

Chapter X

The Southern Islands

The little island of Barrington off the southern coast of Santa Cruz has no high mountains, no ^{green} cloud forests, no visible sources of ^{moisture} other than the clouds ^{from} ~~standing water throughout most of the year~~. Its contour is low; its vegetation is scattered and monotonous; its animal life reduced to a tiny fraction of its former abundance. Yet it retains a character ^{of its own} unlike any of the other small islands, an atmosphere of ^{faded} ~~stale~~ desiccation.

Although
/ The larger trees gave the impression of ~~just~~ ^{more} maintaining a precarious hold on survival, a ~~more~~ lowly plant of less exacting requirements - the lichens - flourish with a luxuriance that actually contributes to the impoverished appearance of the higher forms, though they do not live at their expense. Various kinds are attached to everything: the rocks are ^{frosted} ~~encrusted~~ with lobed and branching processes of these fungoid, dormant plants; the bark of the Palo Santos, white enough on ^{lichenous} ~~of its own nature~~ is further whitened by a blotchy/paint; and the branches ~~are festooned in~~ from these trunks are festooned in streaming filaments of palish green. The combined effect is ~~of~~ one of cobwebbed, ^{organic} tattered age beyond decay from which all/residues ~~of~~ have been dissected by microscopic agents leaving only the bare bleached bones and ghosts ^a of/former ~~lux~~ flourishing success. But this is only illusion. The lichens are very much alive, as are the trees that ^{while they e} give the ^{epiphytic} ~~epiphytic~~ types support, ^{abiding} ~~the~~ the time of the periodic ~~atmospheric change when the~~ ^{from} fogs of the ocean currents ^{that} bring the pittance of moisture for renewed activity.

The scaly orange ~~trunks~~ columns of the tree cactus, the only surface - a sterile bark - that provides no chemical nutrient for the lichens, gives a lively accent to the otherwise ~~faded~~ ^{pale}.

On the shore, the cactus grows in closer rank along the cliffs and successfully occupy a small island which encloses one side of a narrow lagoon - the only good anchorage on Barrington - where the clear water schools of fish manoeuvre in formation through transparent water over a white sand bottom. The small island is without beaches, its sides are ~~LA~~ basalt cliffs that drop perpendicularly to the sand floor of the lagoon. Young sea lions play around these submarine cliffs and clamber out onto the land at places where the lava blocks make the least abrupt transition with the sea. At these points the rock is coated with/dried salt and their coats and whose dung and ~~dung~~ from the coats of the old bulls ~~sea lions~~ whose who have lost their youthful playfulness ~~has~~ and atrophied and whose frivoliy has been replaced by the indolence of age. They prefer to sleep away the days ^{the intervals} ~~between~~ ^{the intervals} ~~foraging~~ excursions into the sea ^{the} ~~to romping~~ ^{juveniles,} with the ~~children~~ and crawl out up among the cactus trunks to escape the playful importunities of the young. In these basking plazas ~~the~~ all the modest vegetation has died and the irregular surface has been rubbed ^{the} ~~up~~ to a glistening polish of white enamel by the constant coming and going of ^{the} ~~sea lions~~. Out of the blinding whiteness rise the cylindrical brown trunks of the opuntias whose size ^{that they will} ~~acquires their survival~~ ^{attach to an ability to} ~~resist the ruin spread by the~~ ^{Galapagos} ~~Prehistorically~~ Barrington supported a denser vegetation ~~the~~ than today, both in grasses and arboreal species. The disappearance of ^{plant} ~~types~~ has been the result of an over population of goats, introduced mistakenly, as on most of the Galapagos Islands, to serve as a food stock for mariners. They multiplied enormously until they had consumed the grasses and destroyed most of the bursera and cactus seedlings. Interspecific competition between these hardy exotics and ~~the, for the exigencies of this new kind of~~

the
~~rigorous competition~~, the less well equipped land iguanas, Conolophus,
 placed too high a burden of survival on the latter, which, ~~declined~~
~~in numbers~~ less well equipped for the exigencies of this new kind
 of rigorous competition, declined in numbers. Barrington's unique
 race of tortoises had already long since been ~~destroyed~~ ^{extirpated} by the
 depredations of seamen. To save what could be from this deteriorating
 situation the Darwin Station undertook a few years ago a campaign
 to exterminate the goats on the island, ^{During a prolonged hunt} ~~400 of which were shot~~
 400 were shot and since then there has been a marked recovery of the
 vegetation, ^{however, that} ~~but~~ a few pairs/escaped destruction ~~and~~ are multiplying
 rapidly and unless ~~they are~~ ^{they} wiped out, will in a few years time
 reestablish ^{a large} ~~the previously~~ population ^{which will demand} ~~destructive numbers requiring~~ another
^{goat} massive attempt at/elimination.

^{relief from} The iguana population seems also to be increasing under
 the ~~elimination of~~ competition with goats ^{for cactus pads} as well as
 under lessened human pressure. They were at one time taken in large
 numbers by sailing ships for food, but now that ^{this an} ~~it is~~ illegal to do
 activity many fewer are ^{carried off} ~~captured~~ ^{for} ~~this activity~~ ^{one} ~~predation for this purpose~~. The Barrington iguanas
 are a dark race more like the ~~race~~ ^{one} on Plaza Island than the other
 races already described, but they have ^a ~~one~~ feature which distinguishes
 them from the others: the spiny crest between the shoulder blades
 is not stiff enough to ^{limply} ~~stand~~ ^{fall} to one side, ~~in a limp position~~. In
 their eating habits they were similar to those on Isabela. Cactus
 pads seem to be a staple constituent of their diet on both islands,
 and on both they ^{are} ~~prepare~~ ^{the pad} for consumption by first making an
 attempt to rub off the spines with their front feet. One foot is
 placed on the fallen pad to hold it down while with the other foot
^{they} ~~the surface is rubbed~~ ^{from side to side} with a brushing motion.
 The process removes a large number, but not all the spines, some of

which stick into the skin of ~~the iguanas feet~~ ^{their feet}. Apparently this is a ~~more~~ ^{less an} desirable place, from the iguana's point of view, than the tender epithelium of to have them sticking into ^{the spine} his lips or tongue or the ~~tender epithelium~~ of ^{body of} his digestive tract. Nevertheless a good many are eaten since the ~~rubbing~~ ^{throat} removes only the, which is ~~not~~ ^{only partly effective} thorough, removes only ~~the~~ ^{those} most loosely attached spines, and, since the under surface of the pad is not rubbed at all. ^{It is} Being ~~thus~~ ^{so ineffective and} scarcely more than a gesture, one wonders why the creature bothers to perform the act at all. It is rather difficult to explain a behavior pattern which serves so little purpose unless the behavior ~~is a~~ ^{that once} survival from a time when the need was greater, either ~~because~~ ^{once} the iguana was less able to cope with cactus spines in its ~~digestive tract~~ ^{digestive tract}, or ~~because the~~ ^{that in the past} cactus spines were ~~once~~ ^{more} formidable. A genetic change in either of

* through the route of natural selection
these directions would lead to the same end result: First the iguanas adapted ~~to~~ ^{by} itself to a spiny food by ~~acquiring~~ ^{through the route of nat. sel.} the habit, ~~genetically~~ ^{genetically}, of rubbing them off, then ~~through~~ ^{by} further ~~evolutionary~~ ^{mutative and selective} adaptation was able to inject ^{with} less adverse effects cactus spines. And perhaps concomitantly ^{the ancestors of} the opuntia cactus, ~~ancestors~~ ^{is} in response to the pressure ^{from} by the Galapagos herbivorous fauna, ~~as~~ ^{have} suggested by ecologists, genetic selection in favor of arboreal types took place.

It is also logical that with these changes towards a morphology less vulnerable to the depredations ~~by~~ ^{by} Galapagos ~~reptiles~~ ^{reptiles} the spininess of the cactus leaves ~~was no longer contributed a strong~~ ^{began to lose their} survival ~~factor~~ value and so gradually drifted towards a less

^{extreme} condition. On Champion Island off Floreana the ~~huge~~ ^{characteristic} massive trunked opuntias have ~~no~~ ^{hairlike} limp hairs for spines, ~~perhaps~~ ^{a situation} because ~~in this small area has long been without either iguanas or tortoises~~ ^{possibly related to the size of the coating together with the long absence of both}. Inherited behavior patterns ~~long survive~~ ^{long} their usefulness - they ~~just~~ ^{are} of physical structures ~~survive~~ ^{long} vestigial organs ~~as is the case with~~ ^{long after the function of}

so many organs that remain as vestiges of a former function.

need, has become superfluous.

(in which they evolved)

Characters both functional and behavioral do not always carry a survival value. They may have developed through evolutionary radiation where they ~~provide~~ confer no clear advantage or disadvantage to survival.

A situation of this sort is much more likely to occur in isolated insular communities where the ecological relationships are simpler than on the continents and competition inter-specific competition less severe. ~~Useless features that~~ have become part of the genetic complex of a species, by chance mutation to which no function can be attributed, which provide no benefit or contribute no handicap, have a neutral effect on natural selection and have no value in determining survival. ~~They~~

~~made their appearance by chance mutation.~~ The more complex the community the more probable it is that features in this category either positive or negative will confer survival value and will ~~either be~~ bred into or bred out of the species. Many of the characters of Galapagos animals and plants are of this kind that, under conditions of limited competition, ^{give questionable} ~~have a negligible advantage~~ whereas ^{possibly} Under the stress of more rigorous rivalry could play a determining role in natural selection.

The drooping crest of the Barrington Conolophus is ^{For} an example of this kind of a characteristic. ~~For~~ its race it appears to be a feature of no importance even though it may be genetically dominant, but if these iguanas came in contact ^{and interbred with (in which)} with a race ~~without~~ this feature ^a involving it is impossible to predict whether ~~that involved~~ selection ^{was absent}

would ~~not~~ take place. Another trait that is probably genetically neutral is the shape of the carapace of the Galapagos tortoise which varies from island to island. The gradual shift ~~among~~ to drabness of plumage among insular bird species is an example of a negative trend away from ^{the} characters ^{of sexual dimorphism} that have lost or ~~are~~ losing their selective importance in species survival.

~~The description of~~ The behavior of the ghost crabs on

the beaker of

repeated by
is not ~~the same as~~

Santiago ~~does not apply to~~ the ghost crabs ~~on the beaches of San~~
a different beach structure has altered the mode of
Cristobal where ~~the structure of the beaches is entirely different,~~
~~and where a~~ adaptation.

On the north shore of San Cristobal we landed on a long curved, white
~~beach~~ strip of sand backed by low dunes behind which stretched a wide

in June
salt marsh. The dune tops ~~were~~ red with a ~~low~~ creeping succulent
which was announcing by this hue the end of its season, while in the

marsh behind the ~~same~~ plants were still bright green. The beach
is
was a coarse mixture of very small shells and shell fragments. The

~~whole shells~~ former occurring most abundantly in a ~~band~~ ^{strip} above the high tide line.

~~it contains~~ ^{contains} is
There ~~was~~ very little volcanic material so that the consistency ~~was~~
is

quite light and loose, and ~~was~~ easily washed about and redistributed
by the waves. ~~On close examination~~ the variagated colors of the ~~shell~~

~~shell pieces~~ gave the sand a speckled, non-homogenous appearance.

At one end of the beach where it curved out to ~~end~~ ^{meet} in a pile of
becomes

lava boulders the pitch of the sand ~~was~~ ^{became} quite gradual and
is restless

~~was~~ constantly swept by the surge of small waves. Ghost crabs
They ~~ed~~ up onto the dry beach and back into
foraged in this zone, ~~scampering in and out of~~

in their search, and when alarmed they retreated into the sea. In
make

this ~~coarse~~ sand they ~~made~~ no burrows for the coarse particles do
not cohere, and the walls would soon collapse at the slightest

disturbance. If pursued and cornered they seek ~~escape~~ ^{refuge} in the sand
itself, which owing to the very same loose structure that renders

it unsuitable for digging holes provides a means of quick escape.

A crab baffled in ~~its~~ ^{his} attempt to reach deep water will flatten himself
on the sand and in a matter of seconds will disappear beneath the

surface until only his two periscope eyes remain uncovered. These
two organs look so exactly like fragments of shells themselves ~~that~~

and ~~match~~ ^{blend} so ~~they blend~~ ^{into} perfectly into the heterogenous composition of the beach
that if one's gaze wanders ^{from them} they are nearly impossible to ~~find again~~ ^{re locate}.

The mud

The disappearing act, ~~is the~~ which has taken place before your eyes, is then complete. A crab has melted into the background of shell particles by a process even more remarkable than a magicians slight of hand trick or the vanishing of young quail among dead leaves. It happened in full view and yet you do not know how it was accomplished. Perhaps by digging the sand away beneath him ~~with his legs~~ the crab settles into the beach; the particles of shells ^{creep imperceptibly} slide over his carapace until a perfect camouflage results. Though unseen, he is there watching, you know, and if by chance or intent/disturbed he quickly emerges and dashes off on another attempt to reach the safety of the sea.

Sea Cristobal, or Chatham by its old English name, is a sausage-shaped island whose long axis is oriented on a southeast-north west line. We cruised along its northeast shore from Kiker Rock to Punta Pitt, the eastern-most land of the Galapagos Archipelago, Kiker Rock is a 400 foot, truncated volcanic core ^{across} through which the sea has carved a slot wide enough for large sailing boats to pass through. ~~The~~ The day we traversed the ^{passage} slot The sea was calm and we estimated its width at 50 feet. ^{But} ~~if the conditions had been different~~ it had been rough. for we would not have been able to make it ~~because~~ the surge of the waves would have ^{smashed} dashed our boats against the sheer ^{rocks} walls. The ^{passage slot} sea, which took but a few minutes ^{to traverse}, was rife with foreboding. The ^{waves} sea heaved and growled and gurgled against the under the dripping slaty ledges where limpets and kitons sucked ^{chill} onto the slippery rock and the damp breath. And ^{of hidden depths} forced from secret, gloomy caverns the chill damp breath of sunless depths was forced from secret, ^{from} gloomy caverns by the heave and of the fishy sea. These exhalations came in gusts loaded with the odors of ocean sea life. The sea was working on the ultimate downfall of Kiker Rock from all sides, and had succeeded in tunneling another ^{passage} passage through it parallel with the larger slot which was barely wide

enough to admit a row boat. a hint only of the secret proliferation of ocean life.

Punta Pit is also the scene of long erosion and the leveling forces of nature. The ^{island} ~~land~~ ^{is here} being whittled down by the ^{perpetual} ~~universal~~ attack, but ^{ad} ~~one~~ ^{feels} ~~more~~ strongly the impermanence of everything solid on this ^{eastern} ~~backward~~ facing, ~~eastern~~ ^{eastern} bastion of this tenuous speck of land granted so ~~ephemeral~~ ^{here} an existence by the universal ocean. I ~~feel~~ ^{ad} ~~that~~ the sea is the overwhelming force ~~against~~ ^{to} which ~~even the continents~~ ^{Sacumb Well} will ultimately ~~submit~~ ^{planet's}, ~~that they have been~~ ^{arbitrator} liquid envelop ~~will~~ be the final ~~permanent~~ ^{feature} against whose subtle insinuations nothing rigid can indefinitely withstand.

Strength lies in accommodation and weakness in resistance: This is the tractable ~~maleable~~ ^{to} and to retreats way of nature; ~~it bends to pressure and circumvents, to take a stand~~ ^{to} ~~at another time or place~~ following the line of least resistance and to take a stand at another time of place where the pressure is least. Permanence resides only in flexibility and the ocean is the more flexible element.

Near Punta Pit a large colony of frigatebirds, gulls and boobies is established on the main land of San Cristobal. It has spilled over onto ~~and~~ ^{for} islet of jumbled basalt which has also become the nesting site ~~of~~ hundreds of storm petrels. Part of the islet is a heap of loose rock and here in deep crevices the petrels lay their eggs, but the available sites are insufficient for the total population, ~~so the birds in stead of starting another colony on~~ ^{surplus} ~~San Cristobal have expanded their nesting area into the frigate colony, where under the tangled stems and roots of the shrubs in which the frigatebirds nest in shrubs on the more or less flat, low shoulders of the islet~~ ^{going elsewhere site} ~~The surplus birds, unless they are to go elsewhere to find nesting sites, are forced to adapt their habits to other available nesting sites. These they have found under the~~

tangled stems of the bushes on the low shoulders of the islet where the frigatebirds nest. ^{warbling} A soft ~~cooing~~ ^{and} scratching ^{could} ~~can be~~ heard ^{when} issuing from the center of the bushes during the petrels are changing places at their nests. They cannot be seen through the mass of branches which give them ^{almost} as much protection as a rock shelter from their enemy the Galapagos Short-eared owl, but by reaching into under the bottom of a bush I was able to get ~~hold of one and~~ bring one out. It did not struggle and made no attempt to fly away ^{but} so that when I released it on the ground ~~beside the bush it~~ immediately ^{the bush} ~~can~~ back under/to its mate. In the Early in the morning and late in the afternoon the petrels circle the top of the islet like a large moths around a lantern swarm of bees as they return and depart for their ~~foraging~~ ^{are} defenseless grounds. Petrels seem to ~~have to be~~ ^{other} rather helpless birds with many enemies on land and would be easy prey to many species if they nested ~~did not~~ in the open. As it is they have only one enemy among the birds who can penetrate their nesting crevices, and that is the Galapagos Short-eared owl. This predator can ~~drag~~ ^{incubating} reach into many of the shallower holes and drag the ~~nesting~~ ^{petrel} petrel from her egg. Every petrel colony provides a living for a few owls. The petrels are so numerous that the few taken has no discernable effect on the ^{size of the} population but may serve to weed out the weaker ones and those pairs living on the margins of the colony/whose ^{or} competitive failure has relegated them to the least desirable nesting sites.

A fierce little owl was searching the islet for ~~an~~ imprudent petrel ^{in short flights} on our visit. He circled the high point of the rocks where the petrels were flitting in and out. Each time he came down he alighted where there were near many nesting crevices and would look about with his eyes on the holes. He must have known ^{the extent of} what his reach was for I never saw him try to extricate a bird, and when I investigated the same ~~in~~ ^{in most} crevices myself, I saw that most of them were to ~~could only hear the petrels~~

dark
~~back out of sight making soft sounds~~ muttering from the/recesses
~~in the in the rock.~~ A few silent incubating birds were visible
 they retreated
 and when I reached in ~~it~~ withdrew farther in to the back of the
 cavity. The space was often too small to admit ^{of much too} my arm and too
 an
 small also for ~~the~~ owl to enter, so in most cases the birds were quite
 safe, but here and there in shallower crevices they could ~~have been~~
 and during
 been plucked out, especially in ~~in~~ undug moments when the two birds
 are
 were together.

A special attraction on San~~A~~ Cristobal is ~~the~~ crater a
 of one of The
 lake in the crater of/its highest volcano^S. Its water is piped to
 even in the dry season
 the settlement at Wreck Bay, but the level has not been lowered/by

this use, a mystery for which no explanation has yet been offered.
^{the} ^{drainage}
~~The~~ watershed for the lake is only a narrow crater rim, and higher
 land on other mountains from the small areas of higher land on other
 mountains would have to reach the lake ^{through} by subterranean channels
 traversing lower levels, so all obvious sources of Replenishment by
 rain
 / would seem ^{however} to be inadequate. the only answer, but ^{So/this and}
 reaching the lake by hydrostatic pressure. When, as proposed by
 the military administration at Wreck Bay, a larger pipe line from
 this natural reservoir is installed use may exceed supply and the
 source of the inflow be revealed. There are other bodies of water
 in the highlands of San Cristobal which attest to the occurrence of
 during the ^{couple not of}
 considerable rain at some times of/year. ^{higher} In a saddle between the
 the lake crater and ~~the~~ a neighboring neighboring mountain is a marshy
 pond. ^{water} The ^{covered with a mass of} surface was covered with redish duck weed when we were
 there, and many shore birds were feeding around the shallow borders.
 The usual legends of about a bottomless lake and underground
 connections with the mainland surround the place.

On the voyage of the Beagle, the first of the Galapagos islands that Darwin ~~saw~~^{visited} was ~~the~~ Hood, thirty miles south of Chatham. Here he saw ~~the~~ tortoises for the first time, and it is believed that his description of the tortoise was of the Hood species, which were still abundant at that time. On last count ~~by~~ a few years ago by the Director of the Darwin Station only four individuals were found. Two of these, a male and female, were taken back to Santa Cruz for a breeding stock from which to replenish the Hood population. It is hoped that if the experiment succeeds, this race of the Galapagos tortoises can be brought back to viable numbers, ~~which will be able to maintain themselves on Hood without~~, when re-introduced to Hood, ~~without the need for further assistance.~~ by the re-introduction to Hood of the young tortoises raised under protected conditions. On Hood Island are (number?) species of finches, a very dark race of Dendroica petetchia the Yellow Warbler, and a variety of the Galapagos mockingbird. These are some of the land ~~forms~~ birds that have for a long time successfully occupied the island. Around the edges at Punta Cevallos and Punta Juarez creatures of the sea have taken firm possession. Masked and blue-footed boobies are there by the thousand, and marine iguanas in herds as large as those at Espinosa Point bask on the ~~iguano~~^{the season of}-whitened rocks. At ~~that time of the~~ competition between ~~the~~ males ~~year when they are competing for mates and breeding, and when the~~ gravid females ~~are moving~~^e inland to dig burrows and lay ~~their~~ eggs, then they undergo a change; their charcoal scaly skins acquire a splashed with blotchy, metallic coloring. They become ~~without pattern or discernable~~ ^a design coppery red, malechite, and blue as though ~~corrosion had at last~~ were spreading over their ~~armor~~ armor penetrated the ~~a~~ protective iron-gray coating and were spreading over the surface of their bodies. ~~had penetrated and was~~ their inert, iron-gray armor had been penetrated by a spreading corrosion.

But the birds for which Hood is famous and ^{which} sets it aside from the other islands ~~is~~ are the Galapagos albatrosses. ^{these birds} They lay their eggs ~~there~~ at both ends of the island in late May and June, and since / no where else in the world are they known to breed, ^{so} at this time ^{year} the entire world population of Galapagos albatrosses gather on Hood Island. We found many of them already incubating their single huge eggs. They are imperterbable, but under extreme provocation will strike at one with their formidable yellow bills. A few birds were still engaged in the rituals of pair formation and mutual display. They stand facing one another bills opposed; ~~then~~ in turn they point them to the sky, then, following the ^{built-in behavior} ~~ancestral~~ patterns of the performance, they ^{clatter furiously with} ~~strike~~ their bills ^{feigned} ~~together~~ in a duel. ^{The clatter like the rattle of} ~~with hollow wooden weapons~~ ^{with what sounds like hollow wooden weapons} ~~The fencing lasts but a brief moment, when one bird turns walks~~ ^{swaying from side to side} away with an air of indifference ^{in a swaying walk} as though shrugging off the whole affair. ~~They are awkward & Grotesque in~~ ^{they have one equipped with great webbed feet & attached to the middle of the} appearance with ^{over-long, sickly, bloodless legs} ~~heavy~~ ^{stubby} chocolate brown bodies, ^{and heads and necks} ~~and long white necks like old stained ivory with beetling~~ ^{when they} brows and immense, over-sized bills. They waddle around and take to wing ^{with difficulty} they need a long runway. ^{to get up sufficient} ~~speed~~ ^{for} At Punta Cevallos the U.S. Navy cleared a Jeep road ~~for~~ during the construction of a Radar Station during the war. The Albatrosses use this road as a launching strip. ~~When preparing to take off~~ From the upper end ~~they walk to the upper end~~ they run down ~~this~~ towards the shore wings flapping and ^{great} feet frantically slapping the ground until they get up enough momentum to glide off. ^{the} Once air born all/awkwardness of a creature out of ~~its~~ its element disappears of an unaccustomed disappears and the bird becomes the epitomy of grace and maneuver.

tiny
The only harbor is in the shelter of Gardner Island lying off the north side of Hood where a dazzling beach of wonderful,

with ~~the~~ the deepening azure glaze of the sea
~~by continuous gradations~~
 whiteness meets and fuses/into a sea of deepest azure blue. In the
~~silhouette~~ silhouette basalt,
~~middle of the small harbor a mass of jagged black/without contour~~
~~a piece of misplaced~~ stands up in
~~or form like a sheet of cardboard~~ stage scenery, ~~rose~~ occupies the
 middle of the small harbor. The usual herd of sealions occupies
 the beach to enhance with their sleek dark/bodies the wonderful
 There is constant traffic in and out of the sea.
 whiteness of the sand. / The young animals and cows charge the shore
 through the glass-clear water like torpedoes, ~~stopping abruptly~~ in
 on their flippers
 the shallowing edge to pop up into an erect position sleek and
 dripping. They look around myopically before lumbering up onto
 beach
 the sand where they collapse in exhaustion. Soon their shiny coats
 are crusted with sand.

wounded forsake the sea and
 When sealions are mortally/~~in combat~~ or by sharks, they/
~~with their remaining~~
 seek refuge, if they still have strength to do so, high on the ^{or not infrequently}
~~shore away from the herd, and there they die with their remaining~~
 strength seek refuge in their ancestral home high upon the shore
 away from the herd, and there they die. It is as though they feared
 their adopted medium, feared to drown more than to die on the hot
 land, and return home at last to the home from which ages ago they
 began a slow genetic renunciation. Here their roots are buried the
 deepest and have the strongest attachments. The memory of that
 remoter past when they first emerged from the paleozoic seas is
 blurred in the mists of time so vast that scarcely more than a
 rough sketch of a segmented spine remains, and has lost its atavistic
 magnetism.

The body of the dead seal performs a more useful function
 lean
 on impoverished Galapagos land than it would in the sea where its
 wealth
 contribution to the greater richness of life would hardly be
 appreciated. On shore it provides the protein, which is in such
 great demand that on ^{the Wolf} ~~one~~ island ^{the} ~~the~~ finches have become blood

variety
parasites on boobies, for a ~~sequence~~ of birds that have ~~be~~ adapted
their foraging habits in exotic ways to obtain this necessity of
life. A dead seal is a windfall source of food for them. With the
advance of bacterial corruption carcasses become fly-blown and
at first
maggoty, and during the later more desiccated stages of decay ~~they~~
are inhabited by small beetles. These insects and their larvae
do not escape the attention of the lava lizards and land birds on the

Smaller ~~of the~~ ^{Hood} ~~Galapagos Islands.~~ Lizards are found around the dead bodies
of sealions and the larger birds where they compete with mockingbirds
for the insects. The ^{Mockingbird} ~~latter~~ ^{Hood} on some islands have become aggressive
and young of ~~predators~~
on the eggs of gulls and boobies which they attack if left unguarded.
~~They~~ ^{egg} ~~and~~ ^{dis-} ~~dismember~~ hatchlings to
and peck through the shells ~~thus~~ obtaining the protein they need.
but

A dead animal, which is a less predictable source, provides a
temporary abundance, which is not neglected. Yellow warblers on
Hood, ^{not only} as well as foraging ^{small arthropods} on the beach for marine life, ^{eat the} pick up small
insects from the carcasses, ^{and even} but they also peck at the flesh. So poor
food resources are some of the islands that nothing goes to waste.

Hood Island is extremely dry throughout most of the year.
Temporary ponds have been ^{found} ~~reported to occur~~ in the interior which
~~occur~~ are produced by the unpredictable rains that ^{sometimes} occur during the
winter rainy season. These bodies of water were probably essential
to the establishment ^{large} of and survival of the tortoise population
that in Darwin's time existed on Hood and has since been reduced to
less than half a dozen individuals. Mockingbirds, the most numerous
land bird species on Hood, have adapted ^{well} to this xerophilous situation,
perhaps obtaining the small amount of moisture they need from dew
or by predation of sea bird eggs. Nevertheless, when ^{fresh} water is made ~~available~~
available they swarm around eagerly drinking up a dish full in a few
minutes as though, had it not been supplied, they would soon have died
of thirst. Likewise, any juicy morsel such as a slice of orange

is quickly consumed. When water is first put out only one or two inquisitive birds may be present, but ^{others} ^{instantly} ~~instantly they appear~~ from just as nowhere, ~~they/why~~ friate birds drop out of an empty sky the moment ~~a fishing boat~~ the crew on a fishing boat begins to gut a catch of fish. Word gets around by a kind of telegraphic communication, ~~by~~ to us invisible signs - and they come flying in from all directions crowding and shoving for a sip or two of the scarce liquid.

Punta Suarez at

~~the~~ west end of Hood Island is a bare flat topped plateau of ~~lava~~ basalt, sharp-edged and perpendicular on the south and west, ^{that es to} ~~sloping~~ off ~~not~~ less abruptly ~~on~~ the north side where a short sandy beach has formed in the shelter of a line of reefs. This is the only place a landing can be made, most safely at low tide when the reefs are exposed and afford the greatest protection from the surf. The ubiquitous sealions congregate also around this point, where they bask on the rocks at the foot of the cliffs. They

plunging into the breaking waves with impunity, ^{are lost} ~~being delivered~~ harmlessly onto the shore ^{on hunking} ~~and drifting~~ ^{are lost} ~~back by them~~ ^{like drifting logs.} ~~like humans~~

That sealions' relation to the sea is not strictly practical

and utilitarian, that they enjoy it much as humans do - or perhaps ^{are} ~~a reverse~~ ^{accurate} ~~manifest~~ ^{like humans} ~~the comparison would be more appropriate if reversed - is demonstrated~~ ^{like surfboarders} ~~by the way they play in the waves that come curling over the reefs~~

north of Punta Suarez. ^{Have} ^{spend their time} ~~like surf board riders they coast down the~~ ^{touch shore in the} ~~front face of breakers until they are buried in a mass of foam. Again~~ ^{disappear} ~~swim out to repeat the process~~ ^{breakers} ~~and again they repeat the effortless gliding, obtaining a satisfaction~~

which we are unable to interpret in any terms other than our own, ^{superior} ~~the simple pleasure of surrendering to the a natural force. In stead~~ ^{front slope} ~~of riding the surface like surf boarders, they remain inside the wave~~

and are pushed along by the wave's interior forces and remain inside ^{who ride the surface} ~~Unlike a swimmer on a surf board, they ride the wave inside, pushed~~ ^{its} ~~along by the wave's interior forces - interior dynamics, of the wave,~~

~~Their streamlined bodies~~
~~where they appear~~ loom behind the glassy, blue surface like a
~~specimen frozen in plastic.~~

That sealions ~~enjoy~~ a like humans enjoy a relation to the sea not strictly utilitarian, is demonstrated by their play in the ~~brake~~ breakers that come curling over the reefs north of Punta Suarez. Here they ride the waves towards shore until the ~~break~~ falling crests bury them in foam. Again and again they swim out to meet the incoming rollers and ^{to} repeat the cycle, obtaining a satisfaction which we are unable to interpret in any ~~other~~ terms other than our own simple pleasure of surrendering to a superior natural force. Unlike a surf board rider who stays on the front of a wave the sealions ride inside, pushed along by ~~the~~ its interior dynamics. Just before the wave breaks their streamlined bodies loom through the concave glassy surface like specimens frozen in blue plastic.

The bare top of the basalt plateau is covered with booby the nests, ~~both~~ of blue-footed and masked boobies, and off to one side segregated ~~by the~~ ^{those} from the boobies by ~~the~~ mutual understandings that order the groupings of different species in bird colonies are the albatrosses. The masked boobies breed earlier than the blue-footed so that during our visit early in June the young of this species were already far advanced towards adulthood, whereas the blue-foots were still courting or beginning incubation. The courting behavior of Blue-footed boobies has some ^{entertaining} ~~comical~~ aspects the most comical of which is a slow foot lifting ~~action/performance~~ ^{swaying slightly,} ~~action~~ habit. The performing bird, ^{blue} ~~sways from side to side as he~~ deliberately raises ~~first one foot and then~~ ^{feeling} feet alternately with a patting motion as though he were ~~testing~~ the texture of the ground. The sexes of the Blue-footed boobies can be distinguished by two characteristics: by a sexual dimorphism of the iris, and by voice. The iris of the

pale yellow spotted with black giving it a ragged
 male is ~~found~~ and that of the female ~~ragged or star shaped~~. In voice
 they differ quite strikingly; the male whistles ~~and the~~ whereas the
 female ~~utter~~ ^{makes} ~~has~~ ^{sounds} a hoarser croaking sound. These are uttered during the
~~nest ceremony of place changing on the nest~~ These sounds
~~accompany the place changing ceremony at the nest during incubation~~
 during the change over ceremony at the nest while incubation is in
 progress the male greets his mate ^{frantic} as he comes flying in, ^{with/squeaky}
~~Wistling~~ notes to which she replies by uttering hoarse guttural sounds
 Her reponse, which is equally enthusiastic, is a series in a lower
 key of hoarse croaking sounds.

The crashing waves against the cliffs of Punta Suarez/
 contribute to the ~~intense activities of a sea bird colony~~ a wild
 grandeur to the scene unmatched elsewhere in the Galapagos Islands.

quietly The loneliness and isolation of this rocky point is only reinforced
 usual ~~silently~~ ^{intense} activities of the boobies,
 by the ~~cries of sea birds, by their~~ ^{intensity of the activities}
~~brooding~~ ^{brooding} activities, by the impassivity of the albatrosses, the basking
 sleepy ^{statuesque} seals, and the ~~soundless~~ ^{statuesque} clusters of sea iguanas,
~~soundless, staring~~ ^{cries} The roar of the surf/drowns out
 all the faint bird ~~sounds to create an atmosphere of~~ and envelops
~~pure structureless~~ seem at first like
 one in waves of/sound that ~~becomes~~ ^{intently} a great ~~hush of silence~~ stillness,
~~in a silenced world.~~ but as one listens ~~a structure develops and~~
 the silenced world ~~begins to report~~ ^{sends} a message from the sea. A
 structure develops in the inchoate sound and one begins to hear
 the ~~rumble and growl~~ and breath of the waves.

One of the peculiarities of this coast is the occurrence/
 below ^{of blow holes.}
~~At tide level of caves in the lava into which the sea, surges~~ into
~~compressing considerable volumes of air.~~ ^{submerge} caves in the lava ~~below~~
~~At tide level~~ ^{quite} compressing considerable volumes of air which forces the
 trapped water ~~out~~ with explosive energy ~~out~~ through vents above

The dynamics of a blowhole are similar to a geyser with the difference that in the latter is powered by steam.

18

tide

~~sea level~~ The water squirts out in a prolonged rush, rising fifty or sixty feet into the air and can be seen as a cloud of spray above the plateau from the anchorage north of Punta Suarez. As the eruption begins a rushing noise is heard followed with the burst first of water by a sound like a violent gust of wind which continues to the end. While spray ~~spread~~ fans out from the pointed jets of water as though a fire hose were being rapidly turned on and off. And ~~in~~ as the white cloud ~~XXXX~~ rises higher and higher ~~an arc of~~ ~~fixed~~ ~~area~~ appears refracted sunlight becomes a rainbow forms arcing through the drifting droplets ~~falling~~ drops its position fixed by the ~~its place~~ its arc through the drifting droplets immutably fixed by the position of the sun and the one who sees it form.

The last island visited on this southern cruise was Floreana where we stopped ~~to~~ at little Champion Island to see its long-billed mockingbirds found only there and not on Floreana from which it is separated by a narrow strait. The explanation offered for this curious distribution is that they once were common on the larger island but were exterminated there by feral cats and ~~the~~ ^{ed} unable to recolonize their former range, but have been/able to maintain themselves in limited numbers on Champion. On Champion a variety has ~~been~~ ^{hair-like spines and} also is renowned for its peculiar opuntias which have the largest trunks in the Galapagos Islands ranging up to nearly four feet in ~~of this cactus are also~~ diameter. Their ~~pads/to are unusual being armed not with spines~~ but with harmless degenerate hairs. *harmless*

named We went on to Onslow Island not far from Champion, colloquially called the Devil's Crown. It is actually a ring of small pointed islets, ~~all that remains of the rim~~ ^{the remnant} of a submarine crater. Oddly, the steepest ~~one~~ of these pinacles has been colonized by ~~a~~ ^{pure} stand of Jasminocereus that ~~are growing on the very summit~~ ^{it} grow as a miniature forest on the very summit.

~~The/Last~~ Before setting our homeward course ~~to Academy Bay~~ ^{for Santa Cruz}
 we stopped at ~~the~~ famous Post Office Bay ^{is still maintained} Where the old keg/in which
 letters, addresses to any ^{country} ~~where~~ in the world, ^{may} ~~can~~ be ~~posted with the~~
~~assurance that~~ deposited postage free with the assurance that they
 will ultimately be delivered. This was the end of our last voyage.
~~The last week on~~ We were occupied during our last week ^{at Academy Bay} ~~on Santa Cruz~~
 recrating our equipment ~~for~~ and preparing to leave the Galapagos
 Islands, perhaps for good. It was not a thought that I for one
 entertained with any pleasure.