

Chapter III

which began on March 6th

This cruise/was the first, the true beginning of our Galapagos work and adventure. The Gargo trip could hardly count as it was a necessary preparatory excursion, and the preceeding week in Academy Bay served the purpose merely of a limited and enforced introduction to the richer experiences that awaited us. I elected to sail on the Nixe with Steve and Kathy, while the others went on the Charybdis. Owing to the period of the tides our start was delayed until late in the morning ~~of~~, and we took the same course we had taken a few days before to collect the freight. I felt very relaxed and content as we sailed along the east shore of Santa Cruz. There is nothing like an ocean voyage in a small boat to remove anxiety, and besides the major cause for anxiety had been eliminated. There was a moderate swell running with only erratic, gentle ~~blows~~^{winds} to ruffle ^{(now and then} the ~~polished~~ glassy smoothness of the sea waves rolling under our keels. We rose and fell as they passed, rocking easily to the rhythm of the sea. Since I am not subject to seasickness I found the motion soothing and conducive to a delightful drowsiness. To say we sailed ~~is~~ ^{would be} misleading ^{to a} ~~for the~~ dedicated sailors ~~blitz/bl~~ ~~blast~~. We went under power of our auxillaries with sails set to take advantage of the extra drive afforded by the occasional ~~wind~~^{breeze}. This is the only ^{wax} ~~cruising~~ in Galapagos waters, notorious for their strong currents and unpredictable winds, is possible. The ~~motor~~ Nixe's motor was a ~~slow/speed~~ one cylinder diesel whose slow putting rhythm reminded me of the single cylinder two-cycle engines with which I grew up from boyhood on the Maine coast and learned my first lessons about the sea. Now in this far away place the reliable sound resurrected the old established feeling of security and confidence.

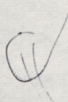
We arrived at our anchorage in the bay between the Plazas Islands early in the afterboon and I went ashore immediately.

I photographed until the sun was low over Santa Cruz Island. The next day we all returned on shore and worked until noon. From the previous visit I knew what I wanted to do and wasted little time going about it. I felt that there was nothing I should leave unphotographed even though I was aware that more interesting examples of the plants and the animals in more dramatic settings, would be encountered ~~later~~ on other islands. I was experiencing a ~~kind~~ ^{sort} of photographic "Buck fever" which made intelligent discrimination difficult. The important thing was to concentrate on the unique features of the island which ~~was~~ ^{were} the vegetation, and this despite my excitement I fortunately understood. The opuntias still bore many blossoms although they had passed their peak, but the beds of portulaccae on the cliff top and ~~extending~~ ^{extending over} the open eastern end of the island were in full bloom. In the afternoon we crossed the channel that ~~divides~~ separates the Plazas Islands from Santa Cruz. ~~To~~ ^{composed} a small cove at the foot of Cerro Colorado, a hill of ~~extending~~ ^{lava blocks} reddish/brown ash and tuffs. A stand of tree cacti had attracted our attention but the place is much more notable for its geology. This ^{in the Galapagos} is one of the few places where fossiliferous marine limestone ~~has~~ ^{is} been exposed. ~~by volcanic/basaltic/after/having/been/~~ After being covered ^a by submarine basalt flow. The complicated structure ~~indicates~~ of lava ~~flows~~ ^{layers}, tuffs and sedimentary rock indicates ~~an~~ old eruptions through the limestone, ~~and~~ submarine ~~flows~~ ^{of} basalt flows, and upheavals in a sequence not yet clearly understood, but dating back possibly into the Miocene. In more recent times the cove was used by whalers and perhaps by pirates as the eastern terminus of an overland route they established across Santa Cruz from Whale Bay on its western European shore. The fragments of pottery that can still be found above the beaches ^{are} is the last remaining evidence ~~for~~ ^{of} this use. Three and a half months later on the last day of our stay ~~we~~ ^{we} stopped again on South Plazas Island. Autumn had come in the mean time and the aspect of the ground cover had changed completely. The portulacca

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had long since gone to seed. Its leaves had changed from fresh green to a deep crimson and the island was red with their color. It was now the October of their year. Later in the afternoon we sailed on to South Channel where we anchored for the night behind a protecting reef.

I slept on deck in the star light. It was to become a habit that I shared with my son and ~~his~~ ^{my wife's} daughter-in-law. In the tropics - and we were in the very center of the tropics - the length of the ^{does} ~~length of~~ days and nights ~~do~~ not vary greatly ~~in length~~ throughout the year. Each is twelve hours long, more or less, and the twilights of dawn and dusk are short. On cloudless nights - and most nights in the spring are cloudless - the stars come out fast. When the moon is down they hang with incredible brightness and clarity in the black sky. Nowhere except in the high country of our western states have I seen ~~the~~ such an array of stars as in the dustless ~~skies of the Galapagos Islands.~~ (I often went to bed so early that sleep was not immediately possible and I would lie on my back in my sleeping bag watching the ferment of between pole and pole I saw all constellations/wheel slowly over head, ~~presented by~~ ~~the~~ ^{glider} meteors scratching the surface of the dark, and the sunlit ~~bodies~~ of satellites swing past and vanish ~~into~~ ^{into} the shadow of the earth. In March on the Equator the Great Dipper hangs upside down ~~above~~ ⁱⁿ the northern ~~horizon~~ ^{sky}, its two ~~pointer~~ ^{indicator} stars aimed at a point on the horizon where the North Star is just out of sight. ~~In~~ ^{diagonally} the southern hemisphere filled with strange constellations intersected by the Milky Way whose brightness extends undiminished to the very meeting place of sea and sky. To its right ^{sparkling} a patch of brightness like a spilled bit of ^{the} milk marks the greater Magellanic Cloud. And slanting under this river of stars the Southern Cross points its foot at the unmarked south celestial pole. As night advances the Dipper tilts westward ~~to the west~~ and Southern Cross swings upright and then slants over

too to the west, pivoting on the southern pole. If you wake at night and ~~you~~ wonder how far off is the dawn the slant of the Southern Cross will tell you.

In Galapagos, World's End William Beebe describes the sandy floor of Daphne Major's crater dotted with evenly spaced Blue-footed booby's nests. I wanted to see this spectacle for myself so Daphne was our next destination. We weighed anchors after an early breakfast and in the misty morning light set our helms for the dim outline of the old crater six miles to the northwest. The sea was fairly calm and the low sun was intermittently obscured by thin scattered clouds. In an hour of motoring we ^{had come in} close under the sea-cut cliffs of Daphne's eroded flanks and were cruising along looking for a landing place. Not only did we ^{seek} ~~need~~ a wave cut bench on which ~~to land~~ ^{to} ~~we could~~ ^{also} ~~dis~~ land from a dinghy with our equipment, ~~but~~ ^{also} ~~access~~ to the slope above the cliff. We found the only ~~spot~~ where these two features coincided and where other parties before us, I am sure, had landed - a platform barely above the wash of the waves below a broken down section of the cliff. Here we disembarked two at a time passing our gear from hand to hand up the steepest places to the beginning of a faint path that led ^{slantwise} ~~slanting~~ across the rubblely slope of the crater's side to the lowest place on the rim.  The cone of Daphne is the peak of a volcano that a million years or more ago burst from the floor of the Pacific, shot a blast of ash and pumice into the air ^{ed} ~~erupting~~ for a while and then died. It is like several other small cones that exploded out of the ocean long ago and it resembles in shape and structure many of the ~~that~~ ^{that} volcanoes ~~grew~~ on the shores of the larger islands as secondary eruptions. Its mouth is tilted to one side, like the flamingo crater, as though during its active period a strong wind had ~~blown it~~ ~~blown~~ moulded its rim. This same tilted configuration occurs in the cones

around Sullivan Bay and James Bay on Santiago Island, and is still visible in ~~the~~ many of the cluster of ~~cones/that~~ time-aged and over grown cones that form the summit of Santa Cruz Island. The sea has ~~been~~ been working at Daphne since its birth, whittling away and paring down its sloping sides, undermining and chewing them off. Given time, and time is in plentiful supply, the sea from which it rose with reclaim it all.

From the dip in the lip of Daphne we looked down expectantly into the water. We saw, not a colony of hundreds of nesting boobies, but a flat ^{chalky} ~~sandy~~ ^{eighth} plane ~~angular~~ of a mile across practically devoid of bird life. Here and there a few living birds were standing around; Several of them proved to be cripples unable to fly that would soon perish from starvation. This fate had already overcome a number of their contemporaries whose carcasses were strewn over the surface in all stages of disintegration and decay. Around the edge of the flat bottom in the cactus and scrubby bushes were a few nests of Frigatebirds, one containing a white egg, the others downy young in different stages of development. It slowly dawned on us that we had arrived during the slack period between breeding seasons. The eggs of the one just past lay spread out before us, while the next cycle had not yet begun. We climbed down to examine this refuse more closely consisted of a The floor ~~was a packed whitish lime~~ ^{was a} ~~whitish lime~~ ^{whitish deposit of bird} ~~lime and bone fragments compacted into a cement-like consistency~~ ^{and a puny gravel covered with bird bones and} ~~webbed~~ by the year on year tamping of thousands of ~~bird~~ feet. Embedded in the surface were egg fragments, bits of the fragile bones of hatchlings, the stronger bones of more mature birds, and the durable skeletons of adult boobies. The homogenizing process of decay obliterated ^{all} at last all differentiation of age and body structure converting ^{granular matter} organic matter into a uniform ~~gray~~ ^{gray} ~~quand~~ ^{quand}. Hundreds of birds must die each year here, yet the species ^{survives} (goes on successfully).

*Point
Agog dist.*

the life cycle of each female
 A study of boobies has shown that although ~~they~~ lays two eggs
 only one young is raised to maturity. This seems to come about through
 a normal biological pruning process the survival value of which
 is obscure. Because the eggs are laid in succession and incubation
 may start with the laying of the first one they do not hatch on
 the same day. The first chick, therefore, has a head start on its
 sibling ~~is/stronger~~ received ⁵ more food, grows faster, is stronger
 and eventually monopolizes the ^{Care} attention of its parents ^{to the extent} so that
 of the younger one ^{which} ~~becomes stunted~~ ^{starvation} and eventually dies of starvation.
 These ^{dead} ~~dying~~ chicks ~~add to the composition of the~~ disappear into the
 soil of the nesting colony.

We observed an interesting relationship between the boobies,
 lava lizards, and certain insects. The decaying bodies of birds
 attract flies and beetles which in turn attract the lizards. ~~Almost~~
~~every island has its~~ Lava lizards are found on almost every island
 and Daphne Major had its quota. ~~I first observed~~ while examining
 there were always one or two lizards were
 always dead boobies I noticed that ~~near each body I could always find one~~
 near by
 or two lizards. They would ~~run up~~ dart up and start burrowing under
 it to catch small beetles that I saw only when I raised the dead
 bird. Or they would set on the feathers snapping at the flies that
 alighted near them.

The small ubiquitous lava lizards occur on almost all of
 the Galapagos islands and Daphne Major is no exception. They have
 adapted themselves to a mode of life on each island that fits their
 food resources and their physical environment. Thus at Academy Bay
 the larger males are speckled in light and dark colors in shades of
 brown and green and black to match the ground litter of the dry
 chaparral behind the mangroves ~~belt~~. On Espinosa Point of Fernandina
 on the ~~lava~~ ^{lava} rock
 and on the shore of Hood Island, where they forage ~~close to the tidal~~
~~zone~~ close to the tidal zone, a black pigmentation nearly obscures

the the pattern on their skin. Ø In Daphne crater they are ^{grayer} ~~blotched~~, lighter, and more variegated to match the sandy soil. On each dead booby a pair of lizards had staked out a claim to the resource-carion in/insects ~~it had attracted~~ ^{to the dead body}. They snapped at the flies that landed on the feathered bodies and burrowed/for small beetles. Here was an adaptation of lizards to a bird colony without which they scarcely could have survived, but how they got to Daphne in the first place is the recurring mystery of the archipelego. If the lizards had any enemies we saw them not, although Galapagos hawks could easily fly over from Santa Crus to prey on them.

It was on Daphne that we saw our first red-billed tropic birds. They nest in small caves and crevices in the rocky inner and outer slopes of the crater. The first one I saw came plunging down out of the sky while I was photographing a frigatebird and disappeared into a hole in the crater side only a few yards from where I stood. When I went to investigate I could dimly see far back in ~~the~~ ^{the} nest cavity a bright red bill/and a black stripe on a white head, ~~from the bill across the~~ ^{and an unblinking} eye. There was something menacing about its appearance. Perhaps the powerful bill like a bloody dagger deterred me from ~~disturbing the~~ ^{disturbing} investigating further.

We left Daphne, after photographing masked boobies on the outer slope, resolved to return but we never did; there were too many other islands to visit in the few months we had allotted ~~for our stay~~ ^{on the whole}. From Daphne we sailed eastward to Isla Mosquera, to ^{visit} see a large sealion colony ~~on this small sandy strip of an island~~. Landing was not easy, on the shelving beach against which the waves broke and ~~surged~~ ^{that ocean} with a surge that carried them far up ~~the~~ ^{the} on the sand. We waited for the relative calm ^{before} between big waves and rowed in the crest of a small one. As we hit the beach we all piled out and held the boat ~~from~~ ^{against} being sucked back by the retreating water, ~~and before~~ ^{while}

the next wave could hit handed out all our gear and rushed the —
 all our gear was ~~handed out~~ being handed out. Then we dragged the boat
 up the beach out of reach of the waves. Not all landings are
 executed with this perfection. More often than I like to admit
 we have ^{stuffed} tripped in the sand as we jumped out, ^{fallen flat, or} ~~fallen~~, lost our
 hold on the boat, which before we could recover ^{our equilibrium} ~~has been~~ nearly
 swamped by the next oncoming wave. Our awkwardness fortunately
 was more than compensated by the seamanship of our skippers and no
 cameras were even lost or ^{damaged} ~~detached~~ even though we ourselves were
 often enough soaked through. But in 80 degree water, and on the
 Equator to boot, what does a soaking matter? We wore little in the
 way of clothing - a pair of shorts and a shirt before we became tanned
 and sneakers which were wet all the time anyway. And clothes dried
 with incredible speed in that Galapagos atmosphere.

The sealions occupied the whole length of the beach for a
 quarter of a mile. They paid us little attention as we moved ^{cautiously} ~~slowly~~ ^{among} them, taking alarm only when ^{suddenly} ~~we~~ moved too ~~fast~~. ^{Then} ~~when~~ they would
 be aroused from their sleep, ~~stare at us curiously~~, roar at the
 unexpected intrusion, and flop into the sea. ~~Often/they/~~ The cows
 were an indolent lot ^{on the whole} who didn't like to be disturbed in their siestas.
~~More often than not~~ ^{usually} they would raise their heads to stare at us
 curiously and with a weary groan resume their napping. "Don't bother
 me, go away," they seemed to say. But the bulls were of a different
 stripe, they had their responsibilities and they took them seriously.
 They charged in their ungainly, lumbering way when disturbed in
 the midst of their harems, roaring angrily, and ^{when the harem} ~~then~~ the best part of
 valor is a rapid retreat for they can move at times with surprising
 speed. The structure of the colony - its division into family
 groups - was only apparent when two bulls were observed in aggressive
~~behavior conflict over disputed rights or territories~~ and one

would out-roar or out posture the other. Here then was the place
 where their respective ~~domains~~ ^{territories} adjoined.

The east side of ~~the~~ Mosquera ~~was~~ ^{is} rocky and here as the tide comes ~~in~~ ^{forsake} the red crabs ~~forsook~~ ^{cling} their grazing pastures and advanced up the shore ahead of the rising water. They gathered on all elevated positions like refugees escaping a flood, but the flood ~~was~~ ^{is} no danger to them. Every rock and reef and drift stump ~~was~~ ^{is} crowded with them. They ~~clung~~ ^{cling} to their positions unshaken by breaking waves, but when the inundation ~~reached~~ ^{reaches} a certain degree, determined it seemed by a subtle balance between water foam and air, they deserted their holds, plunged into the intervening water to take up ~~new~~ dryer places farther up the shore. Their numbers make one think of magnified infestations of ~~red/spiders/et~~ insects greatly magnified for they move with the same deliberation as sucking bugs or aphids.

Leaving Mosquera with the sun low in the west we sailed south to Baltra harbor for a quieter night's anchorage. When we woke in the morning we saw fresh turtle tracks on the beach, like the trail of a small treaded vehicle, straight up the sand and into the brush at the top. The Galapagos Islands are one of the most important nesting places of the Pacific Green turtle, and although ~~the season for egg laying was almost over~~ ^{had passed} I hoped still to find a few late breeders. Laying is done at night in ~~holes~~ ^{pits} dug in the sand well above the high tide line, but sometimes a turtle is discovered on the beach in the evening ~~searching~~ ^{for her} for a nesting site, or in the morning with her task not ~~completed~~ ^{yet}. At the peak of the season the chance of finding a female on a beach in daylight is greatest of course, but I hoped for luck in this respect and so was ~~not~~ ^{by the way} encouraged to see the fresh tracks on Baltra. We decided, therefore, to see what could be found on the beaches along the north shore of Santa Cruz, which were ~~noted~~ ^{known} as favored nesting haunts of the green

turtle. What determines the turtle's choice of a beach seems to be influenced by the amount of sunshine available during the incubation period. The south shore of Santa Cruz is cloudier and foggier than the north shore and correspondingly fewer turtles frequent its beaches.

As we neared a long white, shell sand beach where we could see through our binoculars a lacework of tracks our hopes rose. Some of the tracks ~~there~~ extended down ~~to the~~ ^{zone} into the inter-tidal ~~zone~~ over which the ~~tide~~ ^{seawater} was rising proving that they had been made during the night.

A landing did not seem to present any great difficulties to our ~~inexperienced eyes and we~~ ^{were preparing} ~~already getting~~ our cameras ~~ready~~, when the captains announced that it was too rough to land. The swell had come up

~~increased~~ during the night, ~~causing~~ ^{causing} the far reaching effect of a distant storm, ~~and the surf had become too heavy for our light dinghies.~~ ^{causing a heavy surf that would swamp out light} It is difficult to judge without ^{practice} ~~experience~~ ^{force} the ~~degree~~ ^{when}

of surf from the sea side. The waves are all running away from you. You cannot see the height of their curling tops or the drag ^{beneath} ~~below~~ the final

their feet as they suck the water away from the sand before ~~hurling~~ ^{crash} ~~themselves forward in a foaming crash.~~ Only experience warns you

how dangerously deceptive the off-shore view is, and how different ~~of the dangerous deception of what you could see from the land.~~ ^{from the ~~land~~ ^{land} aspect on land.}

So we turned away for the time being and set a course for Sullivan Bay on Santiago Island a four hour sail from where we were.

From a preoccupation with wild life and the problems of photographing ^{sensitive} ~~sensitive~~ and wary living creatures, I found myself precipitated into a world of dead geological monuments and volcanic phenomena. Sullivan Bay is more of a passage or strait between Santiago and the satellite, totally volcanic island of Bartholome tropical At our anchorage in the ultramarine and turquoise blue waters of the strait we looked south at Santiago into a scene of utter desolation. A fiery catastrophe had not long ago overtaken the

land. At least a dozen cones and craters of all sizes, ~~ages~~ ^{many} and to browns and grays degrees of weathering/rose above a field of black ~~lava~~ wrinkled basalt that had enveloped their bases and poured on irresistably into the sea. The lava could hardly have been more than a century ~~old and~~ ^{probably because} ~~perhaps~~ much less/its surface was still so fresh. Whence the outpouring came, from what smoking ~~vent~~ passage to the core of the submarine Galapagos platform we could not tell. It probably issued from a rift on the side of the higher peaks. That ~~it~~ ^{the melted rock} came flooding in a firey stream of fast flowing ~~liquid~~ ^{lava} rock is ~~certain~~ ^{evident} from the ~~the~~ nature of its frozen surface. Locally it is called plate lava, but name is the Hawaiian the geological/term ~~is~~ ^{is} Pa Hoe Hoe. It solidified into flat ~~ropey~~ planes that cracked apart on cooling, ~~heaving up and over-riding~~ ^{in places over-riding one another and standing on edge} ~~one another~~, and these plates/were heaved up by pressure from below into hills and valleys like ~~the~~ ^{the} waves of the sea. The surface/was compressed laterally while still partly fluid into twisted wrinkles ^{together side by side} like ~~innumerable~~ pieces of rope laid ~~out parallel~~ ^{internal} ~~parallel~~ to make a ~~rug~~ ^{as seen on broken edges} mat. The intrinsic/color of this slaggy material/is a dark gray, almost black, whereas the under surface where the crust has remained in contact with the melt before it ~~flowed away~~ ^{was} is a glassy olive green. The upper surface, exposed as it cooled to the immediate oxidizing action of the air is covered with shiny facets of iridescent purples, blues and browns. Since it reflects a considerable fraction of incident light at certain angles it appears much lighter than the frothy, fragmented slag heaps of ~~A A~~ lava in other flows.

We landed on a white, shell-sand beach, behind which a barrier of old sand dunes had deflected the flow. ~~from obliterating it~~ Here, my son, his wife, and I made a discovery that diverted us for a time from all other purpose. Scattered through the flotsam deposited by the tide we found dozens of violet shells, of all sizes, of the pelagic Janthina snail, ~~this~~ ^a mollusk/drifts on the tropical surface of the/sea suspended from a raft of bubbles.

~~suspended~~ ~~from a~~ ~~raft of bubbles.~~ ~~The raft is~~ ~~manufactured~~ ~~from a~~ ~~of a~~ ~~secreted~~ ~~self-hardening~~ mucus that it secretes which hardens into a froth as durable as styrafoam. Many of the shells we found were still attached to fragments of their floats. They were all empty. What freak of winds and tides and currents had ~~transported~~ ^{one} carried these beautiful snails to this/isolated, protected beach was a mystery that would always remain unsolved. During all the rest of our stay in the Galapagos and on all of the many beaches we walked never again did we find ~~these~~ a single Janthina snail.

Leaving the beach from which we had gathered all the Janthinas we could find, I set off across the ~~lava~~ rolling lava flow towards a red cinder cone a mile along the shore of Sullivan Bay. I crossed ~~the hills and valleys in~~ the ropey lava with ease, ascending one ^{hilly} after another and descending in the ^{low} valley beyond it, walking always on the fragments ^{of} crust ^{that} I could imagine were the scales on the body of an enormous reptile and I but a minute ecto-parasite. Later when we assayed Fernandina I was to appreciate fully the advantages ^{this} this kind of lava gave to one who climbed a volcano. At the foot of the cinder cone whose purple-red ^{sides} ~~sides~~ ^{frosted} ~~with whitish~~ ^{sides} ~~lichen-covered~~ ^{sides} rose straight up out of the enveloping black floor ^{where} I found a cactus growing improbably from a crack in the plate lava. It was a plant of the species Brachycereus found only in the Galapagos Islands, its ~~the plant~~ short, yellow-tipped branches spreading candelabrum-like from a single hidden base. What it found to ^{to} ~~nurish~~ ^{needed} its apparently luxurious growth in ~~the soilless~~ this barren soillessness was ~~the~~ probably the mineral richness of the lava rock from which its roots extracted the ^{needed} ~~chemicals~~ ~~it needed~~. We were later to find it growing in other equally hostile environments where not even lichens had become established; among the scoria on the lips of dead volcanic vents and in the furnace-like heat of the desiccated lava flows of

Fernandina.

unseen lies in sight
 The ~~unseen~~ is always more compelling than what ~~one can~~
 before one. Thus
~~the other side of a hill, the next beach along a coast,~~
 unexplored a
 or the ~~canyon beyond the bend,~~ draws one on irresistably.
 And so the far side of the red cinder cone attracted me. It might have
 have been the same there as where I stood beside the ~~brachy-~~
 cereus, but as a reward for curiosity and submitting to an impulse
 it turned out to be a place such as would interest even an experienced
 volcanist. The lava flow had apparently been blocked here and as
 it melted through
 pressure built up in the highly fluid magma beneath the crust that had
 solidified over it, to many
 had forced it broke through in many places squirting out of vents in
 what must have been a building
 spectacular pyrotechnic display, in many places to produce small spatter cones encrusted with glassy
 globules of ~~colored/glass/~~ greenish, brownish, and blueish
 At the time vents were spattered
 volcanic glass. When active the force of ejection of the ~~liquid/~~
 hot liquid rock
 must have been considerable for the surface around the
 great covered
 cones for a considerable distance was thickly spattered with frozen
 splatterings. Not many people had visited this place before us. Its
 glassy appearance was of recent origin, and although appearances are
 are deceptive, it did not seem to be more than a few years old. No
 brittle
 obvious weathering had occurred, and the particles of glass were
 they were them
 unbroken except where we had been crunched under our feet. Here
 and there solidified bubbles showed where the ~~liquid~~ liquid lava
 had failed to break through the surface and had flowed away leaving
 on the side
 an underbrush a forest of olivegreen, icicle-like drippings.

south

The next day we cruised along the east shore of San Salvador
 to another small bay ~~protected~~ protected by another volcanic island
 named locally Smbrero Chino after its coolie hat ~~shape~~ outline.
 The water was incredibly clear and here we had our first taste of
 that compelling occupation, which can become an addiction, fish
 watching with face mask, fins and snorkel. It is the nearest thing ^{system}

~~that~~ to flying that people ~~can~~^{have} as yet achieved. You lie/on the surface
 of the water, and at a temperature of 80 degrees, it is a delightful
 sensation after a hot morning on shore, ^{breathing easily and} watching the schools of
 bright colored fish swim ^{beneath you} ~~by~~ indifferent to your presence. You feel
 very much a part of the environment and by ducking down below the
 end of your snorkel you can have a fish-eye view of the surface,
 which makes you feel even more at home. That/silver sheet above
 your head separated you completely from the world of air-breathing
 creatures, but when some/playful young sealions come to investigate,
 you realize the separation is not very ^{great} ~~large~~. They bring their
 air with them and are continually belching out great blasts of
 glistening ^{upwards} bubbles that drift ~~up~~ like clusters of Christmas tree ornaments.
 When you dive down to ~~investigate~~ get a ^{closer} ~~better~~ look at some object
 on the bottom don't forget to take a deep breath first so that you
 will have reserve air for blowing out the snorkel/ ^{when you come back to the surface} ~~when you return~~
 and will be able to resume your fish watching without ~~having to surf~~
 /surface/surface interruption.

Sealions spend much time on shore and the older bulls
 may actually spend more time on land than in the water. They bask
 in the sun on warm days and seek out caves in the lava where they
 sleep at night ^{at dusk} and in cool and foggy weather. Sometimes they wander
 quite far inland ^{in search of} ~~to find~~ these caves to which they establish trails
 that follow ^{with} ~~a~~ routes of fewest obstacles. On San Salvador opposite
 Sombrero Chino we found such a seal track that extended inland for
 more than one hundred yards. ~~The~~ It followed ^{the top} a lava tube to its
 origin in a partly collapsed lava bubble where the melted rock had
 welled out and run away/to the sea forming ^{the} ~~this~~ tube. The trail was
 unmistakable. ~~Debris~~ Generations of sealions had coated it with a
 hard ^{chalk} ~~gray~~-like deposit composed of excrement and salt, which had
 polished by their sliding bodies to a porcelain finish ^{that shows in}
 the sun

On other islands during subsequent cruises we came across the glare from the basking plazas in groves of giant opuntias where ~~all the rocks were~~ whitened ~~and~~ polished ~~to~~ rocks ~~was~~ dazzling ~~to~~ ^{our} the eyes. Old bulls lay about here between the orange trunks of the cactus trees their coarse hair coats turning ~~from~~ from dark umber to sandy yellow as they dried.

Perhaps

A word about Lava tubes is appropriate at this point. When melted rock pours forth from a volcanic crater it will take a ~~down hill~~ ^{line} course that follows the ~~path~~ of least resistance, swerving aside this way and that as obstacles are encountered in its path. It may belch forth

~~some~~ in massive irresistible flows or in thin hot rivulets that are easily diverted from side to side. ^{under condition of possible} Depending on temperature, viscosity and composition the surface of the liquid cools and stiffens without crumbling to form a shell around the ~~the~~ fluid core of the flow, insulating it against further loss of heat and so containing the flow and providing a tube or tunnel to conduct it away from its source. As the eruption diminishes ^{and} ~~the~~ lava ceases to be expelled, that which is contained within the tubes, because of their insulating ^{flows} properties, ~~will flow~~ away and out through their lower ends ^{which solidify} leaving ~~the~~ ^{passages} behind ~~these hollow pipes story/pipes and rock-walled tunnels.~~

Lava tubes occur in all sizes from cavernous holes miles in length and as wide as a railway tunnel to meandering, surface pipes scarcely a foot in diameter. It appears that only the ~~the~~ more fluid types of lava ~~will~~ produce tubes; the massive, slow moving rivers of rock that push ahead of them a crumbling front of clinkers and scoria cannot generate this kind of formation. Many of the caves that are ~~found~~ foynd in old volcanic formations are the unfilled remains of these lava tubes. In the Galapagos small lava tubes are very common. When ^{commonly} near the shore they are ~~used~~ by sealions as routes to resting places away from the water ~~dark/rough/low/empty~~. On the higher slopes they appear as snakey

lines leading down the sides of old cones, and remind one of mud
to ~~beetleholes~~
built termite tunnels that these insects construct ~~to preserve~~
preserve their
~~thick/thick/thick/like~~ perpetually ~~in/a~~ world of night. One can

imagine pale, gigantic, fearsome, ant-like creatures creeping through
these tunnels on their mysterious errands, ready to attack him who
breaches the security of their fastness. And in the uplands ~~of~~ ^{on} the
oldest islands ~~they/are~~ one comes upon their brown and weather beaten
of old tubes,
backs/that still ring hollow to the blow of a stone, winding through
the grass and bracken.

I had been told of a flock of flamingoes feeding in the
shallow crater lake in the largest of the Bañbridge Rocks. We sailed
by ~~to/there/look~~ the low ^{side of} dip ~~to~~ the rim to have a look. The outer
wall of the crater here was no more than fifteen feet ^{high} and from the top
of the mast it was possible to see ~~over~~ into the interior. ~~There~~

^{where it was}
^{multiplied many}
^{times the water}
^{and}
was ~~A~~ choppy sea ^{with} running which made my perch on the mast head very
found myself violently
uncomfortable. I ~~was~~ flipped back and forth by the inverted pendulum
multiplied many times more than on deck
motion ~~of~~ the mast so violently that holding to the thin wire shrouds
was difficult and unpleasant. ~~By~~ ^{with} winding one leg and one arm around
a shroud I was able to hold ^{myself} more rigidly by crook of knee and
elbow and so give ~~my~~ full attention to the scene before me. ~~There~~

was that unforgettable sight: ~~of~~ ^{with} a small blue lake encircled with
green and ~~wading~~ pink birds wading on the far side. I counted thirty

The time for a
flamingoes. A landing ~~on~~ below the lowest dip of the rim on a rock
shelf ~~that/was/like/that~~ ~~over~~ which was ^{altogether} ~~either~~ submerged under two
feet of water as waves broke ~~against~~ ^{over} it, or left ~~it/feet/above/the~~ ^{high and dry by the}

^{by two years}
^{above your head}
height of a man by the retreating ^{as the seas retreated} ~~any the water~~ ^{was}
water as the seas withdrew ~~it~~, did not seem propitious.

We decided to ~~postpone the attempt~~. The risk of wetting our cameras
was ~~too~~ ^{as} great so we decided to postpone the attempt, ~~to/a/late~~ ^{back} until
~~some other~~ ^{later} time. and sailed/over to the north shore of Santa Cruz
to try again our luck with the green turtles.

paragraph about dolphins

This time, although the swell had been severe on the Bainbridge Rocks, it ~~was~~ had moderated considerably on Santa Cruz. ~~We/We~~ and we landed without difficulty. The tracks we had seen led to nests at the top of the beach, every one of which had been plundered by wild pigs. There were the curled and empty shells lying in the bottom of the dug out nest ^{very} pits. It was a discouraging sight. Pigs are without doubt the most destructive of all the introduced animals in the Galapagos Islands. They are so efficient in locating green turtle nests that on Santa Cruz and San Salvador where they abound, breeding the/success of the turtles is at a minimum. Few turtle eggs on these islands ever hatch, and ^{young turtles each} fewer still ~~reach~~ the on important breeding beaches easily sea. Such depredations/if continued could ~~will/lead to a marked/~~ reduce ~~the~~ of the Pacific green turtle population. This, unfortunately is not the worst of the depredations of the wild pigs. They prey also on the eggs and young of the Galapagos tortoises whose survival has become a matter of concern to ~~all~~ conservationists throughout the world, and on land iguanas, and on ground nesting birds such as the Galapagos duck. If ever they gained access to bird colonies - the and/flamingo colonies on Isabela is one that they might be able to penetrate - they would wreck irreparable havoc. Goats are another exotic animal that is causing great damage to Galapagos vegetation and indirectly to the ~~fauna~~ reptilian fauna, but they are probably easier to control than swine. It has been suggested that the pigs might be eliminated by introducing into the population a pig virus disease. Since, however, ~~these/are/dangerous/pests/for~~ the farmers on the inhabited islands keep domestic hogs the disease might spread to them causing food shortage and economic hardship. Any such control measure would have to be carried out under the strictest supervision of trained ~~animal~~ veterinarians and animal pathologist, with provisions for prompt compensation for private loss.

Fritz
~~the~~ Angemeyers, who know this coast well took us by dinghy into what he called Turtle Cove, a maze of shallow bays and channels that lead back into a lava flow over-grown with mangrove, ~~and~~ manzanillo, and water hali. The ^{murky} ~~and~~ water was green with algae, and infested with small white tipped sharks. One did not ~~angle~~ ones habd in this water. But back in these bays also were large numbers of green turtles that found rich foraging around the mangrove roots. Since Turtles are air breathing we saw and heard them come to the surface all around us as we paddled slowly along. A beaked, square head would appear, ^{followed by} a sucking intake of air, and a ~~rippleless~~ silent, rippleless submergence. Near the end of one of the tartupus inlets we landed on a spit of lava from which more elevated position ^{we could} ~~it was possible to~~ look down into the water a few more inches than was possible from the seats in the dinghy. The turtles were thick around this point - mostly females our guides told us, they could tell by the shortness of their tails - and their dim oulines could be seen as they rowed along below the surface with their narrow front flippers. The round, spatulate, rear flippers they seemed ~~appeared~~ to use less while swimming, but appearances are frequently deceptive. When alarmed they could disappera at high speed, but mostly they ^{close to} ~~paid us little attention and~~ swam around the rock where w we stood with little concern for our presence.

That night we anchored, in another ^{inlet} ~~bay~~ in the lava flow / ^{arranged on this} ~~and~~ because of father ^{to the west} that the Angemeyers ^{called} ~~had named~~ Venice Bay ^{after} ~~the~~ ^{many} ~~the~~ narrow channels. Unlike Turtle Bay the water here was clear ^{and} deep turquoise blue. Several tiny craggy islets of black scoria covered with a vegetation of Mangrove, jasmínocereun, and opuntias added to the ^{complex} ~~intricacy~~ of the ^{bay inlet} ~~shore~~ line. I woke on deck at dawn, my sleeping bag ~~wet~~ with dew, to a chorus of bird song mostly from the ~~throats~~ of the Galapagos yellow warbler, Dendroica petechia, but

with less melodious contributions from ~~the~~ ^{was} mockinbirds. It ~~sounded~~ ^{like} more like a New England May morning than Melville's description of a place he disliked where the only sound heard was a hiss. We explored Venice Bay and moved on a mile to ^a sandy beach backed by a salt marsh covered with the tangled growth of brilliant green, fleshy leaved salicornia, through which we made our way to a low mound of weathered ash and pumice ^{its} ~~hill~~ known as Dragon Hill. On ~~the~~ slopes ~~of which~~ a colony of land iguanas had ^{dug} their burrows. This was our second experience with these animals. I spent a long time ^{with my son's help} trying to photograph them ^{but without much success}. Because this colony has been a target both for collecting and photographing by ^{have become wary and unapproachable} ~~of~~ many expeditions the reptiles ~~were very shy and I was not very~~ ^{successful}.

The next night we spent at Bowditch Point on the northwest corner of Santa Cruz opposite the Guy Fawkes Islands. I was lulled to sleep by the sound of surf in the shelter of three tiny islets, and the gentle rolling of the Nixe in the ~~waves~~ ^{broke} ~~in~~ from ~~over~~ the swell that ~~came~~ ^{began on} over a protecting reef between two of the islets. In the morning we ~~were~~ ^{were} returning to Academy Bay around the western side of Santa Cruz but we ~~had~~ ^{made a} one more stop ^{fit} to make on Eden Island where Beebe had captured an octopus in 1923 ~~when he~~ ^{on} visited the Galapagos on the steam yacht Noma. Eden is half a crater on the inner curve of which is found its only beach; and this beach is the first of its kind we had seen. The sand is olive green composed, not of shell fragments, but of ^{polished} granules of olivine ^{of the} volcanic rock ~~named for its color~~. There are olivine beaches on many of the islands, some so dark that they have been given names like Celeta Black on Isabela, and Black Beach on Floreana, famous for its history of marooned sailors, intrigue, mayhem and murder. Other beaches ~~are~~ ^{or maybe deriving their} we visited, on later trips, are red ^{from the color of} from the ground up weathered lava that composes them, but olivine is the most beautiful of all ~~material~~ minerals from which beaches are formed.

grains
 its ~~granules~~ are clear, like the grains in quartz sand but pale yellow green, found into smooth opalescent spheroids. A sand rich in olivine ~~grains~~ and containing ~~other materials~~ grains of ~~other~~ ^{ruby emerald} black, red, green, and topaz colored minerals when examined under a ^{like looking at} high power glass is ~~a view into~~ a hoard of incomparable treasure.

On the way we caught a dolphin on a troll. To a certain extent we were living off the sea and land so a dolphin was an important catch: it provided us with a meal. If one has never seen a live dolphin its edibility would be considered its greatest ^{attrait} virtue, and its food quality its greatest gift to piscine cullinary art. Its flesh is light and sweet, equal in delicacy ~~with~~ to Lake Superior whitefish before the advent of lampreys. A dolphin makes a dish worthy to set before the most fastidious gourmet. But compared with the living creature the uses of a dead one are but dross from ~~the~~ ^{at home in} smelting ~~of~~ gold. A dolphin is a fish ~~of~~ the surface of ~~the~~ tropical seas; a fish of speed and grace and irridescent beauty. To catch a dolphin is to ~~commit~~ commit an act of ultimate disdain for the miracle of creation, and to ingest a dolphin is to perpetrate a ~~the same~~ ^{as great as} final indignity to the species, ~~as~~ eating lark's tongues is the last ^{caught and} indignity to larks. And yet we ate dolphins without suffering more than a moment of shame. Our dolphin was hauled on board fighting desperately against the irresistable steel barb in his lips. His ~~black~~ high, blunt forehead will plow the waves no more; his dark, green, azure spangled back has glided unseen for the last time through the blue watery empyreen. His great yellow eyes stare, hopelessly ~~of flapping~~ he seeks ^{by convulsive flapping} as with a final desperate effort ~~he tries~~ to regain his native ^{its irreparable} element. He is soon clubbed ~~to death~~ and as he pours his scarlet

blood upon the deck his vibrant living colors fade to the gray of
 death. The azure spots along his sides become mere ~~lifeless~~ palish
 lifeless dots. His green and yellow belly, the color of a freshly
 picked lemon, that served to make him invisible in the shining surface
 of the sea to the eyes of his enemies below, ^{changed to} ~~became~~ a dirty slime
 slipping from his scales in stringy masses. No longer a dolphin, he
 has become merely a dead fish.