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Author: David Binney Putnam

Illustrator: Isabel Cooper
Don Dickerman
Dwight Franklin

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*** START OF THE PROJECT GUTENBERG EBOOK DAVID GOES VOYAGING ***

DAVID
GOES VOYAGING

BY
DAVID BINNEY PUTNAM

WITH ILLUSTRATIONS FROM PHOTOGRAPHS, AND
DECORATIONS BY ISABEL COOPER, DON DICKERMAN
AND DWIGHT FRANKLIN

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To
GRANDMA
AND
GRANDPA BUB

A SOLEMN FOREWORD

Mr. George Putnam has asked me to write a solemn foreword to David's book. An ideal foreword cannot be too brief, should never be in the nature of an apology or a panegyric,—and in fact any direct reference to the subject of the volume in which it is printed is in the nature of redundancy. Its only use, as far as I can see, is a chance to exploit some idea of the foreword's author which he can find no opportunity to print elsewhere.

Pragmatism alone was the stimulus of my suggestion that eleven-year-old David Putnam go on one leg of the Arcturus expedition—a Squeersian acid test of sorts. Also a selfish desire to see how my blasé enthusiasms had changed since I thrilled at my first palm tree and my first dolphin.

I wanted to see the immediate result of a temporary shift from school to skyline, from books to boobies, of the putting of volcanoes into vacations, and of the working out of a sublimated hooky. Of the immediate personal reactions between David, myself and our gorgeous environment I can speak only with sheer enjoyment. Neither of us ever tired of exeleutherostomizing at every new thrill.

As to the sifting of all these impressions, their reclothing in words and phrases, I am looking forward with keen interest to reading David's book when it is published, to see what has been gained or lost, in this, one of the most severe tests of the working of a human mind.

William Beebe, Steam Yacht Arcturus.

CONTENTS

	PAGE
David Goes Voyaging	3
We Start on Our Cruise	13
The Galápagos Islands	23
Tower Island	31
The Volcano	41
A Day Ashore	47
The Diving Helmet	53
The Shipwrecked Man	59

Hood Island	65
A Day on Shipboard	73
Dredging	79
Panama	85
Cocos Island	91
May 20th, 1925	99
Weeks at Sea	105
Tagus Cove	111
The Giant Devil Fish	119
Molten Lava	125
Song to Davie Putnam	131

ILLUSTRATIONS

	FACING PAGE
"I Lifted a Frigate Bird Off His Nest"	Frontispiece
Using a Net from the Boom	4
David and an Albatross	6
In the Pulpit at the Bow	8
These Lizards Bite if They Get a Chance	26
The Frigate Birds are Unbelievably Tame	32
Diving in a Rock Pool at Darwin Bay	36
The First View of the Volcano on Albemarle	42
In the Diving Helmet, Standing in Front of Shark Cage	54
Dwight Franklin's Pirate Sketch	60
Examining a Haul	74
On Deck with "Pinkie" the Penguin	76
Inspecting a Deep-Sea Haul	86
The Pirate	88
The Arcturus at Cocos Island	92
Ashore at Chatham Bay, Cocos Island	94
The Birthday Party	100
Don's Birthday Card	102
With "Fury," Don's Famous Cutlass	104
Chiriqui, Dyna, the Dog-House and David	108
Reading from Left to Right, David, Don and Bozo, the Young Sea-Lion	112
Entering Tagus Cove, Albemarle Island	114
The 46-Pound Tuna	120
The 18-Foot Devil-Fish on the Deck of the Arcturus	122
Where the Molten Lava Poured into the Sea	128

DAVID GOES VOYAGING

Mr. Beebe lets me call him Uncle Will, even if he is the head of this big expedition. He was awfully nice to let me go on part of it.

I had my twelfth birthday on the Arcturus down on the Equator. And I know how lucky I was to be taken along. It was great fun. And I think I learned a lot, though perhaps it will hurt my school work, being away and everything. Anyway, Mother and I joined the Arcturus—Uncle Will's ship—at Panama. We spent nearly three months in the Pacific Ocean, studying sea life and visiting seven uninhabited desert islands. And I

promised Dad to write a little story about it all. He told me to try to tell what we did and what I saw just like fellows telling each other about their adventures. That's pretty hard to do.

Then when I got back they let me make this little book out of what I wrote most every day on the boat. It's meant for boys and girls. Mother helped me fix up the spelling and make the grammar right.

The writing took quite a long time, and I think being a naturalist would be more fun than being a writer. Anyway, my stories help me remember the fun we had on the Arcturus. I don't see how it could have been much better.

We arrived in Colon from New York and Havana early in the morning of March 27th, and after our inspection, Capt. Lane took us in his own launch over to the Arcturus—a high white ship which was lying across the harbor.

This Arcturus, the boat on which we are to take our trip, is named for the great star which sailors use as a guiding star in sailing strange seas. She was fitted out by men who are interested in the New York Zoological Society, which has the wonderful Zoo in the Bronx. Among the living animals collected for the Zoo are albatrosses, flightless cormorants (a very rare bird), boobies and penguins. A great many specimens were to go to the American Museum of Natural History and fish to the Aquarium at the Battery. She is fitted with a whole outfit for a scientific expedition. At first sight she looked like a freighter, high sided and built for cargo, with many booms and cables and equipment for hoisting and moving things.

There are two laboratories in the forward part, the lower one fitted with bottles, microscopes, modelling clay and all sorts of glass jars in which to preserve specimens. The upper room is more of a library with reference books and text books on all subjects about oceanography, for this is an expedition mostly to study about the sea and the strange creatures in it. Also there is a chemical laboratory so that the blood of fishes can be examined.

The bridge, or main part of the ship, is built up of five decks, and the members of the expedition have cabins here. The crew's sleeping quarters are in the after part of the ship, and many of the men have hammocks hung up under the awning there, in which they sleep at night, or lie around in the day time.

On the port side of the ship there is a special boom that goes out over the side. On ships the word "port" means left, and "starboard" means right. You never say back or front, but "aft" or "forward."

This boom has two railings tied to the bottom plank so one can walk out there and fish or haul in nets or go down the rope ladder. Sometimes when the ship rolls a lot the end goes right under the water. And out from the bow a pulpit is hung, a strong wire cage-like thing in which we can stand for harpooning or catching floating objects as we pass. To get down to the pulpit you climb down a rope ladder. When it's rough it's pretty exciting.

In the forward part of the ship there are two rooms fitted out as shops, one belonging to Bill Merriam the general handy man, who always mends the nets, shapes a new dredge, puts another seat in one of the rowboats, makes a lobster pot or fixes the motor boats. The other is a workshop for Serge the taxidermist and for Dwight Franklin the sculptor. Dwight makes wax moulds and plaster casts of fishes and preserves them, as well as making drawings and paintings.

Isabel Cooper is the scientific artist. She has been on many other expeditions and made many wonderful pictures. On this trip she did over two hundred water color drawings of fish.

The Arcturus has two huge cables, one seven miles long, for hauling in the big trawls. These are put down over the side and held out while the ship goes slowly along at half speed. Sometimes the cable goes out as much as three miles and often the sea is over a mile deep below us.

There are thirty-eight in the crew and eighteen members of the expedition. Each night and morning the nets are put over, for a surface haul and for a deep one a sounding is taken—a curious lead on a wire, weighted down with an iron weight which forces the sound lead down to the sea bottom and brings up a sample of the bottom, so we can see if it is muddy or rocky or sandy. Each time the weight automatically drops off when the bottom is reached, because the sounding wire isn't strong enough to pull it up.

After the nets are out for an hour they are hauled in and the contents put into tubs of water. Sometimes the whole net has only a pint glass full of tiny, tiny fish which have been brought up from a depth of over a mile or two miles.

On the boat my room mate was Dr. W. K. Gregory of the American Museum of Natural History, who is also Professor of Comparative Anatomy at Columbia. Pretty nice, I think, for a real professor to let a twelve-year-old boy bunk with him! Everyone called him just "Greg" and liked him a lot because he always is so nice and so interested in his work. I think Greg would rather dissect a fish than do almost anything. I know I'd just about rather catch them!

My bunk was right next to where the smokestack went up from the engine room, and the wall was pretty hot. So most of the time, except when it rained, I slept on deck. Really, although we crossed the Equator twenty-one times it was not so hot while we were at sea. Lots of times, right on the Equator, it was cool enough to be comfortable wearing a sweater.

WE START ON OUR CRUISE

For a day after our arrival on the Arcturus we waited in Colon while the crew shifted coal from one bunker to another because it was getting so hot in the forward one there was fear of its catching on fire.

And on the very first day while the rest of the crowd were ashore seeing the city of Colon, which is at the Atlantic entrance of the Panama Canal, I went with Serge, the Russian taxidermist to a little beach across the bay. We took nets with us and were lucky to catch some wonderful butterflies, several very bright blue fish and some unusual shells.

Next day we started through the Canal early, and steamed along up to the first lock. This is one of the finest and highest of all the locks, Gatun, and here also is the great spillway, which empties out into the Atlantic Ocean from Gatun Lake. The concrete walls and the little railroad engines which pulled us through the locks all seem so simple and like toys that you can hardly believe they would be able to take a big ship through. For there are only one or two men to be seen the whole time and one in an engine house turns a handle and the locks open, fill with water, take us in, lift us up, and then set us out upon a higher level into another lock, or the lake. The little engines have cogged wheels and run along up and down the grades like tractor engines.

In some of the locks we saw garfish, like eels a little, with long sharp beaks or bills in front of their heads. And at many places along the bank of the river or lake we saw big crocodiles lying out in the sun.

In the afternoon we were in Panama, a city built by the Spaniards when the first city of Old Panama was destroyed by the great English Pirate, Morgan. We drove out to this old city six miles away. There are only ruins there now, but the walls of the old cathedrals still stand, and the square tower can be seen very far away. Morgan attacked the Spaniards here after he had crossed the Isthmus with a few hundred men. His men were nearly starved and were worn out with the hard work to get across but they were determined to take this city for there was much gold and jewels here and the pirates wanted to win it. Also the Spaniards were afraid of them and after a first defeat in the open plains outside the city, they ran away.

In the sea wall around the new city of Panama there is a prison, and at one time there were terrible torture chambers and undersea dungeons there in which the early Spaniards kept their prisoners. It is called Chirique Prison.

Next morning we were sailing along on the calm Pacific Ocean which Balboa discovered in 1513 from a high peak on the Isthmus of Panama. By night time we had put over the big Peterson trawl net and had brought in many small fish ... salpas and many kinds of tiny deep sea fish. Everybody ran to see what was in the net and looked at things through microscopes and immediately sat down to identify them and classify them. One person taking the little fish-like ones, another the jelly fish, another shrimps and Uncle Will, the director, taking anything that was very unusual or a new species.

The next day when the big net was put over, we caught a lot of different things, tiny fish, glaucous, salpa and others. At night the deep net again brought in new ones and many of the first ones again except that many of these specimens were bright red. It is queer but many of the deep sea things are red like the shrimps, or else have the power to change to red, like a small squid which was white one minute and bright red the next, when he seemed to get angry and scurry around.

One of these very little fish, named argyrolepecus has lovely silver sides, beautiful colors, and small spots which shine and almost sparkle.

Another fish, less than an inch long, oneirodes, is the only specimen ever to have been seen alive. It was still wiggling a little bit when the net was brought up. Most of these fish die when they are brought to the surface, for under the water there is a great pressure on them and when this is released by coming to the surface they explode or all come to pieces.

One night we were on the gangway, Uncle Will, Ruth Rose, Serge and myself and all of a sudden a great big squid came up and made a kind of "Ha-aa." He tried his best to take hold of the net with which Serge tried to grab at him, and put his huge tentacles out of the water. He was a sickly whitish color. When we brought the smaller ones caught in a trawl net into the aquarium later however they changed color several times, turning from this whitish to a bright red as quick as could be. Squids can squirt out an inky liquid which discolors the water so that they cannot be seen by their enemies. This is used in making sepia ink.

For an hour or two in the afternoon I had my line over and at sunset time it hooked a 32-pound dolphin fish, a coryphina. He was fifty-six inches long, a lovely bluish green color, yellow tail, green back and blue sides. During the day we had seen many of them swimming two or three feet beneath the surface around our bow, and darting right near under the pulpit. The crew had had one hooked but lost it; and Dr. Cady also had one hooked.

In pulling it up over the boom there was great fun and excitement for it was heavy, slippery and three men helped before landing it.

THE GALÁPAGOS ISLANDS

These islands were first called the Islands of Tortoises, and they have been known for a hundred years or more. There are about sixty of them and they are located mostly on or south of the equator six hundred miles off the coast of Ecuador to which country they belong. They are volcanic islands with lava rock and dry sandy dust. Very little else except cactus or scrubby bushes grows on most of them.

Our first landing was at Seymour Island, April fourth. This is a small flat island just off Indefatigable, one of the bigger islands 3,000 feet high. There is lots of cactus and prickly bushes on the steeper part of Seymour, but near the shore the rocks are bare and black and very hard, where we saw our first sea lions lying about sunning themselves just out of touch of the waves.

In some places on the cliff there are big streaks of reddish color in the rocks, like iron rust. All along these cliffs and at the edge of the water and on the rocks we saw many birds—Galápagos gulls, petrels, shearwaters, boobies, two small green herons, a great blue heron and many little gulls. Pelicans flew about and even tried to land on the rowboat which went ashore.

Of course at first I didn't know the names of all the birds, but Uncle Will or someone else helped. When they weren't too busy they would tell me the names and pretty soon I got so I knew most of them. I think by now I know the names of nearly all the birds in that region.

Anyway, I like birds. At home I am trying to learn to know the names and I have a pretty good collection of nests and some eggs. One nest is a camp robber's nest, which a ranger in Yellowstone Park gave to me. Then I have a weaver bird's nest from India and a good many others. Dad is letting me have a little room all to myself for my collection. It will be like a little Museum. Things will go in it like my drum from New Guinea, which Frank Hurley gave me, and a head hunter's sword from Colombo.

Uncle Will told Mother "Look out or he will become a scientist," pretending he thought that pretty bad.

Well, I'd like to be only Mother says first I must learn a lot at school if I want to take trips. Dad says if I do well he and Carl Dunrud—that is a forest ranger friend of ours in Montana—will take me on a big packhorse trip in British Columbia. I have been on two trips something like that before, and then if I am lucky perhaps I'll go on a trip on a schooner up to Greenland in a couple of summers.

The dry land is full of big land lizards, four or five feet long called Conolophus. They scurry about over the dry ridges and then run under the queer evergreeny bushes. They try to bite but if you pick them up by their tails they cannot reach your hand and you can carry them all around. They have very bright colors, yellowish underneath, red heads and close to, look like pictures of dragons only smaller. The little black water lizards do not bite and are almost gentle when you catch them.

There is another kind of lizard here, much smaller, with bright red heads and dull gray bodies.

These animals and birds and sea lions have seen so few people that they are not afraid at all and we went right up very close to many of them.

As it is right on the Equator the sun's glare is very bright and so hot that for the first few days all of us were very badly sunburned and blistered; everybody was going around with sore shoulders and blistered legs and two or three even had their entire backs burned and sore.

The first night here Bill Merriam and Dr. Cady went ashore and caught a big female turtle that was going up the beach maybe to lay her eggs. Sea turtles come ashore, go way up a beach and bury their eggs in the dry sand. They leave them there till it is time for them to hatch. We saw many deep holes in the sand from which piles of eggs had hatched. They lay hundreds of eggs. When we were there the egg season was over. All we saw were shells.

TOWER ISLAND

Tower Island was our second landing. Early in the morning we had sighted a low strip of green, and by the time breakfast was over at half past seven we were already in the most protected little cove or harbor. It was almost closed to the outside ocean and was calm without any surf or big waves. At first when we came in we couldn't see any beach for landing on or swimming, but pretty soon we saw one, a beautiful one hidden behind a small reef.

When we entered the harbor birds came and rested on the mast heads. Many of them stayed there or came back to it on and off all day. The whole rigging was full of boobies and frigate birds.

We saw three great rays too, at least fifteen feet across. Later on we caught a huge ray. They seem to fly under the water just below the surface. Every once in a while they flip themselves right out of the water and turn a complete somersault. Sometimes they do this three times in succession. One of the biggest ones we struck with our bow and neatly turned it over.

When we landed on the little beach we saw many of these frigate birds on their nests, boobies, gulls, and the cutest little doves. They seemed so tame. They were always fighting for each other's twigs in their nests and as soon as a bird left her nest another bird came and stole a twig and flew away with it.

I lifted a frigate bird right off his nest, and then put him back and he never seemed to mind at all, just looked surprised. About the next time I picked up a frigate bird, I wasn't quite so lucky. I wanted to lift him up to have a picture taken and he didn't seem to like posing much more than I did. Anyway, he pecked me and I suppose that's why I look so cross in the picture. They have big strong bills and this one got hold right in the lower part of my left leg. All the time, I was barelegged and wore shorts, which is the way everybody aboard dressed.

The frigate birds and boobies weigh about two and a half pounds. The former have not webbed feet like the boobies and therefore they cannot catch fish as easily for they only swoop down and dip them out of the water; but the other dives right in and sometimes out of sight for several feet underneath and swims with his webbed feet. Frigate birds steal the other's fish. Both birds have tremendously long wings and sail in the sky with a long, long spread.

The male frigate has a queer pouch on his throat. He is dark brownish in body, with a few greeny feathers on the top of his neck and then this very strange balloon which is so distended he can rest his head upon it and go to sleep. He can puff it up or have it empty. The male sits on the nest in the mornings mostly while his mate goes out to sea fishing. She is dark brown with a white breast. Of course you can see these bright red pouches a long way off and they look like so many toy balloons in among the bushes. All these birds, the boobies and frigates, build rather foolish looking nests right on the bushes about two feet from the ground so of course one can go right up to them and see the eggs or young chicks.

The little doves and the mocking birds have their nests on the ground often under a jutting out rock. The doves have bright red feet, soft tan brown bodies and eyes as blue as forget-me-not flowers.

On Tower we saw amblyrhinchus, or the marine lizard. I really learned to pronounce that word, although I can't spell it yet. A lot of these scientific names are awfully long and hard. It is black, about a foot long or maybe fifteen inches, and swims in around the edges of the rocks. All the specimens brought to the ship had seaweed in their stomachs which they must have been way out to sea to get.

Some of the crew had seen goats at Seymour. They had been left there a hundred years ago by a sea captain who had had some on his boat for fresh milk; he took them ashore to give them a chance to eat grass. Each day he took fresh water to them. Then one day they did not come back for the water, and he guessed they had found some on the island and sailed off leaving them there.

But there are no goats here, nor the land lizards which we had seen at Seymour. The land is absolutely all lava rock and cactus and stiff prickly bushes which makes climbing around very difficult. I made a fine collection of shells that I found on the beach.

Several times I went ashore in the evening with the crew, and one night two of the men had an awful fight. Just the few of us were on this desert beach alone, and it reminded me of a story that Darwin told in his Cruise of the Beagle nearly a hundred years ago. He went to a little lake on one island and saw there the skull of a captain who had been murdered by his crew there many years before.

Darwin was a very famous scientist about 100 years ago. This book, The Cruise of the Beagle, describes a great voyage he took in the ship Beagle around South America and mostly around the world. He stopped at the Galápagos Islands. Mother read this book aloud to me. There were too many things to see and do on the Arcturus for me to have much time to read. Everything was too interesting and there was always something exciting happening. I think the only book I read through was Ivanhoe.

Early one morning Dwight went off walking across the island. He did not come back at four when the ship's whistle blows to call us all to the landing beach, nor later at bedtime, and not until midnight. He had lost his way for a time and accidentally discovered a crater lake which no one had ever seen before. Although it is in the middle of the island it is salty and the water must come in with the tide. There are mangroves around its edge, and green scum on it, but small fish live in it.

On April nineteenth Mother woke me up at one thirty in the morning saying there was a fire way off to the south and west of us and that the mate and the captain thought it must be a volcano in eruption. Far away in the sky there was a faint pink glow, and we were all very much excited.

The next morning we left Tower Island because the harbor would be dangerous in case of a tidal wave or any disturbance from an earthquake. Towards evening after trawling and fishing all day around Tower and Bindloe Islands, we started for the direction of North Albemarle. We could see the glow for seventy miles or more.

Later that night as we got nearer, the red glowed much more and the great bank of clouds over it was all pink like a very bright sunset. By three in the morning we were within ten miles of it and we could see flames and juts of smoke.

In the morning Uncle Will and John Tee Van went ashore. They had a hard time finding a landing place for the shore was all steep lava cliffs against which the surf broke. But finally they went into a little protected cove, and from there started off for the nearest smoking place they saw. For a time we could see them as they climbed over the terribly rough lava flows, older ones that had been coming down for centuries. But soon we lost sight of them.

There was a lot of pumice which is a very light stone, kind of pale gray or whitish in color. It comes from the volcanoes, like the lava. Sometimes when you step into it you sink right up to your knees. It is so light it floats on the water. It is fine for cleaning stains off your hands.

At about two thirty or so they came back to the shore again and Uncle Will had such terrible cramps in his legs he could hardly stand. They said that they only went to the nearest place from which the smoke was coming. It was so hot underfoot they had to keep going, it was impossible to sit down or rest because of the heat. So when they finally reached it after much climbing and walking, there was only time to take some samples, make a few notes, test the gas, and return.

Uncle Will named the two volcanoes Mt. Williams and Mt. Whiton, after Mr. Harrison Williams and Mr. Henry D. Whiton, two gentlemen who helped most in making the Arcturus trip possible.

The volcano was erupting on the slope of the mountain, not on the top, and there were many other little places from which smoke and cinders were coming through besides just the one big crater. At night when the fire showed more in the dark it looked like trains of brightly lighted cars running down the mountain side.

Next day I went ashore with Betty and Lin. I saw three sea lions, two huge crawfish, or speckled lobsters, many sharks, and lots of different kinds of small fish. I stayed right in the little bay because it was so hard walking around on the lava, which was just like clinkers.

This day the groupers, big heavy rock fish, were so hungry they even attacked the moving propeller of Bill's evinrude engine and when he shook his sock at them they actually grabbed it. I would not want to jump over near that shore. I believe the big groupers would attack a man. We saw more big devil fish jumping near here than at any other place. And the crew hooked several sharks.

When I go ashore I usually take a net for fish or butterflies and bottles in which to put insects, a canteen of fresh water, a helmet to keep the heat of the sun from my head (and in the tropics this is very important, especially to protect the back of the neck from the sun). Also I like to have a gig or spear with which I can get some of the kinds of fish which do not bite at bait.

My main idea is to get birds' eggs. Gulls' nests are mostly on the rocks of the cliffs, doves build on the lava rock on the ground or in little crevasses, mocking birds in low bushes or the cactus trees or shrubs, and the big boobies and frigate birds make ugly twig nests about two or three feet from the ground, the greater number of them nearer the shore, although I did see some on my way up to the crater lake that Dwight had discovered in the center of the island, and these were in higher trees. There was one big nest right on the lava rock under a tree. It was a green heron's nest and the three half grown birds walked out of the nest when I came near.

One day I speared two crawfish in a pool right near shore, but the prongs of the gig were too short to hold them and they got free and darted away. I lost a moray, or poisonous eel the same way.

When we swim at the beaches or in the ocean pools near the shore we have to watch out for sharks, sting rays and morays.

One day at Tower Island, I went to climb the cliff for birds' eggs. I took two boxes of soft cotton for packing any eggs I might find. And as I went along I tapped the ground to make the small birds fly up from their nests. This way I could locate them.

I found a mocking bird's nest, took one egg, got some frigate eggs and a gull's egg. Then I turned to come back and I could not remember the way. So I made for the cliff and the sea and came along till I found a place to climb down again over the huge boulders of loose lava rock.

The frigate nests were near the shore. Their eggs are about the size of a hen's egg, quite white. The Galápagos gulls' eggs are smaller. And the boobies' eggs are like the frigates' only a little smaller.

After hunting for birds' eggs I thought I would go over to see what Lin was doing in the big shallow pools across the beach. She was fishing with a tiny hook and line. So I tried, too, and I caught a lovely little blue and silvery fish about four inches long. It had small white speckles and was a new species. There are many different kinds of fish in these little pools, whole schools of them, varying from one to eighteen inches long and some with very lovely colors, many having stripes of gold and silver.

Later I speared a whole collecting bag full of crabs for Mother to use as bait for her fishing out in the inlet. The black lava rocks are just full of bright colored crabs crawling around ... thousands of small black ones, speckled, and lighter color sandy ones, and great big bright red ones. Evidently they are all chasing each other all the time, and acting like cannibals. And then the rest of the time the birds are swooping down and snatching one. They certainly scurry the minute a shadow appears, and dart up and down the rocks so quickly it is hard to catch them.

The ship's whistle blows at eleven in the morning and at four at night to warn us to return to the beach to be ferried out again.

THE DIVING HELMET

In addition to the nets and trawls and dredges, the ship is equipped with a diving apparatus. It is a helmet or head piece, but not the rest of a suit.

This tall helmet is made of thick brass with a triangle shaped glass window in the front. It fits on the shoulders and there is an air space inside so one can breathe. Then fresh air is pumped in by a hand pump, and whole flocks of bubbles keep rising to the surface coming out from under your arm pits.

Uncle Will is the best one at it for he has used it most and goes down oftenest. It can be used at any depth a man can stand pressure, and of course the deeper down, the stronger the pressure, and one feels this especially in the ears. They buzz and hurt as though someone was pushing on them. You have to swallow hard to keep back this feeling and equalize the pressure, the same as going down in a high elevator.

There is air in front of your eyes so you can see just as perfectly as when you are on the surface. Whole crowds of tiny fishes swim by, many of them different colors and very bright. Pink, or green, or blue, or silvery or striped ones.

One day as Uncle Will entered the water, and was just going down, a huge shark swam by. He waited a few minutes and then went down, and the shark had apparently gone along on his business. Later he had a cage built, so he could stay in that and look around if there were too many sharks.

That afternoon when he went down he saw many very strange fish, some bright orange and black with a white cross like a belt, others dark gray with yellow tails.

Of course there is always a chance in these waters to see octopus, big sting rays or devil fish and sharks. So the cage with three heavy wire sides one can stand in, is pretty nice.

One day I went down. I was a little scared because the helmet weighs forty pounds or more and the stuffy feeling of having something over one's head is unpleasant. I went over the stern of a rowboat in about fifteen feet of water near shore, and climbed down a heavy iron ladder, holding onto the rounds. There is a kind of roar from the air coming in, and a curious feeling against the ears, but otherwise it is grand fun to be down underneath the sea and see all the rocks and ledges and fish swimming past.

Your feet seem to float out around you and the distances under the water all look different. You think you can reach out and take hold of something, not believing it is far away.

It must be fun to go down often enough to get used to the feeling and then walk all around on the bottom like the pearl divers do, or the men who go way down below to salvage wrecks.

THE SHIPWRECKED MAN

Today Christianson is a taxi driver in New York City, but in November, 1906, he was a sailor on the ship Alexander, bound from South Wales to

Panama with a cargo of coal. Fred Jeff was his pal, and they had made other voyages together.

The story of the wrecked taxi cab driver is told in a chapter in Uncle Will's book Galápagos, World's End. I read it long before I ever thought there would be a chance of my really seeing the Islands myself. It is about the most interesting adventure story you could imagine.

On May 8th, the captain said they were seven hundred miles off South America, and the weather was still bad because they had no wind, and the Alexander was a sailing ship. For three weeks they had just drifted. He thought they had better put to sea in the small boats because water was scarce, and their supplies had given out. Galápagos Islands were the nearest land, so they started for them.

They had sixteen-foot oars and rowed for twelve days, four men on and four off, taking turns. One day the old cook cried out "Land." Nobody believed him at first but soon they could make out a dim cloud-like object on the far horizon. They realized it was really land and pulled hard on the oars till they came to a small beach to land on. They fairly ran up the beach to try to find water for they were all suffering from thirst. After a short time they were attracted by the old cook crying out and waving his hands.

But they ran about licking up the brackish water from puddles in the rocks. The rain had left some, but the surf had thrown spray up into the pools. However, they drank up the surface, for the salt was at the bottom.

When they looked back for the cook, they saw him alone on the beach. It was too late to help him; their boat had smashed to pieces on the rocks. They were on a small island ten miles from another big one.

The captain said, "Now we are all just men together, not captain and crew. And we will try to reach the other side of the island." They started out to cross over, but the way was terribly rough, they were exhausted and weakened by long suffering, and after a short distance they had to come back.

They walked around the island later and in one cove they discovered some sea lions, and two of the men who were good swimmers went out and chased them to shore. Once ashore, the rest of the men stoned them to death, skinned them for shoe leather, ate the meat, and drank the blood. All were sick as a result, but later they found turtles and after killing them, sucked the blood and ate the meat.

After two months of living like this, with very hard going, they found a small beach with fresh water. Here they buried a lot of gold in a crack in the rocks. And one day after living on that one beach for three or more months, they were rescued by a chance ship sailing by.

When Christianson heard that Uncle Will was coming on this trip again, he wanted to come back here, mostly to find the gold. But he could not afford to leave his job, and he would not tell just where it was buried.

HOOD ISLAND

After cruising around to the south of the Galápagos Islands for two days, doing deep dredging and hauling, we turned back to Hood, the most southerly of all the islands. It is low-lying with two or three rather

higher hills and at the south end an albatross rookery which shows way out at sea, a high rocky headland, with the birds showing white against the black rocks.

Compared to the other islands there is little known about Hood. There are lots of sea lions on the beaches and in the coves around the rocks. You may get almost close enough to touch them. Isabel Cooper, who is not afraid of anything, crept near enough to pat one old bull on the flipper. When she laughed aloud he gave a curious grunt and slid into the water.

We noticed that several of the sea lions had eye disease, many of the little pups being entirely blind, and the older ones having perhaps one eye dimmed with a white film. So Bill Merriam shot one of them, brought it to the boat, and the doctor took the eyes out to study the sickness.

I went ashore with the crew one day, and we got a huge log which was covered with barnacles. We pushed it back into the water again and played with it, diving and climbing over it and fooling with it as we would a raft at home. The water is beautifully clear, the white sand and the black rocks showing up perfectly clearly for many feet deep. Of course we were all terribly scratched with rough housing, but it was good fun and fine exercise.

I lifted up some of the black rocks along the beach at low tide and found a small octopus. Someone took him out of the jar I had put him into to look at him and left him in the sun, so he died. But he was valuable as a specimen on the ship and has been put with the other jars aboard.

The beaches here at Hood have very soft white sand, unlike that at Tower which is crumbled up coral and sharp and cuts the feet.

Also there are many bays or coves like fiords along the shore. Don Dickerman, one of the best collectors in the outfit, was getting beautiful starfish, some like worms, some brittle and a lovely pinkish coral color, and some small red and green fish while I rowed the boat around so it wouldn't smash on the rocks. When he was doing this I saw seven sharks, one huge turtle and one small one.

Another day John Tee Van took me with him when he went ashore to trap birds. He uses a long pole with a small twig on the end. This is covered with very sticky paste. He whistles the song of the bird, and when it comes to see who it is, John hits him on the back a light tap which makes him stick to the twig. Then John takes him off, wipes off the paste, puts him in a box, and takes him to the ship.

Dwight Franklin harpooned a big ray along the shore of the beach, and lost the harpoon. Afterwards we saw the handle going along the surface. He got four other rays, but never caught the one that had gone off with the harpoon handle. We saw spotted rays, brown ones, red ones and black ones.

At night when we are at anchor, there are two great arc lights lowered over the ship's side, one over the boom and one above the gangway. This bright light attracts the fish in great numbers. At Hood the flying fish were very plentiful, and a large size—ten or twelve inches long, with lovely pinkish purple wings or fins. One night I harpooned enough for breakfast for the crowd.

The fish seem to get quite crazy with the light and they dart around cracking themselves against the boats and the shipside. To add to the excitement, sea lions come skimming by and snatch at the wounded ones gulping them down and stuffing themselves on more. One big sea lion came close enough to the gangway for me to reach over and touch him.

Another night I caught a Portuguese man-o'-war in a scoop net and was stung by him on both hands. This is a jelly fish kind of thing with long trailers or tentacles. And these tentacles are poisonous and sting

their prey so they can eat the little fish or plankton. I also caught a little transparent fish, pale colors with dabs of bright red on the lower fin. Miss Cooper painted him. And I got a bright red squid and many small crabs one of which was scarlet.

Altogether I think I had the most fun at Hood Island, because the beach was so long and the shore line was so easy to explore. Mother went to the tops of three of the highest peaks in the island and saw way over the first ridge a long low lagoon of fresh water, probably rain water with great reddish muddy pools.

There are many goats here, quite wild and unused to man. Some are bright faun color, others have black stripes or spots and one old buck which the crew shot and brought in had entire white hind quarters, brownish head, black beard and large horns. They eat the cactus leaves and the small trees and the wisps of grass.

There is a good deal of soil here, reddish and evidently very heavy rains at this season. The lagoons are fresh rain water and in places climbing up the mountains it seems like half dried stream beds or water courses—rocks and muddy places between, and then great terraces of tuffa rock, a very sharp lava rock which is hard to climb over.

A DAY ON SHIPBOARD

Soon after dawn each day one of the crew washes the decks. And it seems only a short time later that Willie, the German mess boy calls "Hallf pass seex." I jump out of my cot on the upper deck, put on shorts, shirt and sneakers and beat it for breakfast at seven o'clock.

Just after breakfast or just before, the temperatures are taken and samples of water brought up from the different depths of the ocean. When that is finished, the depth of the ocean is measured. This is called "sounding." A heavy lead weighing seventy-five pounds is let over on a piano wire till bottom is reached. Of course the ship's engines have to be stopped while this is going on. The sounding machine has a contraption for bringing up samples of the sea bottom, so that one knows if there is sand or mud or rock below. Our soundings have varied from 746 fathoms to 2070 fathoms. A fathom is six feet.

It is fun to feel the icy cold water brought up, sometimes just above freezing although we at the surface are broiling with heat if we get out of the breeze.

The nets are put down 600 fathoms or more. There are three or four nets let out on the same cable, 150 to 200 fathoms apart. The net goes out for two hours, then begins hauling in. And of course there is excitement when it comes up for everybody wants to see, first if the nets are still on, and then what has been brought up in them. In it are tiny fish, pieces of strange unknown fish, once a black octopus with a queer umbrella-like arrangement over his mouth and head. Early in the voyage several nets were lost because they twisted off from the cable. And one was cut off by the propellers.

Next we feed the animals. The mocking birds have crumbs, the lizards are forcibly fed with bits of bread and water, the two very lovely albatrosses eat fish which is kept on the ice for them. These are now at the New York Zoological Park in the Bronx. I hope they like it there. And the little fish in the aquarium are given the "crumbs" from the nightly plankton nets. The nice little penguin died although for days he came out and had a swim, then gobbled up fish.

Then we have lunch. One day, the ship was stopped for half an hour, the gangway let down and we went swimming right in the ocean. It was over a mile and a half deep too. And beautifully clear water. If you even let yourself sink a few feet below the surface you could see right under our ship with the sunlight showing on the opposite side.

For an hour or two in the afternoon we seemed to be in a lot of drifting stuff. We saw two turtles, some big logs with birds resting on them and hundreds of tiny fish swimming round in the shadow underneath, and two poisonous sea snakes all brown and bright yellow. We caught a small dolphin fish on a line and while pulling it in three sharks followed.

All the nets were in before five o'clock for we have supper at that time. It is nice to sit up on the roof of the laboratory to watch the sunset and the moonlight later. And at eight o'clock the plankton net goes out for a short while. Plankton is very small sea life like bugs, queer fish that can't move themselves. And then to bed for another day just like it tomorrow.

DREDGING

The Blake dredge has a ten-foot iron bar across the top, a handle arrangement and a long twenty-foot net at the bottom, in which things are thrown after being loosened by the top bar. The bottom of the net is fastened so that specimens cannot be dropped out.

This is put way down till it is on the ocean bottom, and then trawled along slowly for an hour or more. Sometimes the whole dredge is lost when it hits an unexpected mountain peak or rock or ledge at the bottom, as it was at Abingdon Island, and once the whole thing was terribly twisted and bent out of shape because of hitting something way down in the depths.

It is dragged along, the top iron bar loosening things from the floor of the sea, dumping them into the net, and then brought to the surface.

The things brought up are always very cold, often just above freezing because it is so cold down there. One day a whole bucket load of sea cucumbers came up in the net and they were icy cold as if they had been in an icebox.

Sometimes there are fish, pieces of coral, bits of rock, legs or even a whole starfish, many sea cucumbers and once or twice a strange fish with curious contraptions for lighting his way around, a long tentacle or barbel out in front of him with a light on it, or a bulb on top of his head on a curious trailer thing out in front of his mouth so other fish will be decoyed in front of him and he then swallows them.

When the dredge is coming in we stand around to see what it brings up. For two hours the cable will be coming in and winding up on the huge drum by machinery, then at last the net shows under the water. Everyone hurries to the side and holds dishes or buckets or tubs of water into which to dump specimens.

And the crew help, one at the engine, one oiling wire as it winds on the drum, and two or three of us beating the cable with heavy clubs to shake off the water as much as possible to keep it from rusting.

Many of the deep sea things are very bright red. The shrimps, the

starfish and the cucumbers are different colors, reddish, yellowish white, purple, and even a bright bluish one came up.

PANAMA

Panama is crowded with Blacks, Indians, Hindus, Spanish, and many Chinese. The streets are narrow and full of people all the time. The stores open right upon the streets, and all the houses are built at the edge of the sidewalk with balconies on the upper stories out over the sidewalk.

Some of the children are terrible beggars and hang onto your coat while you are walking along the street. And many of them run around, without a thing on, stark naked funny little black children.

We drove out to Old Panama one day, and saw the ruins of what used to be the richest city in the New World. All the pirates knew this was a very rich city and full of treasures. Gold was brought there from Peru and then shipped to Spain on Spanish ships.

In 1637 Henry Morgan, a famous English pirate and adventurer, came across the isthmus and attacked the city of Old Panama. The city burned up, almost all of it, and the few people who escaped then made another city which is the present Panama, six miles away. It is a better place, with a better harbor at the mouth of the Boca Grande River.

We went to the top of Ancon Hill in an auto, way up above the City to get the view—way off over the Canal, over the city, far beyond the Old Panama ruins, and of course far out to sea. There are three cannons on this hill, and I could turn one all by myself and see how it works. If Panama should ever be attacked, this would be a wonderful hill for protecting the city. There are fortifications on both sides of the Canal entrance at Balboa. They also have quite a few aeroplanes.

We went swimming at the Balboa Club-house pool, one of the best I have ever seen. Mr. Grieser showed me the proper leg stroke for the crawl, and I met a twelve year old boy there who had gone to New York with a crack team of swimmers. He dived from a sixty-foot board in Madison Square Garden.

Don Dickerman bought three dugouts from a native fisherman in Panama, and he also got two monkeys, a Cebus, a marmoset, and a cunning little monkey-like animal called a kinkaiu, which goes out mostly at night. This last little one was very soft and furry and was very gentle too. He curled himself and tried to keep in the dark all day, sleeping. I hope I can buy one some time for I like him better than the other pets.

Bobbie Fish bought a little pet called a coatamundi. We call him "Snootie" for his upper lip is long and sticks out over his lower. He is little almost as a rat with a furry long tail. Betty has a brown puppy, named Dyna—short, she says, for Dynamite Bill who gave it to her.

Gregory Bateson left at Panama and took many of the live things back with him to New York. The lizards and smaller things died but the pair of lovely albatrosses lived and I hope I shall see them when I go to the Zoo. Bateson is still a student at Cambridge University in England and his father is a famous scientist.

On Saturday night late we pulled out of the dock at Panama, but we had to wait all next day at anchor in the outer harbor for two new firemen.

Two of ours had left and not come back to the boat. And as the Captain wanted to keep all the rest of the crew aboard we stayed out there so more couldn't leave.

COCOS ISLAND

Cocos Island is about five hundred miles from Panama, in the Pacific Ocean, and belongs to the country of Costa Rica. Four times a year it is visited by a government boat from Costa Rica.

It is a steep high island, bright green jungle, with few protected coves or bays. The best anchorage is Chatham Bay which has some shelter with a big high solid rock island to the west and a small rock island to the east side. The only settlement ever made here was around two bays or coves from Chatham Bay, at Wafer Bay. The beach is more beautiful there and the slope behind the beach is easier to climb; there was more level ground to cultivate and plant to trees and vegetables. But this second bay is not a safe harbor for a ship to lie in, open and with squalls and winds blowing all the time and rollers on the beach at nearly every high tide.

For about ten years a Captain Gissler, his wife and servants lived at this Wafer Bay. He spent his time mostly looking for treasure and we saw many deep holes which he probably had dug. As he is not here today and the place is deserted, maybe he found it and moved away to a less lonely place.

Pirates had been here and buried gold, and it is said that some treasure has been found at different times.

There are many beautiful waterfalls. Lots of them tumble right down into the sea from the steep cliffs and for over a hundred years ships have come here for fresh water, whalers and pirates and merchant ships or "tramps." One stream empties right into the Bay.

There are many beautiful ferns and tree-ferns and tall jungle trees. The tangle of vines is very thick, and the only way to go into the interior of the island at all is to follow along the beds of streams and climb up rocks and waterfalls and around cascades for the sides of the brooks are like solid walls and there are not many places where you can get up.

We went up a lovely stream bed one day from Chatham Bay. We pulled ourselves up rocks and around bad places and stepped into deep pools sometimes up to our necks. We had gone at least a mile and a half up the river, climbing steadily, when we came to a beautiful little cascade that fell down a cliff about seventy feet high. I was catching small blue crayfish in the pool at the foot of it when I lost my balance and fell down onto a jagged rock.

For a time I could hardly bear the pain of it and just sat and cried. Mother and Isabel and Betty were all afraid I might have broken a leg or something. They were awfully worried for we were so far from the shore and had climbed waterfalls all morning to get there. But it was only a terribly bad bruise and I was glad Mother was so strong. She had to practically carry me and lower me down over rocks and waterfalls all the way back. We stopped to eat our lunch on a lovely huge boulder in the middle of the stream about half way down. After resting a while I felt a little better and could help myself getting down hard places. It would be awful to break an arm or a leg or even to sprain one's ankle in such a place for even a trail is impossible there and it is very

hard to carry anyone down such a place.

Mother was pretty tired, especially as she had a bad sunburn on her back and shoulders and I broke the blisters by putting my arms around her to steady myself, and sometimes I even had to climb down her back to lower myself from one high rock to another six feet below.

The night before this trip up the river, we had a furious gale. The wind blew harder than I ever felt it, and for a time the rain came in a solid mass like a warm wet curtain, streaming across the decks. Everything was soaked, chairs fell over, curtains were tangled up, doors slammed. And then the boobies kept flying right into the ship banging their heads and bodies against things and stunning themselves. They dropped headlong into the "lab" where we were sitting, they fell to the floor in our cabins if the doors were open for a minute, and all over the decks the poor things were crouching around squawking. And they vomited up fish all over the place.

This is a curious habit with some birds; they seem to do it as a forfeit to another bird. They cough up their food which the other bird then takes as payment, leaving the stranded one alone without pecking him. White-headed terns flew aboard too. We were all of us busy throwing them overboard.

In the middle of all the gale and rain and wind, the five rowboats which were over the side tied to the boom by lines, had to be brought on board. A mate stood on the top of the gangway, a life preserver on a long line in the water in case someone fell overboard, and then one by one five men went out on the boom, to the end, down the rope ladder, into a tangled up and bouncing boat, and then rowed it aft to be hoisted up by other men onto the ship. It was all quite exciting and I stood in the rain a long time watching.

The next morning it was all calm again and you couldn't believe there had been a small hurricane the night before.

MAY 20TH, 1925

May twentieth is my birthday, and Mother had made me a whole pirate outfit—pantaloon trousers, red sash, calico head scarf, a machete, rope soled shoes, and a ragged shirt.

Everybody met at Uncle Will's cabin just before dinner, and then to the pounding of a big drum we all marched down to the dining saloon, everybody dressed in full pirate costumes, with wild looking wigs and knives and cutlasses of every description.

I got two knives, a jar of jam, a box of sweet crackers, a cocoanut, a fine piece of old Chiriqui Indian Pottery, and a peach of a collecting bag. "Lumpy," the baker, made me a huge birthday cake.

Then after dinner Shorty took a flashlight picture of the gang against the shrouds down on the hatch deck. We really looked like a pirate crew too, with everyone in costume and apparently on a sailing ship. The steep rocky island near the north point of Chatham Bay showed in the background, and made it seem even more real.

The night of the birthday party Don Dickerman wore his "Marooned man" costume. It is entirely rags and tatters and mended with bits of old string and leather. With a wig of tangled hair all knotted and a bandanna and a cutlass he looks pretty awful. John Tee Van had torn

trousers, bare body, a frightful long black wig and he painted on a terrible scar across his face, and slashes of blood on his insteps. Some of the others had fine clothes of velvet with old lace, the rich pirates or those who had stolen booty from some recent captive. And the girls looked like pirates' wives or sweethearts, except Mother who came as a wild woman, my captive, all bound up with ropes and being dragged along.

About the grandest birthday present one could get was given me by Don. It was his favorite sword, a real old time cutlass which perhaps was used by pirates. He called it "Fury" and got up an awfully funny card to go with it.

And Dwight Franklin made me a lovely drawing of the beach at Cocos back in the old days, with a regular pirate landing on it from his ship. That picture is used at the end of my book.

Cocos Island is really a wonderful place for a pirate party anyway, for real pirates were there many times, and maybe men were marooned there, or left there, and mutinies occurred. Treasure was buried there. Along the beach where ships came for fresh water, there are carvings on the rocks, ship's names and dates, many of them old and back as far as 1813. There were names of famous whaling ships, and one, The Shrew, was a real pirate ship but the date was not given with that one, probably on purpose.

There is a fine tunnel right through the rock in one place, going fully a hundred yards through a point of land to another bay quite round the corner. Don went through it in his little dugout canoe which he bought in Panama and Tamms, the third mate, went in his motor skiff with the Johnson engine.

In one little bay beyond the settlement we found a hole twenty feet deep where Captain Gissler or someone else had dug for treasure. Don and Dwight went down it on a rope and only found a board and a piece of rope there.

WEEKS AT SEA

For two weeks after leaving Cocos Island we were at sea again. The daily soundings were taken, the temperatures of the water and samples, and then there were the nets. We had out the big otter trawl net to go to the bottom every day until we lost it by getting it tangled in the propeller over the stern. And the long eight-foot net to go to bottom we also lost, probably because it hit a submerged mountain peak or a huge rock.

But there were always other nets, the one metre net, the half metre and the Blake dredge. A metre is a little over three feet. Once in the morning and once every afternoon these went over, and there was always great excitement about it. There were some fine rich hauls.

In about the best haul there were two tubs of deep sea fish from bottom-black and queer looking, some with long pointed tails without a tail fin, some eels, black with pointed heads, and a lot of funny little fish like sharks only with bright green eyes. Many of these come to the surface with the scales all torn off or soft and peeling.

There were light pink starfish, very brittle, a few sea cucumbers, some living sponges, crabs, bright red shrimps and two or three very queer looking fish with faces like demons or bogeys with funny little

electric light things sticking out in front of them on long barbels, which is what they call the long whisker-like thing.

I brought home for my collection a few specimens of this rare deep sea life. Starfish, shrimp and cyclothone, which is a small deep sea fish.

Apparently there is a great undersea plateau around Cocos. It is about six hundred fathoms deep. Just off the edge of this it is thirteen to sixteen hundred fathoms deep.

For days we saw many ocean tunnie fish jumping near the ship, and we tried all kinds of baits and different spoons and squids to catch them. One day Mother finally got four of them by jerking a squid up and down from off the boom. They weighed from ten to fourteen pounds and it certainly was very good to have fresh fish for breakfast next morning. They are a beautiful fish, like a torpedo, or bullet shaped with lovely dark blue backs and pinkish silvery sides with four stripes below the middle line and they are very swift swimmers, moving as fast or faster than the ship, for hours at a time.

One day I was sitting on the rail preparing a fish skeleton, and suddenly there was a loud "Pwishshsh" right near me. Mack, the first mate, called out "Whale!" and I jumped up and saw him not fifteen feet away. A big black body about forty feet long.

Another day we saw a whole school of big blackfish, a kind of small whale, and they also were right near the boat for an hour. They first look like huge slow porpoises coming slowly to the surface to breathe. They are black, with rounded snouts and a big huge, fin, something like a shark's, on the back.

During this time at sea, Shorty and I made a cute little dog house for Betty's puppy, Dyna. It is white, with a red roof and a little gable over the door with a sign, "Beware of the Dog." Shorty Schoedsack is the photographer who went with my friend Colonel Cooper to Persia and took the wonderful movie "Grass." He is called "Shorty" because he is about six feet six inches tall.

We had rough seas and constant rains almost all the time out here perhaps because we were still so close to the Cocos Islands. But it has meant we could not go over the side for a swim or even put out the little motor skiff for game fishing or trolling.

TAGUS COVE

HALF A MINUTE SOUTH OF THE EQUATOR

Tagus Cove is on the west side of Albemarle Island, a deep little bay about half a mile wide. The cliffs around it are steep except for one place at the end where there is a little gully in the rocks. There is no beach, so we landed in this gully where the rocks were very slippery.

When you are once ashore, however, it is fairly easy walking because the lava is very old and crumbly, like clinkers, and the scrubby bushes and stumpy trees give one a hold.

Over the nearest and lowest ridge there is a little crater lake and nearly one hundred years ago Charles Darwin climbed up and discovered it when he was cruising around here in the Beagle.

There is a five-mile channel across to Narborough Island which is a huge volcano, with sides almost entirely black with lava right down to the sea.

Don and I were almost the first ones ashore, and we found a small sea lion right in the rock gully, asleep. We tied a rope to him and played with him quite a while before Don took him back to the ship.

Serge took me with him collecting and we scrambled over two or three hills. I caught a two-inch scorpion under a rock and quite a few big grasshoppers and moths and butterflies. Serge is a Russian, whose last name is Chetyrkin. He speaks very little English, but is a fine taxidermist. His job is to preserve and mount birds and fish. He mounted for me my little pet penguin which died after we had him aboard for nearly a month. He was an awfully funny little bird, as tame and friendly as could be. We'd put small live fish in a glass tank and then watch him catch them, for these penguins are wonderful divers and swimmers. I think their entire food is fish. And that was the way my pet got his exercise and his dinner at the same time.

Another day, Don and I fished right off shore near the landing place and got many fine fish, one especially beautiful one all bright orange and black with a big bump over his nose. And once when we left a string of new specimens in the water to keep them alive, a shark came right up and bit one off the string!

The very first day in Tagus, Mother and the Doctor went out fishing and they brought in the finest lot of game fish we had the whole trip—big mackerel, groupers, bonito, tuna and barracuda.

Betty wanted to get up high enough on the mountain slopes to see across to the volcano which was the other side of the Island. It was the same one we had seen in eruption seven weeks earlier. She left the ship at five in the morning and was climbing all day till evening. She did get up beyond the clouds and then had to go by compass. There was damp wet grass and vegetation up there, although the lower slopes had all been dry lava and burned bunches of grassy stuff. She saw fresh tortoise tracks and wanted to follow on, but she knew everyone on the ship would worry if she did not come back and so she had to leave to climb down again. She went all alone.

Mother and Isabel took a hard climb in the opposite direction over two high hills and they saw a very much bigger crater lake which had never been reported before. It had very steep walls over five hundred feet high, and six little cone-like islands in the middle.

Along the shores of the cove there are grottoes and little caves and here there are penguins, and pelicans, and boobies and some very strange birds called flightless cormorants—birds which really have lost the power of flight because they have lived so long on the island and never really used their wings because they didn't have to get food or travel anywhere.

THE GIANT DEVIL FISH

Two days after leaving Tagus we were cruising around along the shores of Narborough Island, trawling with the nets.

Two or three skiffs were near shore, some diving, some fishing and others dynamiting. Mother and Doctor Cady were trolling for big fish and suddenly Mother had a terrific hard pull, and for half an hour she

had to "play" a tuna. It was 46 inches long, and weighed 46 pounds.

Soon after they saw a great long fin moving slowly along and when they came near found a big flat fish like a skate, slowly skimming just below the surface so that only his two fins came above the water. They followed him around and actually herded him over towards Bill and Dwight in another boat.

Next morning Don and Dwight and Doc went out to find one with two harpoons, plenty of rope and two kegs. They cruised around a little and soon saw a big ripple on the water, a ray going along with his fins sticking up in the air twenty inches.

They struck with their harpoons and after a great splash the big ray just sank out of sight and pulled the rope and two kegs right down with him. They waited a long time and watched for him to rise, but when we came along in the launch Pawnee we said we would stay to look while they went to the ship for another harpooning outfit. We chased another big ray for almost half a mile before the others came back.

Dwight took first shot, but the harpoon soon pulled out, and the big fish went sailing along the surface again. Then Don took a shot which held and he played out the rope, holding on to the end so that the ray had to tow the boat.

Meanwhile Bill had come along in another skiff to see the excitement. Bill gave them a second harpoon which Dwight stuck in and then the fish towed the two boats for a time, every once in a while flipping up its tail and hunching its back to try to sweep off the ropes and harpoons.

Gradually it swam back towards the ship and the men started their engine and forced it over that way. When it was quite near, we hurried to the boat to get the movie camera for Shorty, and I brought Dwight's revolver to him. He shot it five times with a thirty-eight, and Bill put in five loads of heavy buck shot. Then it seemed to make a great effort and tried to swim down deep. Don held it with all his strength and would not let it go straight down. It flipped its wing and hit Don right across the shoulder and head twice but he never let go. Then it tried to spill over the boat by getting right under it. But finally they towed it near enough for the sailors to throw a rope down and get a line over it.

It had been bleeding pretty heavily and there was a big trail of blood all the way to the shore, and some sharks were following this up.

It measured eighteen feet across from wing to wing and weighed 2400 pounds. And after they started dissecting it they found an unborn ray that weighed 28 pounds and made a perfect specimen to preserve and take back to the New York Zoological Society.

MOLTEN LAVA

We were sailing along the east coast of Albemarle Island for we wanted to know if the volcano we had seen in eruption on Easter Sunday, nearly two months before, was still in eruption. We were almost there, practically on the Equator, and we recognized the columns of smoke half way up the side of the mountain.

Suddenly a yell came from the bridge and the Mate blew the foghorn (which is the way we are called to hurry to see something) and when we came running out we saw a high funnel of bright white smoke rising

right out of the sea down at the end of a point, a few miles ahead of us. It couldn't be spray for it was too enormously high and kept right in one place.

Uncle Will thought for a long time it must be a geyser or small volcano right at the water's edge. And everybody watched it through glasses and climbed up into the crows-nest for a better view. But when we came along closer we could easily see it was a great field of hot lava which had reached the sea and was pouring into the cold water. For a while before we reached there we could see a streak of dull green in the water, quite distinct from the dark indigo blue, making a very clear line between the two. And the temperature of the water went up from the normal 74 degrees which we had had right along, to 99 degrees, and even that was a quarter of a mile away from the shore.

Luckily, the strong on-shore wind made it possible for us to go very close and not run any danger of getting in poisonous gases or smoke, for there were great clouds of smoke.

The shore rocks were black, there were two colors in the water, green close to shore and blue out beyond, and these big masses of very white steamy smoke. And then as we came closer we could see huge openings at the end of the lava flow, like pipes emptying red hot lava out into the water. It looked like bright blood.

All day till dark, we circled around and kept passing near it, keeping about a quarter of a mile from shore. There were high waves and a strong breeze and the smoke was blowing steadily up the mountain side so that by sunset time we couldn't see the little cones up on the higher slopes from which the whole flow had come down.

But after dark we could tell just the line the stream had flowed down, a rather zigzag course, and right over the place to which Uncle Will and John had climbed two months earlier. There were great hot patches which glowed red in the dark and little specks of hot fiery places all along the slopes. And then at the bottom right at the shore, these great huge open hot red streams spilling out into the sea. Once or twice it would break out in bigger flows or whole big chunks would fall off into the water, and then it would shoot out and throw boiling lava into the air, way up, like blasting or skyrockets.

Through the glasses we could see several birds which had flown too near and their bodies were floating along in the water. Once we saw a poor sea lion throw himself straight up into the air five times and then flop down dead right near the terrible stream. A great big octopus floated by, just about dead. And we watched a whole wave so full of fish it looked black, swimming as fast as they possibly could straight out to the cold water. Once too, we saw a shark in a kind of daze, swimming along, and probably not knowing why the water was so suddenly growing hotter and hotter.

Shorty took some fine pictures of the whole thing, the smoke spurting up in the air, the pieces of rock crunching off and exploding into the water, and the great streams of melted rock.

The last thing at night when we left, we saw six big outlets or hot glowing spouts dimmer and dimmer as we turned eastward. Next morning we left the Galápagos Islands for Panama.

(A Little Song Written by Don Dickerman for
David's Birthday Party)

SONG TO DAVIE PUTNAM

Oh, his name was Davie Putnam,
And the youngest man aboard,
In truth we guessed they shipped him for a lark.
Didn't need no powder monkey,
Guests we couldn't quite afford,
But he sailed with William Beebe on the Ark.

Oh, we took this Davie Putnam,
And we sailed away I say,
To those desert islands cruel, bleak and stark.
There we captured giant lizards,
Sharks and tortoise in the bay,
As we sailed with William Beebe in the Ark.

And this little Davie Putnam,
Who was only twelve y'see,
With his mates t'home a'friskin' in the park,
Steps out with all his olders,
Hunts and fishes with the best,
As he sailed with William Beebe in the Ark.

So this little Davie Putnam,
Smallest man aboard the ship,
As the topmost fightin' pirate makes his mark;
And besides we liked his spirit
And his many a merry quip,
As we sailed with William Beebe on the Ark.

*** END OF THE PROJECT GUTENBERG EBOOK DAVID GOES VOYAGING ***

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