

This diary was written by Dr Robert H. Norris,
then Assistant Professor of Geology at the Santa
Barbara campus of the University of California.

I came to Scripps in February 1949 to work under Prof. Francis P. Shepard. I completed the PhD degree in June 1951 and then did what would be called today a "Post-Doc" on Amer. Petroleum Inst. Project 51 involving a study of sedimentation along the coast and in the coastal bays near Corpus Christi, Texas, under the supervision of Dr. Shepard (Principal investigator).

In June 1952, I joined the faculty at Santa Barbara.

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DOWNWIND CRUISE DEC 1957- FEB 1958

DECEMBER 24

After receiving the emergency phone call from Russ Raft at Scripps in which he reported that we must leave for Santiago a day early, I got my things packed and with the family, went out to the Santa Barbara airport. Betsy Anne was asleep when we left and stayed home with her Grandma Marian.

We arrived only to find the plane was to be 40 min. late which permitted Donny & Jimmy a lot of time to watch the private planes landing & taking off.

At about 10 minutes to 4, my Southwest Airways plane arrived and I went aboard feeling rather glum at leaving the family in the midst of the holiday season.

2-32105) GUATEMALA

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Sep 29 - Sep 30

The trip south was beautiful and followed the Malibu coastline closely as far as Santa Monica. From there we passed over parts of Los Angeles — one thing surprised me — Many of the tract houses had swimming pools, either in use or under construction.

The plane landed at LA International about 5 pm and I went to get a bite to eat. I was not especially hungry because of a cold I was getting and for various other reasons.

Russ Raft met me at the Pan American desk at about 5:45 p.m. and shortly thereafter we went aboard. The plane was comfortable, but not for sleeping, and we both had window seats.

The airline fed us a reasonable dinner and about 11 pm, most of our tourist class fellow passengers went to sleep as best they could.

DECEMBER 25

Russ & I both slept fitfully and not too well. Our route took us from Los Angeles over Tucson & El Paso to about Brownsville where we turned south, passing over Tampico and Campeche, neither of which I saw.

About 8 a.m. we landed in Guatemala City, Gta. for a few moments. Since it was Christmas day, Santa Clauses & Christmas trees were in evidence, but it was not possible to mail postcards — a disappointing situation. It was coolish and slightly moist, the kind of morning one often has in the tropics. The Guatemalan govt serves small cups of excellent coffee to the airline passengers.

South from Guatemala we passed many recent & spectacular volcanos, some giving off some vapor, but nothing more. Russ & I took many pictures of these. Nicaragua is a land of lakes and Managua, the

capital city is located on one of these. Volcanos dot the landscape everywhere. When we arrived in Managua, it had warmed up considerably and most of the town seemed to be having a family outing to the airport to see the planes. Neither many passengers come aboard or left.

We also had a cup of coffee here courtesy of the Nicaraguan gov't.

From Managua, the plane flew southeast to Panama City across the Coastal Plain on the Atlantic side. The area is a vast trackless jungle with occasional small settlements along the meandering streams.

About 12:30 p.m. the plane landed at Tocumen field east of Panama. We took a taxi into the city for about \$1.50 each.

The Panamanian currency is on a par with U.S. and no

difficulty in exchange is encountered. We checked our bags at the International Hotel, had a few drinks in their cool & quiet bar and then went off to see the city. Russ & I walked all over the old part of the city, looking at the gold altar in St. Joseph's church, the famous old flat arch, the promenade along which hundreds of kids were roller-skating and the Presidential Palace which was guarded by numerous soldiers.

The older part of the city is fairly dirty and no amount of effort by the city seems to keep them ahead of the game.

Taxi drivers were constantly propositioning us about girls they had available. This was especially prominent in the evening. One gets the impression that sex is one of Panama City's chief tourist attractions.

The Canal Zone is not well divided clearly from Panama City. No signs are posted at

to indicate that one ~~must~~ is crossing a boundary. However, the Canal Zone bears the stamp of U.S. architecture of the late 1800's and more space is devoted to gardens & lawns.

We had supper at a place called the Atlas Club, not so much because it was highly recommended, but because rather few other places were available on Christmas night. The meal was fair and the cool beer good as the evening was very warm.

DEC 26 At 2:40 a.m. we were set at the Airport again, surrending our Tourist cards & other customs data. We boarded the EI Interamericano - A large DC-7 of Panagra - which had come in from New York & Miami.

The stewardesses were very pretty and pleasant and since the plane was almost empty, we could sprawl out

two seats and sleep. I was asleep within minutes and didn't wake until the next morning when we were over N. Peru. I had crossed the equator for the first time during the night and the 4 hours of sleep was gratefully appreciated.

About 8 a.m. we landed at the airport in Lima. It had rained briskly hours before - a very unusual thing for Lima and the sky was cloudy.

Lima, although near the coast, was cool & pleasant. In the station we were followed by a furtive looking character who wished to sell Panama hats which he kept rolled up.

At Lima, as at Panama, a long red carpet was unrolled at the foot of the steps each time the Inter. Americano landed. This looked the most strange and half funny at our next stop at

Antofagasta, Chile. → The airstrip at Antofagasta is three or four miles from town in the desert, and literally, rolling out the red carpet into the uninhabited desert was funny.

Before our landing at Antofagasta, we crossed some of the coastal Peruvian desert - in one case - near Pisco or Ica - I saw a fine group of white barchan dunes marching across the reddish brown desert! Unfortunately, there was considerable cloudiness, which not only blotted out much of this fascinating coastline, but the high Andean peaks to the east as well. At Punta Lomas we left the coast and flew over the sea to Antofagasta.

Southward from Antofagasta our route took us along the coast, but mostly over the land rather than the water. The Desert is very barren at the north and gradually becomes

more verdant as one approaches Santiago. The geology is beautifully exposed and I took some pictures of the bedding and of faulting where they were well-exposed. Also, going south, the desert area became more mountainous as the broad plains of the nitrak (Salitre) desert narrowed.

The first green south of Antofagasta was seen at Copiapo, where a river manages to cross the desert all the way to the coast. I asked one of the stewardesses, an Argentine girl, what the name of the valley was. She replied "I don't know, do you?" I told her I thought it was Copiapo and this was confirmed by a Chileno sitting nearby. Such valleys gradually became more common, the next being Vallenar, Coquimbo, etc.

Summer fog hung in patches along the coast. Most of the

way south.

In early afternoon, we landed at Santiago where the temperature was nearly 86° F. Despite this most of the men kept their coats on.

We were guided thru customs by the Panagra representative and for the first time, our passports were stamped. In Panama we had had to present health certificates & passports + other papers, but only our passport numbers were recorded.

Our taxi dumped us at Hotel Carrera in Santiago where we sent radiograms home reporting our safe arrival. We then made our way to the Mapocho railroad station and using Russ's technique of speaking a mixture of Spanish + English, managed to purchase two rail tickets to Valparaiso for 1000 pesos each (About \$1.25).

All this took much time and as we had been requested to come to Valparaiso so promptly, we had little time for sight seeing before the train left.

The various classes on the train appear to be a function of the hardness of the seats rather than anything else. The train was clean as was the city.

The train pulled out at 5:45 pm - and as this was mid summer and as Chile keeps a sort of daylight saving time, most of the 120 ± mile trip was by daylight.

The country side looks much like parts of California with the brown grass-covered hills & scattered green trees, not so much oaks as leguminous trees of some sort. The valleys are all irrigated and look quite verdant in contrast with the brown hillsides.

Both Russ & I were impressed with the Chilean women - they were to an appreciably larger extent good looking - ~~than~~ than in the other places we had been, although we had both admired one very attractive Señora who had disembarked from the plane in Guatemala where she was rec'd by a husband and tres niños. It seemed to make little difference whether one was in Santiago or in the smaller towns on the road to Valparaiso, pretty girls were numerous.

At Quillota, we passed thru citrus groves and groves of miles cherimoyas and avocados plus some others I did not recognize. This is evidently the fruit-growing section as ripe peaches & plums were also much in evidence. Many corn fields were seen as well.

At Quilpue, it had begun to get dark and the plaza was a blaze of colored lights & decorations. Many were out enjoying the warm night and the place was one of considerable activity.

A little further on, the train stopped at Viña del Mar and practically everybody got up and left. - Including Russ & myself. By the time our red cap had discovered our mistake the train had gone & we had to catch the next one at 40 pesos each!

About 9:30 we arrived in Talparaiso and began our search for the R/V. Spencer F. Baird. No one seemed to be waiting for us so we tried our Spanish again - This resulted in our being guided across the street to the office of The Gobernacion de Puerto

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While I waited outside, Russ & a cooperative Chileno went inside — they found the duty officer drinking some vino, which seemed to embarrass him quite a bit. Finally, it was made clear that the Baird was very close — as it indeed was — a short walk from the station.

After putting our stuff on board we went to the Hotel Prat for supper — about 10 pm. Chile, contrary to expectation, does not eat supper late — we were the last ones served — and had very good steaks.

When we got back to the ship Bob Fisher was on hand and reported that the urgent call for earlier reporting had been meant for the Argentinian Naval Officers and not us!

With this news, we crawled into bed.

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DECEMBER 27

There being no special need for me on this day, I took the train back to Santiago to visit Malte Crasman, younger brother of my UCLA fraternity brother Bernd Crasman, at present an Asst Prof of Physics at the University of Oregon.

My luck was good as I got Malte when I called and did not have one of those frustrating experiences of trying to make one's wishes known on the telephone.

Malte & his father invited me to have lunch with them at La Club Union — the Santiago equivalent of the Rainier Club in Seattle. I was wearing a blue wind-breaker which was a trifle informal, but they said this was summer and Chileños were less formal than usual. We had an excellent lunch including Chilean white wine, mineral water, mashed potatoes & a delicious fish called Congrio

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Malte drove me around the city during the afternoon including a short trip up Cerro San Cristobal about 900' above the city. Malte reported that the Zoo on the hill had discovered that the Lions evidently liked the region and reproduced continually, so that Santiago lions were shipped to all zoos in So. America.

He pointed out the University of Chile where he had taken his training as a civil engineer. At the moment, however, he was employed in the family import-export business.

Before I left, he helped me obtain some stamps & a guidebook on Chile plus a picture of Cerro Aconcagua for Donny.

I walked back to the rr. station and took an uneventful trip back to Valparaiso.

DECEMBER 28

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The morning dawned bright and clear in Valparaiso, unlike the previous fog-enshrouded morning. We were scheduled to depart at 1300, but assorted delays managed to postpone this to nearly 1600. In the meantime I took the opportunity to write numerous letters & to make a trip for some shipboard refreshments.

The entire Chilean navy is stationed at Valparaiso and consists of several cruisers & lesser vessels.

We headed out into a rough sea which was not much fun for the crew which had spent much time ashore. I had a bonamine and only felt a little miserable.

I am sharing a stateroom with Dr. Erwin Schweiger, a Peruvian who is an expert on Guano and the Peruvian current and who teaches part-time at San Marcos University in Lima.

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AS HERMOSO

wherever he will go ashore, to be replaced, I presume, by Bob Parker.

DECEMBER 29

I somehow drew the first and last laboratory watches of this day - The mid-watch and the evening watch. The sea was very rough as we left Valparaiso and remained so throughout the day + evening. Our course was designed to provide as much information on the nature of the So. American trench as possible. The recording echo sounder indicated depths of as much as 21,000' between Valparaiso and Punta Lengua de Vaca.

Except for a slightly queasy feeling I was not seasick and the day passed uneventfully.

During the night we turned our clocks back one hour from Chilean to Peruvian time.

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DECEMBER 30

My watch was the morning watch (0800-1200). The echo sounder broke down about 11 a.m. and took until after 12 to repair.

The sea has moderated slightly, but our bright sun has been replaced with a gray overcast. The cold Humboldt or Peruvian current is noticeable and water temperature at the surface is about 62 or 63°, but warming rapidly.

The Captain has been a little unhappy with the members of the Scientific party - primarily as the result of minor infractions such as my uninvited sitting at the Captain's table - The Scripps Navy has become a good deal more formal since 1952.

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DECEMBER 31 1957

The weather presented a more tropical aspect this morning - the air was warm, the sea much moderated and the water warmer (up to 22°C). The clouds are broken and we can expect to have intermittent sunshine today.

This afternoon we plan to splice the long coring wire which was broken + improperly spliced on the first part of the voyage.

Ross Raitt + his men are getting the seismic gear in order for our run seaward from Antofagasta.

Instead of remaining near the coast, we made our first station at $72^{\circ}19'W$ $23^{\circ}30'S$ where we drifted all night - The wire-splicing crew worked all night repairing the long wire and will resume their efforts tomorrow.

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Inasmuch as it was New Years eve, several members of the scientific staff + ships' company made up some punch with ingredients obtained at Valparaiso. This enabled us to usher in the New Year properly. During the evening the squid appeared in the water where the spot lights were played, and we found that if we threw in fruit juice cans (about size of orange juice concentrate), the squid would swim by, inspect them, and then back up and grab the cans and promptly submerge.

Attempts were made to spear or catch these animals without notable success.

JANUARY 1, 1958

The long coring wire was spliced with considerable effort in two places and made ready for use. The first gravity core was taken today.

Wander brought up about 70
carrots yesterday.
Inasmuch as today was
New Years Day - an International
holiday, we had roast
turkey which was very good.

I am continuing to learn
much about Peru from Dr.
Schweigger. He tells me, for
instance, that the Guano
Company has a purse-seiner
for his use - a boat with
the improbable name Pacific
Queen, a name it had when
purchased.

This evening, the long cable
newly spliced, was used for
a temperature probe and
upon pulling the device out
a new kink developed in the
wire and a third long
(about 40') splice will have
to be made. Max Silverman
is more than a little un-
happy about this.

JANUARY 2

The mid-watch again.
This morning we came in
near the coast of Chile
at about Antofagasta. The
Coastal Cordillera & the
well-developed marine terraces
were easily visible.

The Horizon came along-
side and we transferred
several persons to her and
exchanged our copies of
Playboy & Nugget. The
constant exposure to
pictures of photos of attractive
nude girls in these magazines
and on the assorted calendars
around the ship is pleasurable,
but leads to frustration and
makes one wonder whether it
is worth it.

We remained in position
most of the day with hydro-
phones streaming, while the
Horizon moved about as
directed by Russ Raith and
tossed explosive charges over

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the side in order to make his seismic studies.

We took a second gravity core, this time in green foraminiferal mud much like that off So. California.

JANUARY 3

Began this day, too, with the Mid-watch. On these occasions I normally skip breakfast.



The day was rather uneventful. We took several cores with partial success and continued Russ Raft's seismic studies along the So. American trench.

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We have been having a mild plague of fleas on board and several of us have been rather thoroughly cheared up.

I finally did much washing in our washing machine and dried the clothes in the engine room as it has been only partly sunny. Perhaps we shall encounter finer, warmer weather when we leave the Humboldt (Peru) current.

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JANUARY 4

Today was a quiet day. We spliced the long cable, took a successful gravity core and late in the evening lowered the temperature probe which is now being brought aboard as I write this.

The ship's crew has spent the evening catching squids and one of the men is planning to have a midnite snack. I may join him.

Today I read Helen Raith's book on the Capricorn Expedition of 1953 (Exploring the Deep Pacific - Norton)

Jr. Schwegger and I had our usual cocoa (Huckle Hermanos - Santiago + Valparaiso) and he told me more about Lima & how Peruvians behave and think.

It has become obvious that the Peruvians like most

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other So. Americans, are continually haggling about boundaries and always making a fuss about the accuracy of foreign maps + charts.

JANUARY 5

For the first time today, we attempted to take a core with the big Kullenberg. Our attempt was made in a place off Antofagasta in the South American trench where the water depth was 4210 fathoms (25,260').

When the Kullenberg was lowered, it had a small PBS gravity corer attached as a pilot wt. It took a good many hours to raise and lower these devices and much wire - about 8100 meters

We did not detect with certainty when the instrument was on the bottom because the small ball which

was to be broken was not heard on our listening gear—not too surprising when one considers the ball was about $3\frac{1}{2}$ " in diameter and that the sound of the implosion had to travel thru $4\frac{1}{2}$ miles of water to reach us.

In the late afternoon, 7 or 8 hours after the corer had been put in the water, the geological crew gathered on the fantail to see what we had got.

The last 400 meters of wire was badly kinked indicating that too much wire had been spooled out.

Finally, the end came in view—a tangle of wire + manila line with the tripping mechanism of the corer + the small PBS sampler attached. We did recover a small core from the bottom of the trench, but not the large one. ($30' \pm$) we had

hoped for.

In the evening, I had a long and interesting talk with Dr. Schweigger about Peru, Peruvians, Peruvian education and his three boys. His oldest boy is 16, and the twins—identical—are 13.

He tells me that German is spoken at home, and that the twins prefer to use Spanish between themselves. The twins are so much alike that their parents and older brother have considerable difficulty in distinguishing them.

Dr. Schweigger, who is on the staff of San Marcos University in Lima reports that the University has no full-time instructors and for this reason falls short of being a first-rate institution.

His children go to the

Swiss School in Lima rather than to the public schools.
 His oldest boy at present wishes to go to Germany upon graduation and apprentice himself to an electrical manufacturer. He has not demonstrated - so far - much desire for additional education.

I also learned that the present director of the Guano Company is an Air Force general who exclaimed with surprise upon seeing the Co. library & learning that the company publishes a regular bulletin in which original scientific articles appear.

The job of director of the Co. has become sufficiently well-paid so that it attracts politicians and is given as a reward for faithful service during a campaign.

JANUARY 6

Most of the day was spent on Seismic Station with Russ Raftt and his boys Bob Pepin, Alan Jones & Dick von Herzen busy most of the time.

We took several gravity cores with moderate success, obtaining a sample of reddish clay + globigerina ooze. The reddish clay may well contain radiolarians.

Max Silverman & I worked on the Kullenberg corer as we had expected to use it, but as things did not work out, we merely assembled it for the event later on.

Dr. Schweiger & Dr. John Andrews & I had one of our evening get-togethers and talked about the Peruvians, the English and the Norteamericanos. Dr. Andrews has been designated as the Ships Biochemist

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owing to the University's rule which prohibits a man not licensed by the state from being designated a Doctor. He, however has his M.D. from Cambridge and is doing a pediatric residency at the UCCA Hospital.

On one of our gravity cores today, the ball failed to shatter, but came up filled with seawater & some sediment - our only sample at this station.

JANUARY 7

An uneventful day. We tried a few cores with indifferent luck and spent much of the balance of the time underway.

The crew has been quite successful in catching squid; one caught during the night was more than 3 feet long.

The first flying fish was found on deck this morning. "Sigid Pablo" the cook prepared it for Russ Raft + Dick Schweiger.

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The fleas are at work again and have done a job biting me. I wish I knew why they find me so tasty.

JANUARY 8

More coring & seismic work, and more than our share of wire difficulties. The big winch was used to lower the temperature probe in the morning and all went well until we began to heave in; at that point, for reasons unknown, one of the fenders slipped off the winding drum and made a dandy snarl - with 5000 meters of wire out. This will have to be spliced in the next few days and we therefore transferred George Hohnhaus back from the Horizon (he swam) to help Max.

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In the evening we attempted a core with the gravity corer & the hydrographic winch. We have been losing parts of the red clay cores and that has used a rubber to prevent this - slipped over the core catcher.

When about 150 meters of wire was still out, a big snarl in this wire became obvious. This was duly untangled and the core brought in - with a good three-foot red clay core. Bob Fisher moved this after I had put the bottom cap on and all the core ran out. Another good core was taken after the bad wire was cut off.

On top of this, I acquired a new set of intestinal bacteria which have been treating me badly.

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JANUARY 9

MUCH BETTER TODAY - The bacteria are at least momentarily conquered.

Today was uneventful with little coring - three attempts and one success. The successful was an interesting core about 100 cm long of globigerina ooze obtained from the upper parts of some mountains which extend SW from the Peruvian Coast. (Nasca Ridge)

Dr. Schweiger explained his version of the "Callao painter". He says it is associated with abundant jelly fish which sink to the bottom of the sea and decay releasing H₂S. He reports that a diver found dead jellyfish 1 meter thick on the sea bottom during one of these occasions.

JANUARY 10

Most of the day was spent in exploring the Nasca Ridge which extends southwesterly from Nasca, Peru. The water on either side of the ridge is more than 12,000' deep and across the ridge decreases, so far as we know, to depths as small as 2,500'.

We made our first dredge haul on the crest of the ridge in about 3,000' of water and obtained considerable calcareous material - fragments of corals, weakly cemented globigerina sand; manganese nodules and shark teeth of probable Tertiary age.

This was our nicest day of the trip weatherwise. Perhaps because we are near Lat. 19° S and Long. 72° W. It was warm + sunny today.

This evening we took a core on the south flank of

the Nasca ridge and it was 140 cm long, of a café-au-lait color and composed of calcareous foraminiferal ooze.

We had Roast Pork, beans and Rice pudding for dinner.

JANUARY 11

Most of the day was spent underway with the usual fathometer and BT's to take while on watch. The weather was once again cloudy - actually we have had only one or two sunny days since leaving Valparaiso, although it has been warm + pleasant.

The sea temperature continues to rise - it is now more than 22° C, or about 72 or 73° F.

We took one core today which was red clay on top with blue-gray stiff mud underneath.

I have been going thru the ship's library at about the rate of a book a day, since plenty of time is left for

sleeping, eating, siestas, watches & time and such work as I do with the cores & charts.

JANUARY 12

Most of our work today was a continuation of the seismic refraction study carried on by Russ Raftt and his men Alan Jones, Bob Pepin and Dice von Herzen.

We geologists managed another core however so the entire day was not lost.

Today was the first day we have had a general swimming party over the side. The water was about 75°F and the day a sunny tropical day with the usual flat-bottomed cumulus clouds in the sky.

We are now about 150 miles SW of Callao and expect to cross the Fosa de Lima (Lima trench) during the night before beginning wire splicing and

another seismic station tomorrow.

Max Silverman & George Hohnhaus changed the wire on the BT winch today, and as far as I can see, didn't improve the situation at all.

We had a fine turkey dinner today - with dressing & Cranberry sauce. Pablo, the Filipino cook grinned when I reported I thought it was very good.

JANUARY 13

Very early this morning at about the time Bob Fisher & I were going off watch, we crossed the South American trench off the Peruvian Coast (Fosa de Lima) and shortly afterward Russ Raftt began his all-day seismic station and the wire-splicers began to repair our large cable which had a snarl at about 5000 meters.

After Biplicing was completed George H. was transferred back to the ~~Horizon~~. He started to swim but we spotted a large brown shark which caused Geo. to get back aboard — swiftly — and to go via boat.

The Horizon mysteriously struck an object which broke off the sounding head on their depth recorder. Dr. Schweigger suggested it might have been a whale.

Dick Von Herzen is now lowering his probe (1945) and when he has it back aboard we will take a core and move to a new station nearer the coast. We should be in Lima Wednesday morning.

The crew has been catching a number of Dolphins (Dorado) lately. I hope we will have a Dolphin supper soon.

I have been preparing a small-scale linked course track showing our travels since leaving San Diego. Bob Fisher may have

to speak to the Geographical Society in Lima and he wants it for an illustration.

JANUARY 14

We moved in a bit nearer the Peruvian coast and spent the entire day with a seismic run which was continuing into the night as I write this. About midnite the run will be completed and we may do some coring before morning. We are scheduled to go into Callao at 8 o'clock and after we have been cleared by the Peruvian Immigration authorities, I shall go ashore and mail letters and cards. Today is Ginny's birthday, and I have celebrated it by writing her a letter.

This evening one of the hydrophones went out rather suddenly and the technicians believe that the wire was bitten in half by a shark.

*El Presidente del CONSEJO DE INVESTIGACIONES
HIDROBIOLOGICAS tiene el agrado de invitar al*

Sr. Dr. Robert Norris

*al cocktail que ofrece en honor del Jefe y Miembros de la
Expedición DOWNWIND, que lleva a cabo Scripps Insti-
tution of Oceanography de la Universidad de California,
por medio de sus barcos "HORIZON" y "SPENCER F.
BAIRD" y como contribución al Año Geofísico Interna-
cional.*

Día 16 Enero

Hora. 7.30. p.m.

Lugar: Club Nacional

or a squid. Last night a shark chewed a hydrophone wire up leaving part of a foot embedded in the cable. Dr. Schaeffer thought this was very funny as he has not had much faith in the seismic study.

JANUARY 15

Early this morning we arrived in the outer harbor of Callao. The harbor is protected from the open sea by a large, very barren island a couple of miles long called San Lorenzo. Several lesser islands are found near its southern end and one or two of these are guano islands.

About 9:30 or so, the Pilot arrived and took us on into the inner harbor where we stopped up alongside of a mole (muelle). Not far away was a British Cable laying vessel. The horizon had been way out on seismic station board

consequently did not get into port until considerably later in the afternoon.

Warren Wooster & Bob Parker met us at the dock and we went into town with them.

Bob Fisher, Russ Raith, Alan Jones and Bob Parker + I decided to stay at a hotel in Lima during our stay. We stopped at the Hotel Claridge which is midway between Plaza San Martin and Plaza de Armas. It is not a remarkable establishment in any way, but it was reasonable and clean and had a dining room on the 8th floor.

Early in the evening we attended a reception in our honor at the Club Nacional on Plaza San Martin.

An assortment of Admirals, Consular Officials, Peruvian Scientists and such were there. For example I had an interesting talk with an official of the

+ Peruvian Whaling Industry. There were also introduced to Dr. Jorge Broggi, the Peruvian IGY representative and a fine old geologist, with whom we got better acquainted later.

That evening a group of us from the ships were invited to dinner by Warren + Polly Wooster who are in Lima with the CONSEJO INVESTIGACIONES DE HIDROBIOLOGICA for perhaps two years. The Consejo is charged with learning more about the Peruvian fisheries and is financed by a large tax on US Tuna Clippers operating in Peruvian waters. The Peruvians dine late and we didn't get thru dinner until nearly 11 midnight.

JANUARY 16

We rolled out of bed about 7 am and went upstairs to have a light breakfast - The finest feature of which was the dark rich Peruvian Coffee.

Bob Fisher left to talk to Warren Wooster and Porque, (Bob Parker)
Dale Krauss + I went to see the people at International Petroleum who had given Porque such a fine time in the North of Peru. They provided me with a map of Peru and invited us to lunch at a hotel in Lima. They managed to round up Sr. Broggi, and a number of other Oil Co geologists from Texas, Gulf etc. We had a good Peruvian lunch including Seveche, a raw fish concoction with hot peppers which was quite good.

Before lunch, to backtrack a bit, we + also called on the Cerro de Pasco people

who, like the International Petroleum people, we invited to our cocktail party on the ships at Callao. The Cerro de Pasco people were helpful and gave me a list of several places to visit to get specimens. It helped to have Dale Krauss along as he had at one time worked for the Co.

Just before noon, we got to Warren Woosters Office which is on the 17th floor of a new building. We looked around there for a while, went up on the roof to take pictures and then all beatled off to the lunch provided by International Petroleum.

In the afternoon we returned to Callao for the reception & cocktail party, the ships were quiling in honor of the Peruvians. It was very hot in the lab and on the fantail as well kind not the least comfortable without warm coat and a tie

(10/10/30) Quantities of hors d'oeuvres and Pisco sours, Algarobina and tomato juice were served by the caterer we hired for the occasion. Bob Parker

Porque and I rode back into Lima with Dr. Schweigger as he mentioned the fact that a friend had left some huacos (artifacts) for sale. I bought one and Porque several. Mine as well as Porque's was pre-Inca. We met Mrs. Schweigger and the twin boys, and were taken around the house and garden. In front of the house, an open box about 1' long next to the sidewalk communicates with a pipe thru which water flows on certain special occasions. Each piece of land is entitled to its water and each Wednesday the Schweiggers can water the yard.

Porque and I then took a collectivo into the main

Colectivos)

part of Lima's 'Colectivos' are ordinary passenger cars (sedans or touring cars) and include almost everything from 1926 Dodge 1928 Chevrolets, Model A Ford's etc. fairly modern cars. They are licensed by the city and follow certain well-defined routes. They occupy some intermediate situation between taxis (which are also numerous) and busses.

In the evening, Bob Fisher, Dale Krauss & Bob Porque Parker were guests at the Lyndon Bells Bell is the Chief of Exploration for International Petroleum, a Esso subsidiary.

We went to a place called Tres Monedas (3 coins) which is a fine restaurant in an old Colonial home. It is located in a poorer part of town and one knows of huge twelve foot wooden doors equipped with a massive knocker. The doors open and one enters

an ante-room and from there goes into a open patio paved with small cobblestones, and simply, but attractively landscaped.

Around the Patio are the rooms for the diners and the kitchens, all decorated in Spanish Colonial style and lit mostly by candlelight.

We started out with a round of Pisco Sours - the Peruvian national drink, and then went into eat. I had homo saltado a la Criolla. This consisted of chunks of filet mignon with rice + spices. It was good. Bob Fisher ordered something called Tornados Mac Mahon - he got a small steak perched on a fresh bone, like a toadstool, with other goodies surrounding it.

After dinner, we were driven around the city, across the Rimac to the very old part of town. There is one interesting promenade where

The Limenos of days gone by.

Promenaded in the evening.

If the present-day girls are any sample, it must have been spectacular. Santiago is the only other place I have seen where one sees so many pretty girls and even more girls with spectacular figures.

If the So. Americans have produced little music, art and almost no science or literature, they have at least come up with an astounding collection of beautiful women. The girls are, I am told, not a little spoiled by all the male admiration, but they enjoy standing erect and wearing flattering clothes.

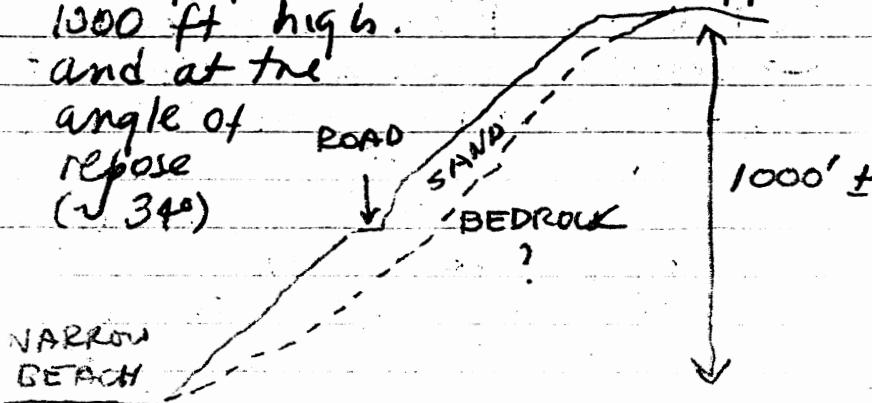
JANUARY 17th, 1951

This morning Bob Fisher, Bob Parker, Dale Krauss and I joined Dr. Jorge Broggi, a well-known Peruvian geologist. He brought along a government car - a British Land Rover and two of his assistants.

We drove north from Lima on a good divided highway which eventually became a single road, but still remained good. We stopped near Ancon, Piedras Gordas and Santa Rosa to look at the dunes - and the lines of sand dunes which Broggi calls Chiflones. By and large sand is transported in from the coast, sometimes for several miles and often up to attitudes of 1000' or more.

The desert is incredibly dry and virtually rainless, but the air is humid owing to the proximity of the sea. It is an odd effect.

North of Ancon, the road follows the coast along a truly amazing route. The coast for several miles is flanked by a steep-faced dune slope approx 1000 ft high.



Broggi & his assistants demonstrated with ordinary balloons, that the sand is driven up the slope, and slides, by gravity back down onto the road. The slope above the road is cut with shallow channels which contain small moving streams of sand which rapidly build big deltas on the highway. The sand grades the surface exactly like water

night.

Beyond this stretch of road we dropped down into the Chanca Valley where we had a Peruvian lunch of fresh water crayfish cooked entire in a soup. This was followed by a sort of Seviche and then by Lomo, which is steak. We had a bottle of good Peruvian Red Wine & Mineral water from near Huancayo.

The trip back was uneventful with several stops - one of which was to photograph a recent fault scarp across the mouth of the Chanca Valley.

We visited a salt spring and resort hotel in the Chanca Valley - called Gran Hotel Baños de Boza - it was almost deserted, but Broggi said it had once been a popular resort.

In the evening we went out to Miraflores to the Woosters for cocktails and then went out to supper at an Italian restaurant nearby. The dinner was good and the night one of those beautiful things one finds in the tropics. I was sorry Ginny & the kids weren't along to enjoy it with me.

JANUARY 18:

In the morning we checked out of the Claridge Hotel, stopped by the Florist to send Polly Webster a bouquet and went shopping and picture taking — including the Guard in front of Plaza de Armas and several street scenes.

I stopped in at Salazar's Silver store upon Dr. Schaeffer recommendation and bought some things for Ginny. Salazar was out but his very attractive daughter

waited on me — and reminded me of Bob Fisher's remark that he was going to send his son Carlos to So America when he was old enough to marry, so that he would have a beautiful daughter-in-law to enjoy in his old age. Doubtless an idea with some merit, even if it is unlikely to work.

About 10:30 we took a Colectivo to Callao and went aboard the Baird. I wrote three or four letters and some postcards which I mailed before we steamed out of port at 2 pm. The Horizon stayed behind as her echo sounder had not been completely repaired.

We did some coring in the evening which kept me up later than I wished, but this would be remedied in a few days.

JANUARY 19

Some more coring today and a temperature probe, plus wire splicing. The coring was mainly in the evening and kept me from getting quite as much sleep as I thought I needed. The day was otherwise uneventful.

JANUARY 20

We cored in the trench and took a temperature probe. No trouble with the Big Winch.

I washed some clothes in salt water with indifferent results. We are on strict fresh water rationing as we only carry 13,000 gallons, have no evaporators and little chance of taking on additional water. We can use only about 350 gallons per day between here and home.

If we are lucky, we may be able to get some extra from the Pinta if we meet her at Easter Island.

JANUARY 21

We are making some more crossings of the Nasca ridge off Peru and during one crossing made another dredge haul. Our take was not so good as the previous one, still we did get some very white foram forae and a few odd rocks which look metamorphic.

The horizon finally left Callao after staying over the weekend to get the echo sounder fixed.

Tonight, the squids were thick again and many were caught, one about 5' long. The crew, for some odd reason delights in dissecting these, and one

has to be fast to see one intact. It is odd why they react this way, but I know they do the same thing when a shark is caught. Possibly they identify all human suffering with such animals - The poor squids!

JANUARY 22

Bob Fisher is in bed today with the "Turista" and I have been feeling a little less than good with the same thing.

The day was uneventful - mostly crossing the Nasca Ridge and this afternoon we had a core and probe station. Tomorrow the first seismic run since before Callao takes place.

I played our tape recorder on watch - very pleasant.

JANUARY 23

A number of the crew have been laid up with the "Turista" doubtless due to water cress we have been eating and which was obtained in Callao. This despite the fact that the cooks have been washing it in a Clorox solution. The hazards of travelling!!

Today was devoted to another core (Globigerina ooze) & temperature probe and a long, long seismic station, all on the ~~south~~^{axis} side of the Nazca Ridge about 300 mile southwest of the Peru coast.

Bob Parker observed some Vellela today and caught some blue pelagic snails - Janthira - together with pretty small, probable commensal crabs - also blue.

JANUARY 24 25 °S A.M.

Another seismic station today together with a temperature probe & gravity core. We are continuing to work SW. along the Nasca Ridge, crossing & recrossing it in order to better define its nature & location.

On station today, the weather was warm and the sea near 70°F. Several of us went for a swim - 300 miles off the Peru coast.

Had a game of scrabble this evening - luck (and skill?) not too good.

JANUARY 25 25 °A.M.

Today was mostly a day devoted to bottom surveying. Both ships crossed 4 seamounts (relief greater than 1000 fathoms) and we crossed a true Guyot at about 5 a.m. along the Nasca Ridge - during Nanda's watch.

The day was warm and sunny, but just at sunset, when the Captain was getting set for 2ndary star sights, it clouded up. After it cleared and now (10:30 pm) you can see the southern stars, the Cross & Magellanic clouds beautifully. Sirius is almost overhead and Orion is in the Northern sky.

I have been drafting some charts of our tracks and putting in shorelines on some of the track charts.

JANUARY 26

Today was devoted to more running along the Nasca Ridge and included the discovery of a number of sea mounts, but no true Guyots.

John Andrews, our doctor, had an eventful day studying stool smears under the microscope for *Endosoma histolytica*. Unfortunately he found three positive cases out of seven examined - including the Cook. My turn to be checked will be tomorrow.

Today was a beautiful clear warm day - one of the nicest we have had. The sea was a sparkling blue and tonight we have a bright moon in the northern sky and bright stars. Without much to do it was quite luxurious basking in the sun on the fantail.

JANUARY 27

We were on station most of the day - and did the usual seismic work - the Baird recording and the Horizon tossing the explosives over the side.

We also attempted a long piston core, and failed because the new piston was too tight and jammed in the barrel. We had poor luck with two gravity cores too, probably because of the soft red clay bottom.

Dr Gobble came aboard from the Horizon to consult about the amoeba. About half of us aboard have it, including Fisher & me. We have been put on a diet of pills which are alleged to get rid of the critters. I hope the medicos are right.

The day was beautiful again - clear with few clouds, warm and almost calm. Again, a number of us went for swims over the side - very refreshing and substitute nicely for baths. The water was about 12,100' deep and we were about 900 miles due west of Caldera or Copiapo, Chile.

JANUARY 28

All running today. Max & I prepared the big piston core for tomorrow morning's try and I worked on charts of Sala y Gomez Island where Bob Fisher & I are going ashore to collect rocks and other geological data.

JANUARY 29

We were on seismic station today and consequently did some coring with indifferent success. Our first gravity core was a flop, so we tried the big piston core - This time the tripping release failed and the core nose was badly damaged by striking a rock. The little PBS attached, however, did get a small core. Later we tried the regular gravity cores and got about 3' of red clay with much Globigerina vote.

The water was so nice today (about 74°) we had another swimming party & Bob Fisher (Gossamer Wump) actually went in.

During the afternoon we had a boat drill and the lifeboat was lowered, the emergency radio (Gibson Girl) rigged and even the red sail tried. The

was not propitious for sailing however as the wind was only about 2 knots.

I did some more chart work in preparation for our Sala y Gomez expedition day after tomorrow. Wump + I will go ashore while divers investigate the bottom and the ship will survey the bathymetry around the island.

Dr. Gobble went back to the Horizon after concluding his conference with Dr. Andrews on the amoeba problem. Bob Parker also went over to the Horizon to consult with biologists until our arrival at Easter Isd.

* Bob Fisher

JAN 30 1958

Today was overcast most of the day - and the ship passed between numerous rain squalls most of the afternoon + evening.

Tomorrow is Sala y Gomez day when the divers will go to work in the shallow waters near the island + Wump + I will go ashore and act like geologists.

Read two novels today - "The Sea" Jan de Hartog and "Charlotte + Dr. James" by McCrone.

The first, a gloomy story about Mediterranean divers; the second a cheerful story about a Scottish doctor's family.

JANUARY 31

WEATHER HAT

We sighted little Salado Gomez I. about 10:30 a.m. and began our bathymetric survey of the surrounding area about 12:20 p.m. Fisher plotted, I gave Radar ranges and First Mate Davis read off Pelorus bearings. About 2 p.m. we finished the inshore part of the survey and prepared to send a landing party ashore.

The boat was manned by Ralph Long & Bob Nordberg who did a good job. The landing party included Bob Fisher me Dick von Herzen, Messboy Vic Vogel & Second mate Bill Clampitt. Von Herzen, Vogel & Clampitt were originally going to dive, but the abundance of sharks deterred them.

Sala y Gomez has no beaches and owing to the

large swell running at the time of our arrival, the waves were breaking rather heavily on the rocks. We attempted a landing on the SW side and had the boat hurled against a big rock and broke the shear pin in the outboard motor. This was duly repaired and we returned to the north side of the island.

The entire party was suffering from indecision because of the rough water and the abundant sharks. However, Bob Fisher, encased in an orange life jacket and wearing dark glasses & a straw hat dove into the water - he was followed by the rest of us - I was also wearing an orange life jacket and we swam 100-150' to the rocks.

Many purple sea urchins grew on the rocks and

He was doubtless lucky that I didn't crawl over any getting up the slippery rocks.

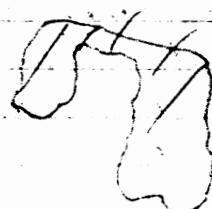
We hauled a bag of dry clothes, sample bags, notebooks & cameras along with us - but didn't bother about much of the stuff as our arrival coincided with a rain squall.

The island is nearly all volcanic. The older flow is scoriaceous and varies from red to black in color. The upper surface of this flow is weathered and here & there covered by beach rock suggesting the island was submerged before the second flows were deposited. The second flow is a dense, gray volcanic rock, with insipient pillow structure at its base. Its upper part is locally pahoehoe & aa.

Numerous water worn boulders occur on the

present island suggesting a possible higher sea-level or a rise in the island itself.

There is a crude joint system trending much as shown below. The entire



Upper surface of the island is a jumble of rocks & boulders - with many tide pools. Unfortunately we did not have sufficient time or equipment to collect in the tide pools.

Only two land plants were observed - Portulaca sp. and a succulent plant resembling Verbena (sand) Numerous gull's ferns?

Albatrosses & little gray birds were nesting on the island. Gull eggs were everywhere.

About 30 pictures were taken - including general views - rocks - plants &

birds.

After about an hour, we made ready to go back to the Baird and plunged in - in pairs - to swim to the boat. The boat would circle, pick up two of us and circle again. The boat was ably handled and we all got aboard without difficulty.

When we got back to the Baird we found that about 50 tuna had been caught and that hundreds of sharks were circling about hungrily. I wouldn't know if the sharks were the kind that would attack a man, but they made us all uneasy going ashore.

We continued the bathymetric survey until about 7 pm and then got underway for Easter Isd.

FEBRUARY 1

Today was mostly devoted to Seismic Sta. 30 between Easter & Salas y Gomez Isd. We took the first successful piston core since I have been aboard and also got a good gravity core consisting of brown foraminiferal mud.

The wind has been quite brisk - up to 20 knots and the sea a mass of white caps. Everytime one has to do any work on the fantail one gets doused. Fortunately the wind is warm (75°) and the water warm (74°).

I wrote up some preliminary notes on the Geol. of Salas y Gomez

FEBRUARY 2

At about 8:30 a.m. we sighted the SE end of Easter Island (Cape Roggewein) and then ran along the southern shore much of which is precipitous, especially near Rano Kao volcano at the SW end. The Captain took the Baird thru the narrow passage Aguja rock and the island. I took several pictures of this.

About 10:30 a.m. we anchored off Hanga Roa and were boarded by the Governor - Cdr. ^{Nicole} Lorion and his executive officer Lt. Cdr. Dorelli.

After lunch we went ashore in the Chilean Naval launch, but just before I traded some old shirts & trousers for three tikis - a wooden bird, and two stone images

Most amazing of all was the fact that I sold my 4-year old Westclox Scotty Pocket Watch for \$20 U.S. Since the watch cost \$2.75 new, this was quite a bargain.

Once ashore, we went first to the Seismograph station where Russ Ratt and Alan Jones repaired the ailing seismograph which Russ later described as a museum piece. From there (Mataveri) we rode in jeeps across the narrow part of the island to the SE shore at the foot of Rano Kao where the Chileans have installed a long-period wave recorder. The keeper was asleep on our arrival and inspection indicated that repairs could best be made tomorrow.

The Governor, then, very kindly, took us on a long jeep ride along the south

coast to Rano Raraku where we saw a great many of the famous stone images, a number of which were still in place in the living rock.

The island is mostly grass-covered and very pleasant in appearance. Many corn fields are present and bananas, figs, and a few other fruit trees were present. Many more or less isolated clumps of Eucalyptus have been planted on the island, some neatly enclosed by stone walls.

Dry stone walls are every where, and in some cases have been surmounted by barb-wire fences to limit the numerous sheep.

Señor Gobernador told us (in fairly good English) that he is a sheep, cow + pig farmer, governor of the Island, Head of the Naval

garrison and the school teacher for the niños. He and the executive officer serve 2 year tours and have their families with them. The total Chilean population is about 40 including Hospital, Naval, Marine + Air Force personnel. They have an experimental garden near the old sheep ranch at the foot of Mt. Puti which was run by an Agricultural Engineer for some years, but is now run by a marine!

At Rano Raraku we not only saw numerous statues, but also looked at the lake inside the nearly perfect crater. The jeep ride was very dusty owing to the dirt roads and the brisk trade winds and by the time we got back

to Mataveri, we all looked like we had emerged from a coal mine. Just as we were going thru Mataveri, some of the Chilean wives shouted at us so we went back.

Perhaps they had intended to invite us in for tea or cocktails, but when they saw us, they said something about "negritos" and we went down to the dock to wait for our boat.

FEBRUARY 3

This morning I went ashore with the group planning to check the wave recorder on the southwest side of the island. This device had broken down yesterday after only a few weeks of service.

About the time we reached the summit of the low pass north of Rano Kao, Bob Fisher suggested I leave and hike up the mountain which had indicated earlier as a project I was interested in. It took perhaps 45 minutes to walk to the top of the 1200 foot mountain. The mountain was covered with bunch grass and loose pebbles of volcanic rock (scoria, agglomerate etc) plus innumerable shards of black obsidian. Many of the obsidian chips showed some evidence of having been worked but nowhere did I see any carefully fashioned projectile points such as are found on

California's San Nicolas Island. From the summit of Rano Kao one gets a fine view of much of the island to the north + east - Dotted by reddish or blackish cinder cones - and between, the bright green corn + banana fields.

The crater of Rano Kao is quite impressive - almost vertical sides with a perfectly flat floor covered with a swamp and small lakes - The flat floor lies about 300 feet below the rim. On the SW side, the rim is somewhat lower as the sea has cut away the flank of the volcano producing the high cliffs we saw on our way to the anchorage. The view is truly spectacular.

From the crater I walked down toward Mataveri as Bob Fisher had said he wanted to call on Father Sebastian Englert about 11:30

On my way down I picked up one mace head or chopper made from obsidian - rather crude, but a good artifact.

Near Mataveri I asked a man what time it was "Que hora es?" and he replied "Doce" - 12 - I was a little surprised since the walk had seemed short, so I turned along the dirt road thru Mataveri toward Hanga Roa.

Hanga Roa is where most of the Rapa Nui (natives) live and has dirt streets lined with the ever-present dry stone walls. Many of the houses have electricity.

The village is neat and most homes are surrounded by flowers - Geraniums, African marigolds, bougainvillea etc. Fig trees are very abundant and grow in nearly every yard. Most homes have guavas, oranges

(which all ripen in the winter) bananas and corn. On my way thru the town - no stores - only homes - I was picked up by the Executive Officer in his jeep - George Hohnhaar and Bob Nordberg were with him. He took us to the old Navy fort and then to his home. His home was a pleasant frame house built perhaps 50 years ago with hardwood floors but no rugs. He served us some good Chilean wine and Pisco Sours (The Peruvian are better), introduced us to his attractive wife and to several of his grubby ^{but happy} kids - he has three, ages 3, 2, 1. The 2-year-old the only boy - Roberto.

He invited us to stay for lunch, but I declined since I had agreed to meet Bob F. at Father Sebastian's.

Off I went to the Padre's - a bit too full of

alcohol, but convinced my Spanish was getting better as I conversed with my guide.

Father Sebastian was at home, but there was no Bob Fisher! So the Father and I chatted about many things and I drank his Norwegian Beer & Chilean Wine, and gave him two cans of tomato juice - my lunch - I had planned on sharing it with him, but he misunderstood and tucked it away in his larder.

He told me he had been on the island since 1936 and during that time had met many famous visitors including for example -

Admiral Byrd.

He was quite interested in our visit to Salas y Gomez as he had been there in 1948. I promised to send him some pictures we had

taken there.

I also learned that he was a member of the National Geographic Society and that he made many collections of shells and the like for interested persons all over the world.

His hobby is languages and he has written a book in Spanish about the Island which includes a dictionary of Rapa Nui. He spoke very good English, German, Spanish, Rapa Nui and, I suppose, French as well.

Interestingly, he reported that he was not a Chilean citizen — he said he was born a German and would die one!

He was interested in Santa Barbara because it is a Franciscan center. He, himself is a Capuchin — but he knew many Franciscans and had

some literature about a big Franciscan convocation held in Santa Barbara some years back.

We had a pleasant visit of about 3 hours duration during which time Capt. Al Phinney appeared and later Alan Jones, Russ Raith and Bob Parker with J.H. Nanda. They were all plied with beer & wine too, and when they decided to leave, I went along — having decided Bob Fisher & Dick Von Herten had been entertained by the Governor — which later proved to have been the case.

We strolled back to the boat landing at Hanga Piko from Hanga Roa, this time along the beach. I took as many pictures of the local people as possible. The girls and

women were shy and had to be caught by surprise. However, once back at the dock, several of the fellows appeared with girls in tow, two of the prettiest I'd seen on the island. Both these girls enjoyed having their pictures taken and squared their shoulders and smiled.

I halting Spanish - with much laughing - I tried to get some kids to pose for me - but they played shy.

I traded off my last \$10 white shirt and a Nylon T-shirt for a wooden tie. And happily went back to The Board on the last boat.

We sailed at 37 minutes past six - with a full moon over the island. Easter Isd. had been much fun and very hospitable. I hope I shall be able to return some day. (I DID, EXACTLY 40 yrs LATER, TO THE DAY!)

FEBRUARY 4

Today we steamed all day. The sea has been very rough the past week and the trades (SE) have kept the dark blue sea covered with whitecaps. The wind has averaged between 10-25 knots, but has not been really unpleasant because it is warm and we are travelling straight west.

First thing tomorrow morning, we set our clocks back to Pacific Standard Time - a small tie with home.

Talked to Ginny tonight by radiotelephone thru KMI Oakland. It was good to hear her voice again and to find that the kids and she are well.

FEBRUARY 5

This morning we arrived on Seismic station about 6:45 and it was located about 350 miles west of Easter Isd.

We tried three times to get a gravity core in the mountainous submarine landscape without success. The final try resulted in a bent core nose and a few grains of manganese which showed we had been hitting rock.

As we were bringing the core barrel aboard, the ship rolled and I have, as my Doring would say -
"black finger. It hurts!!"

After lunch I took a siesta and when I woke up we were underway!; Usually Seismic stations last til dark. Investigation showed that the hydrophones had become tangled in the screws

and also around the E.D.O. head. One hydrophone was lost and divers rescued the others. This evidently was a result of steaming on station to counteract the effects of 15-18 kft winds and heavy seas.

Alan Jones, Bob Parker, Bob Fisher + I had a Gin + tonic in my room after supper - It cheered us so much, we went down and took a successful gravity core. + temp. probe.

My Roommate J.H. Nanda is riding the horizon to see how the other half of the seismic operation works. He may stay a while because we'll make no boat trips in such heavy seas.

FEB 6 1958

Today was spent running NW toward our next hydro seismic & core station. Since this is in the Southern trade wind belt we have continued to have brisk SE wind and a considerable sea - on a NW coast this makes the vessel roll quite a bit.

We have not been spending as much time sitting in the sun on the fantail as we did when nearer the coast; it is awash too much of the time. Doubtless this will gradually change as we leave the trades and enter the equatorial doldrums.

An Oceanic island would very likely be the most pleasant in the trade wind belt rather than elsewhere. Since we have been in the trades, the temperature has never dropped below 70° nor gone above 77°

In the equatorial regions we won't sleep under blankets anymore, and although the nights will be nice on the ships "back porch" it will be stuffy & hot inside and the days will be hotter & more humid.

I have been working on the chart of the expedition's track again. This little chart will be ready for duplication when we reach San Diego and will show the tracks of both ships.

Bob Fisher & I have been working on a short report on ~~the~~ Isla q Gomez Isd. It would be nice to have this ready when we get home, except for the Petrography, of course.

There is much chit-chat about the new provost for the new San Diego campus of the University - Roger Revelle apparently would like this job.

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But if he takes it, Scripps will need a new director. Warren Wooster seems to be a candidate. I think Warren would do a good job even if he is a Physical Oceanographer.

FEBRUARY 7

Today was seismic day and temperature probe day again. We had remarkably bad luck with gravity cores - six tries and one short core about 8" long.

I had a brief swim - Water was great - about 77° F. We are near Lat $23^{\circ}19'5$ Long $113^{\circ}45'$ W. - a long way from land.

I bought a case of Lemon lime White Rock today and we find with Gin, it makes a splendid cooling drink.

The wind was down considerably and the day was warm & sunny;

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it is the sort of good weather we had between Callao and Salas y Gomez.

This evening was devoted to more chart work and on the mid-watch this A.M. I prepared a new outline for the Salas y Gomez report.

FEBRUARY 8

Running day again. This time we are going NE and aiming for a seismic + core station at Lat $20^{\circ}5$ $113^{\circ}15'$ W. more or less.

All in all a relaxing day - I had the afternoon watch, so no siesta.

Again rewrote the Salas y Gomez report. It may be nearly ready except for the petrology by the time we get to San Diego.

Am reading V. Hugo's "Hunchback of Notre Dame."

FEBRUARY 9

Another seismic + coring station. Two tries with the Gravity core in the morning netted us nothing and a try with the big 28" piston corer resulted in a bashed core nose and the collection of two rock chips 1-2" across, apparently a vitrified volcanic rock. About 5 gallons of muddy soup ran out of the core barrel as we were bringing it aboard.

I had a brief swim, but didn't stay in long because the water was rough and the current tended to drag me away from the ship. The water was nice & warm however.

Got a bit of sunburn today - not uncomfortable, just reddish.

Had a Gin + Tonic with Bob Fisher + Porque this afternoon which made for gracious living after a prime rib dinner at noon.

FEBRUARY 10

Underway all day today. We are running slightly east of north in order to reoccupy a heat flow station taken by Maxwell on the Capricorn expedition.

The wind has come up again and the sea is rough. The weather is warm (76-79°) all the time and we have been having occasional rain squalls.

Tonight, the sea was slightly phosphorescent - bright specks here + there. Russ and I went out to look at the Magellanic clouds - but owing to the rough sea, one is quite likely to get doused by spray from a wave. tomorrow our course should be NW and smoother, even if the wind continues.

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FEBRUARY 11

Another seismic, heat flow + core station. The heat flow station is a re-occupied station from the Capricorn expedition in which Art Maxwell found the highest heat flow. Dick von Herzen confirmed it by a similarly high value today.

The seismic station went well altho a hydrophone cable got in the screw this evening. No equipment was lost however.

Max Silverman & I spent all afternoon trying to get chunks of rock out of the piston core so that we could end it down again. This was the core taken day before yesterday.

We got, all told about a quart of what appear to be chunks of rapidly chilled Volcanic rock. Very odd and especially odd from a piston core.

Also got a good globigerina

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core with the Gravity meter.

It was rough again today - but the water is quick warm 25.3 (about 78°F) so the repeated dousings are not unpleasant.

Bob Fisher had another of his regular sessions with Russ Raith about the possibility of more seismic stations. Russ keeps constant pressure up for this - doubtless to his credit (~~especially~~) but it means neglecting other aspects of the cruise if Bob yields. So far it has worked out quite well with some give and take.

Tomorrow I shall continue my chart work + logging latitudes + longitudes in the core log. Also, we extrude the piston core.

FEBRUARY 12

Another day running between stations. The weather about the same, but fewer clouds and rough sea persists.

Max & I extruded a 20' piston core of globigerina mud with the able assistance of Porgie Parker.

Russ still haggling with Bob F. about more seismic stations. As usual, the course was changed slightly sacrificing some sea bottom surveying for more seismic work. Bob's life would be simpler if Russ would let the track alone and be happy with the stations he has.

Tonight about 11:40, a flying fish flew in the port and landed on Nanda's bed - Nanda was in it asleep. The fish must have been flipped up by the bow wave as we are on the boat deck about 12' above

The water. 1

I finished two more Novels today; I really get a lot of reading done when we are making a straight run.

FEBRUARY 13

Seismic, core & probe day again. This time our cores were in Globigerina ooze and we collected one short one for Geo. Shumway who is studying sound transmission thru sed's.

Doc examining excreta again - Most of us, who were suspected of having an Endoameba histolitica infection are nearing the end of pills and I was found today to be free of the critters insofar as the Doc could tell with the microscope at hand.

Weather & Water still warm, wind persistent 10-15 knots & sea rough. Position at sundown $13^{\circ}26'5$
 $108^{\circ}35'W$

FEBRUARY 14

This was a non-seismic day devoted to a heat probe (very high value), a piston + gravity core (foram ooze) taken along the Albatross ridge (evening + Fix about $13^{\circ} 25' S$ $110^{\circ} 52' W$)

This evening we had a birthday party for Porque and Dr. John (Andrewes) and for Alan Jones who had his January 14 (I celebrated Ginny's). Pablo Malag baked a cake and we killed 2 bottles of Peruvian Champagne + a bottle of red wine. John told several stories and a good time was had by all present.

As we head north, the So. Cross + Lesser Magellanic clouds sink lower + lower. Tonight, in addition to star-gazing, we enjoyed quite a display of bioluminescence in the wake. Small bright flashes made by Noctiluca were common and also bright glows, resembling

Submerged 25-watt light bulbs, were fairly frequent, and according to Porque, probably due to Ctenophores.

The sea continues rough and the wind strong. We got thoroly doused during launching and bringing the corer aboard—but the water is warm.

FEBRUARY 15

A seismic station today, but we got several cores and extruded a 19' piston core composed entirely of foram ooze and having the color of English toffee ice cream.

Max Silverman became a bit peeved with R. Fisher + me because we untangled a minor snarl in the hydrographic wire without his help, thus undermining his efforts to be an indispensable man.

The weather remains quite rough and accordingly working with heavy gear is not a

little dangerous. When the hydrophones were brought aboard this afternoon, we found a small remora attached to one - doubtless a disappointing host.

This evening the water was full of tiny flying fish (1-3") long - perhaps attracted by our lights.

We continue northward and our evening star fix found us at $9^{\circ} 54' S$, $110^{\circ} 39' W$

FEBRUARY 16

Today was relatively uneventful because the seismic station originally planned had to be abandoned in the face of very rough sea + winds. We did, however, take a gravity core in the afternoon.

More bioluminescence tonight. Porque says, after some thought, that the bright blobs of light are due to salps rather than

ctenophores.

We are rapidly approaching the equator - tonight, our evening star fix placed us at $7^{\circ} 54.5' S$ $111^{\circ} 04' W$.

Rumor has it that 4 of us will attend a small equator-crossing ceremony as we made our first crossing in an airplane, which, evidently, is somewhat less than respectable. John Andrews, Jaidinder Nanda and Porque Parker are joining me.

FEBRUARY 17

Another non-seismic day, although the weather is less windy. Got 2 good cores + a heat-flow measurement.

As we near the equator, the weather warms and the humidity rises. Today was the first day we recorded an air temp. of $80^{\circ} F$. The sea is just slightly below 80° ($26.9^{\circ} C$)

John Andrews pulled our last good BT "thru" the sheave this

evening, so we have had to go back to one of the doubtful ones used on the first half of the trip.

I am busy plotting, making calculations of the mileage on track and in a day or so I'll begin to draw profiles of the sea bottom. Maybe, with luck I'll be able to co-author some deathless writings on the SE Pacific.

Had a fine lunch today - Crab Foo Young and what Pablo calls SutHeed noodles. These noodles are evidently cooked in water and then buttered and to them are added mushrooms & onions.

FEBRUARY 18

A seismic day today. The Seismikers were happy as they picked up the Mohorovičić discontinuity at a number of stations.

We got several good piston cores - 2 gravity + 1 piston. Tomorrow, we'll extrude the piston core - mostly a glub. ooze, I think.

The weather is warm & muggy and we are entering the South equatorial current. Tomorrow afternoon we are scheduled to cross the equator. Whether there will be a ceremony for Nanda, Andrews Parker & me remains in doubt. Crossing the air plane is evidently a second-class sort of thing.

Our position at start time tonight
 $3^{\circ} 35' S$, $114^{\circ} 23' W$.

Ceremony held at
0° 08' S

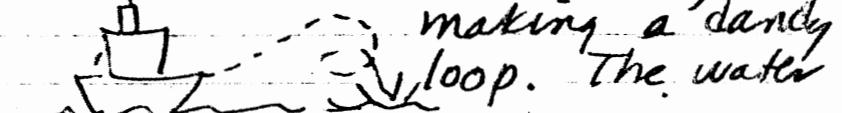
FEBRUARY 19

Mostly running today - although we did take a core this morning and another late this evening.

Today about 5:30 p.m. we crossed the Equator at Long. $115^{\circ} 50'$. The ship's company kindly arranged a small initiation ceremony for the four of us Quasi-pollywogs. We were instructed to lay up to the forecastle attired only in towels. Nanda couldn't keep his towel on, hence was permitted to wear shorts. One by one we were called aft to the fantail for the ceremony. I was third and as I entered the lab I was blindfolded and lead out by as circuitous a course as possible. Once on deck I was treated to a pronunciamento by Max representing Neptunus Rex - to the effect that I was trying to sneak across the equator.

Pablo, then, provided me with

a tasty bit of sustenance consisting of blue cheese chased by a raw egg. (I would have preferred two raw eggs). My towel was then removed and my sandals slipped off, and grabbed by 4 stalwarts I was hurled into the sea, making a dandy loop.



The water was very warm (nearly 80°F) and I was instructed to swim around the stern where I crawled up the Jacobs ladder. For the first time in days, the sea was calm and the session was not unwelcome. Pablo followed me, grimacing, horribly at the egg part.

This evening it sprinkled a good bit, but stopped about 10 p.m. when we started our cores down.

The squids were plentiful, sometimes more than 100 being in sight at once. They were

all about a foot long, smaller than the Peruvian ones, but quick as lightning, being able to dart in either direction. When they move head first, they gather their tentacles together into a point to improve the streamlining.

The squids were after small jumping fish (Myctophids) with bright iridescent eyes. These fish are about 1" long and jump out of the water continuously. How they live with the squid chasing (and catching) them I cannot imagine.

One of the squid was caught on a hook & line and as it was brought to the surface it squirted water 12-15' out of the water with its siphon in an attempt to swim downward. After it was landed it kept working its mantle as if to squirt water. It also changed color rapidly while on deck. Truly a fascinating critter.

* I was standing on deck 4-5' back from the rail when a squid being pulled out of the water squirted me on the leg.

FEBRUARY 20

Today was seismic & core day and the weather was calm & hot (also humid). At sundown we were at $2^{\circ} 00' N$ $116^{\circ} 05' W$.

Today would have been a good swimming day except for two things. Sharks were around and we are in the South Equatorial current which flows westward at about 1 knot. We had a lot of trouble with large wire angles and with holding the ship on station.

We got one gravity core of white ooze with forams. The stuff is so fine-grained it may be diatomaceous. Hard to be sure. The core had one small manganese nodule on the top

When we got it aboard.

It rained a little toward evening as it did yesterday. The weather has been hotter, more humid and ranker since we have entered the Equatorial Current zone.

FEBRUARY 21

Today was our final scientific station day, and was quite successful - Three cores, a heat probe & a seismic run.

Shortly afternoon we had a swimming party in the warmest water yet - $79\frac{1}{2}^{\circ}$ F.

Russ made Pisco sours for the scientific party and I got quite a glow on; I even smoked the cigar I was given in Lima.

Both the sunrise & sunset were spectacular today, especially the sunrise - Great banks of gray clouds (with flat bases).

Moved westward across the sky. There was enough clear sky to make the scene complete.

This evening it was so warm (82° F) we sat out on the fantail until nearly 8 pm. Our evening star fix put us at $4^{\circ}31' N$, $115^{\circ}10' W$.

FEBRUARY 22

At 6 pm tonight we had reached $8^{\circ}52' N$, $115^{\circ}23\frac{1}{2}' W$. and we are in the NE trade wind belt. The weather is still warm & sticky (it didn't drop below 80°) last night.

Had a look at a beautiful sunrise, again - with great blue & pink rays radiating out from the sky where the Sun was to come up. Noted the same effect, but somewhat less clearly in the western sky opposite the rising sun.

Max, Parque & I extruded the last piston core.

This evening (the next best time of day in these latitudes) we sat out on the fantail and watched the sun go down & the stars come out. It was so pleasant, we didn't come inside until 8 pm.

FEBRUARY 23

Today was mostly devoted to Chart Work. John Andrews is working on the Downwind 'calypso' and has 17 or 18 verses written. We plan to tape record it.

This evening the weather was cooler and less humid - we are well into the NE trades now and the climate is quite pleasant. Tonight at sunset, we had an interesting lavender sky with white clouds.

Our 6pm position was $12^{\circ}54'$ N., $114^{\circ}22.5'$ W.

FEBRUARY 24

More chart work today. The sea was a little more calm and the air cooler & drier, a pleasant change from the sticky hot Equatorial zone.

The water temperature decreased about 2°C centigrade to about 24°C .

Tonight was the first time I got a look at Polaris. At 6 pm we were at $17^{\circ}30' \text{N}$ $114^{\circ}54' \text{W}$. About 10 pm we are scheduled to pass near Clarkson Island in the Revilla Gigedo group.

FEBRUARY 25

A beautiful clear day today, but much cooler. For the first time the air temp dropped below 70° - the first time since leaving Chilean waters, that is.

I talked to Ginny tonight over KOU San Pedro - and told her our ETA - At present about Noon Friday.

Tomorrow morning we are scheduled to pass close to Aljos Rocks off the coast of Baja California. Our evening Star sight put us at $21^{\circ} 47.3' N$ $115^{\circ} 34' W$.

FEBRUARY 26

Had the midwatch this morning and kept busy plotting profiles & listening to our tape-recorder. Max Silverman spent most of the watch working on the large Easter Island wooden tiki to be presented to Roger Revelle on our arrival.

We are well out of the trades now and in the northerly swell wind, the Bow is pitching considerably and taking a lot of spray over the bow. It is thoroly uncomfortable aboard - Also, the weather is much cooler and less pleasant.

- About 10 a.m. we passed abeam of Aljos Rocks which

were plainly visible.

This evening, along with some drinks, we recorded the "Downwind Calypso" with John Andrews doing the solo and a group of lesser singers the chorus. It came out reasonably well.

FEBRUARY 27

The sea continues rough and the wind is still strong from the NNW. About 6:30 pm. we crossed Lat. 30.

Much preparation going on in getting charts & reports completed, under some difficulty because the ship is pitching so much.

We are scheduled to arrive tomorrow at 2:30 p.m. It'll be good to be on land again.

I had the last of the scientific watches tonight and secured the PDR at 1700.

Afterwards, we had a rousing party in the lab to kill all the stray bottles before arriving tomorrow.