slo~~ughed off ^{known} refuse. The ladder is not symbolic of the progress of organized forms ~~ascending~~ changing in shape and shrinking in size to one tenth with each step upward; it is a

fanciful construction

~~symploze~~ of the ascent of the abstract principle of life through
discontinuous of life
all the/stages in the chain/from a vast seething, ~~to~~ shapeless mass
resting on the inorganic basement at the bottom to a ^{forms} speck of highly
organized complex ~~organisms~~ at the top, [↑] from which ~~reach up~~ the green
~~plants to the sun~~ over-spreading plants reach up to the sun - the
source of the life force - The organisms on each rung retain
unchanging their positions, handing up only to the ~~stage~~ above a
tiny portion of their living essence.

if does will
But/little Doomicus ~~may~~ not die of natural causes, he ~~may~~/
continue the chain one step higher. As a snakeling he may be eaten
by a mockingbird, or later in his life become ~~the~~ prey of to a
and this may have been the fate of the
Galapagos hawk, and this may be the fate one that ate
the lizard at Buccaneer Cove. He may have been fed to their nestling
hawklet in the nest in the
~~by the hawks who had built a nest in a~~ Palo Santo tree on the
in the Galapagos
hillside above the cove. But here/the ~~chain~~ food chain finally ends
had the coming of men.
for the hawks ~~have~~ no enemies before ~~man appeared on the scene~~.

The hawks nest was discovered by one of our expedition
It
and we all visited it the following day. The ~~nest~~ was a bulky structure
of sticks built low in a Palo Santo tree half way to the top of the
volcanic cone that formed the south side of Buccaneer Cove. As we
climbed the cindery slope towards the nest the birds became increasingly
restive. Ordinarily Galapagos hawks pay little attention to people
and can be approached quite closely (when ^{far from} not near their nests and when ~~and~~ ^{display}
~~not rearing young~~) Under these circumstances they seem to evince
merely a cautious curiosity. But when ^{quicker they are} they are ~~nesting~~ they change
unsuspicious
from ~~docile~~ gentle, ~~unprovokable~~ birds to fierce and fearless
defenders of their aerie, and so it was with these. When we reached the
nest site we were greeted with piercing ^{cries} from two adult birds
circling over head and from time to time one or the other would

plung down at us with such apparent intent to do us harm that we dared not take our eyes from them while in the open and took refuge under the branches of a large tree. The ~~hawks are such aggressive powerful~~ ~~severe injury~~ ~~fearless birds as these hawks could cause considerable damage by striking a persons unprotected head and face~~ By striking with their powerful talons these aggressive birds could cause serious lacerations unprotected to the head and face of the unwary. protect oneself forward against such injury, As a simple expedient to hold a stick above one's head which deterred the hawks from ~~diving~~ making actual contact, although they continue to attempted dive with alarming persistence and speed. Often an ~~striking dive~~ is unannounced by any warning cry and the first knowledge of it is the sudden rushing sound of wings as the bird veers off only inches away.

It is a terrifying sight to see a large fierce ^{hawk} ^e ~~bird~~ coming straight for you ^{at} ^{speed} like a dive bomber out of the sky, his sharp talons forward, wings partly closed, and ~~It is not the extended talons that are so frightening; it is the steady, piercing eyes and down curved beak between the partly folded wings that declare~~ ^{the} ~~undeviating~~ ~~dedication~~ ^{dedication} determination in the attack, a ^{willingness} ~~willingness~~ to accept even immolation. *ref. detent.*

When a lull in the dive bombing permitted, we turned our attention to the nest and found there to our surprise a third hawk ^{presumably a female} in the full dark brown plumage of the adult /crouched down in the hollow ~~of~~ the sticks. On further investigation at some hazard it was discovered that she was brooding a few day old, single, white downy hawklet. This ^{information} ~~fact~~ was not ^{simple to ascertain} ~~easy to obtain~~ in the face of her aggressively defensive posture. I undertook the task by climbing the tree, whereupon she rose in the nest and moved over to the side towards me and as I reached her level she spread her wings in a threatening manner and lunged at me with open beak. She could have attacked ~~me~~ ^{that is} with claws too, but for her solicitude for her

offspring she was more concerned to interpose herself between it and me. Every move I made to see what she was guarding was met by a counter move on her part ^{to ward off} ~~repel~~ my advances. I dared not reach over towards her with my hands for fear of receiving a painful and bloody wound. In the end ~~I was able to~~ I obtained a view of the young bird by gently raising her body a few inches with a stick, a treatment she resented less than my presence.

Here was an unusual situation: three adult hawks defending a single nest. I had never seen this to occur before with birds of prey, who are usually, I had been led to believe, were very jealous of their terretorial rights, ~~even in respect to other members of their own species.~~ Among passerine birds foster parents and group care of young is not altogether unknown. I have seen it happen in jay, and nuthatch and warbler families in which an odd birds has ^{seen helped feed} ~~fed~~ the young of a mated pair ^{both} in the nest and ^{other fledglings} ~~as fledglings.~~

Hawks as fearless as the Galapagos hawk would not survive long in an ~~association with human~~ places where they could come into ⁱⁿ close contact with men. ^{the} ~~Cautious curiosity would~~ Anything as "unnatural" as cautious curiosity ^{if true} would be certainly rewarded with lethal attack. Most men do their best to ~~maintain~~ foster and maintain a barrier of fear between themselves and all other animals, which is mutual only in the sense that fear enters the picture on both sides. The animals' ^{a conditioned fear} ~~fear~~ is/for self preservation; the human ^{superstitious} ~~fear~~ is ~~defensive a/defensive~~ fear of the unknown.