

whines, including Mrs. Wm. E. Stevenson, wife of the ambassador - a very ordinary housewifely type. The lecture started off well enough, but when it came time for the movie to be shown at the end, many in the audience made for the refreshment area in the rear, and coffee and sandwiches + cookies were passed rather noisily through the audience, accompanied by much chatter, and, I suspect, rather little of my remarks accompanying the movie penetrated to the rear. The question period following the movie was even noisier. To cap everything, we then had to sit through a 1/2-hr. movie on insects - mainly propaganda - from Skull, who had loaned the projector.

Met Dr. Ronquillo of Fisheries, a friend of AS.

Oct. 12 - Misc. notes on Philippines - at Anapat - Buses are omnibuses <sup>present</sup> in P.I., since govt operation was dropped. They range from large jobs + Mercedes to the ubiquitous jeepneys - surplus jeeps with fancy bodies added in P.I. Dining is all expensive, & nobody stays in here.

Lv. MNL 0915 - to Saigon 1047<sup>min</sup> - Arr. 2hr

Lv. Saigon 1215 - to Singapore 681<sup>min</sup> - Arr. 24min.

1830

Viet-Nam seems peaceful and rich, at least the Mekong delta region. Hilly + upland country appears dry, but much is under cultivation.

Hundreds of US Air Force aircraft at the airport - big helicopters, piper cub type observers, DC-3's, 2 + 4 engine cargo planes - the dominant type - a few small jet fighters with rockets, and 1 U-2. USAF men are ubiquitous + there many flights in and out. There is enough civil traffic too - Royal Air Cambodia, Royal Air Laos, + Air Viet Nam. Mainly DC-3's + 4's, as well as PANAM.

Oct. 12, cont. SINGAPORE - joined Te Vega, which had arrived on the 9<sup>th</sup>. Night light in outer harbor: School of Small Squid, of which I caught one. Small thalassians are common - caught several, one with kudo. All in solitary phase. They are luminescent - a rather dark blue, apparently from nucleus. As in the Tunicata, the heart stops periodically, then reverses. 38 beats, 39 beats in 15 sec., then reverses. (But water probably slightly warmer than in sea) Another sp., with double "tail." Also part of a fancy siphonophore, many swarming polychaetes. Squid and Salpa preserved in ca. 10% HClHO.

Oct. 13- Planned collecting trip with the Everetts + J. Johnson cancelled due to Sumatra which came up about noon. Strong wind, high seas + some rain for a. 2½ hrs. Went ashore with Everetts, Johnson, Joe Rosewater, Klaus Ritzler, + learned something of Johnnie Johnson's life. Trained as architect, ~~he~~ was a competition diver in England. To India in army in WWII, stayed on in Indian Navy after war. Coached Indian Navy swimming team, Indian Olympic swimming team in '48. ~~He~~ Decided he wanted most to paint. Left for Korea in '51 to paint war pictures, got as far as Singapore, has been here since - roots he put down gradually deepened. Paints for a living - "pictures are easy to sell," has also painted murals and interior decorations hotel ball-rooms, etc., which he says could keep him occupied for a long time.

Visited attractive home of Peter Oliver, public relations man here for Shell, and a Shell collector. He has just done a book - in pen on peoples of Malaysia.

Night light - saw my first living thecosomatous Pteropoda - Creslio? - they are much more rapid swimmers, or at least flappers, than Clione - perhaps they have to

be with the long, needle-like skull. Relaxed some in alcohol for fixation. A few more salps - also fixed. Squid still present. 2200 - many more small salps - Fixed. Large jellyfish with commensal shrimp + fish - Loxoneura probably L. mayeri Light.

Oct. 14 - Spent in Singapore city. AM - Got parcels from Getz Bros. to ship, after much pilikia with APL - They couldn't handle the boxes - they were too big. According to Getz Bros, they came for the parcels with a bicycle!

Afternoon - went with Johnnie Johnson to the Royal Island Club for "lunch" Chinese dinner with much food + rum omelet! Then visited Thienes market, camera shops.

Evening - unpacked gear, in pub. for field work tomorrow. Moved into a cabin - with an effective air conditioner and a porthole - a window on Singapore and the green sea.

Oct. 15 - Up at 5:45 only to find weather blowing up already, preventing collecting trip we had planned. Went to airport with Joe Rosewater to get his luggage.

PM - Went to Everett's in Changi - Kamsong  
Layang. With Bini to Pulau Sekudu for fruit  
collecting in Malaysia with Joe R. + Klaus  
R. Klaus estimates 25 spp. of sponges -  
quite the spongiest place we have ever  
seen. A zoanthid is the dominant  
animal. No Conus, though C. consors has  
been found there.

Dinner at Johnnie Johnson's, before  
which we taped an interview with  
Keith Wilks for Radio Singapore.

Oct. 16 - Collecting at reef area E. of  
St. John's I. in AM - No Conus - just 3  
empty shells. PM - Collected at Pulau Sekudu  
reef east of I. Again no C., but  
many interesting molluscs. In evening  
visited the artists market in Changi - bought  
Selangor pewter coasters for Tommy + Dora,  
dress for Marian, carved horse + Betta  
for Lib. Ate at Airfield Restaurant  
in Changi - Crab curry, fried rice, sweet  
+ sour chicken for 3 - (K. Ritzler, L. Colimoux)  
all for \$M7.

Oct. 17 - Up at 6 again for 3rd day.  
in a row. Collected at reef area St.  
John's I. - collected first Conus 3 spec. 1

C. consors - of 1105.

PM - Fixed Conus and other molluscs  
+ cleaned up lab. letters home + to  
Dora Cortwright on Diline Guide.

Oct. 18 - AM - to town to buy stamps,  
immersion heater, etc. PM - with Bini Everett,  
took party of 9 to Hantu for collecting.  
Left Te Vega 1400, Jardine Steps 1430,  
arr. Hantu 1530. Boat crossed reef, we  
began to collect. Batman fell asleep, leaving  
boat grounded on reef as tide went out.  
Waited until 1930 for tide to float  
boat again, but this was fortunate in  
that most of the ~~14~~ Conus consors collected  
were found 1800 - 1895. Returned to ship  
at 2100, finished putting specimens  
away at 0100.

Oct. 19 - Visited Van Kleef Aquarium and  
National Museum - formerly Raffles Museum.  
PM - dinner party at Johnnie Johnson's, stayed  
overnight to collect early in morning.

Oct. 20 - Early AM - Drove to Changi Creek,  
took boat to Sekudu with J. Johnson, J.  
Lorenz, K. Ritzler. No Conus, but  
found 2 Kelong poles (piles from fish

trap-made of palm) washed ashore. Full of green mussels (Mytilus viridis), which the Chinese boat men gathered (2 buckets full) to eat. A few Anomia. The lower part of the pole was riddled with Martesia, which probably caused it to break and float away. Sample of wood + specimens preserved.

Lunch - on mild curries of mutton, chicken + beef at Jubilee restaurant, one of better Muslim restaurants.

Then rented boat with J.J. to Tekong. Collected a Turdus squamose, J.J. coll. the only Comus, a C. coors. Then returned to St. John's I., J.J. collected a C. acbatinus and 1 a C. textile. Total for Singapore so far - 21 spec. of 3 spp.

Costume - men wear trousers or sarong, women's costumes are much more interesting. Most common is cheong sam on older women, sam foo - pajama with tight-fitting high collar sleeveless top, usually matching pants. Older Malay costume is less formal sarong <sup>(short coat)</sup> baju, more formal sarong kebaya, with long coat. These vary for different regions and are especially interesting to see, e.g. at the museum on Saturday afternoon.

Light - Sarpan Kotak

Oct. 21 - AM - Fixed specimens ~~preserved~~ collected yesterday; reviewed G.M. Moore's proposal, B-15730-5, on Marine Mollusks of Thailand.

PM - Collected at St. John's with 3 students. Found 4 C. textile + 1 C. acbatinus, + one of the latter found by Bud Barrett. In evening - One of the C. textile's cooperated for students, stringing and eating a Trochus gibberulus. Largest C.t. was  $3\frac{5}{8}$ " long.

Boat rolling at anchor in ground swell.

Oct. 22 - Stayed aboard ship all day, cleaning out deckhouse + arranging storage drums for formalin + alcohol on deck. Wrote letters to Marion + John Smart. Put away mollusks other than Comus coll. yesterday at St. John's.

Night - Party + Chinese dinner for entire ship's company - Shrimp-chicken sup, ~~and~~ crab tofu, beef + bell pepper, fish - steamed, nasi goreng, + herb tea.

Oct. 23 - still in Singapore, but the generator engine has been put back together. With Johnnie Johnson to Radio Singapore to see his movie on "Selling to Adventure." Then lunch at

Singapore Island County Club. Then bought a lantern & books, ret'd to ship. Examined C. textile velvets.

According to Klaus Rützel, Comus is "beautiful and dangerous" - like women.

Oct. 24 - AM - discussed itinerary at length with Rolf Bolin. Our first collecting stop should be Pulau Upeh and Panjans, off Malacca. Then to <sup>pt. Swetambun & K.L. (the old)</sup> two isolated rocks in the Strait. Then to Phuket and the other Siamese islands.

Afternoon - visited the Univ. of Singapore. A delightful campus and a good university. Walked around campus, were shown zoology-physiology by Mr. Sharma. Bldg. is 2 years old, centrally air conditioned, spacious, well-furnished and well-equipped. We observed first-yr. biology class, and discussed their research projects with two advanced honors students. One on general histology of heliothirians, the other on marine insects. Both know their stuff very well, and know the local marine invertebrates well. The Univ. seems comparable to U.H. Coffee with Sharma and Mrs.

Jan Desowitz, wife of a human parasitologist from Buffalo. Also met C. H. Fernando, Singapore parasitologist, returning to Ceylon Fisheries Lab. in Feltrany; Johnson - fresh water-biology, Prof. J. Harrison - mammals, S.H. Chuang is away in England (Oxford) on leave. According to Sharma, the library, which we did not see, is also very good. Buildings are all solid and well cared for. In general a pleasant contrast from Univ. of Philippines. Also met Dr. Jack Tomlinson, ~~of~~ San Francisco State Coll., working on Acrothoracicans. A former student of Will Hartman's at Berkeley.

Oct. 25 - AM - to town for haircut and to buy Malay Unit of yesterday with picture story of ship.

1512 - Anchor aweigh, leaving Singapore heading 150°.

Oct. 26 - Anchored off Pulau Besar, largest of the Water Islands off Malacca. Went ashore at P. Anyet, a very small high (122 ft.) uninhabited island. Almost entire shore is of large boulders. The

island is fringed by a narrow reef with much growing coral. Sea was fairly rough (1' waves) even at low tide, and corals are massive, rocks are also large - absence of rubble suggests heavy sea and/or strong currents are usual.

Then visited S. side of P. Besar. Sandy beach with Donax & amphipods. Visibility difficult on incoming tide. Much of the shore of this island is also of boulders.

Oct. 27 - Arrived off SE side of Cape Rachado early AM, collected after breakfast. Reef of mostly dead coral, but still much silt on heads, and up to 3" 4" silt on hard limestone platform in some places. Extremely poorly sorted sand among coral rocks. Much silt in water.

0930 - left for Port Swettenham.  
1715 - in Port Swettenham.

Oct 28 - Traveled from Pt. Swettenham to Kuala Lumpur by cab, visited Museum Negara - met Arne Dyhrberg - and University Prof. (Acting) of Zool. is Dwight Davis of Chicago Nat Hist Museum. D.J. (Tony) Berry is mollusc man - mostly land

and fresh-water. Also met Paul Basch of U. Calif (550), spending two years at Institute of Medical Research. Lunch on Chicken Curry at Indian restaurant, Dinner at Satay and ~~the~~ Mee Goreng at Malay-Chinese Indian Stall. Surrounded by Tin mines and rubber plantations, K.L. is going mad at an alarming rate. The academic aspect of the University does not yet seem to be able to keep up with the physical, but it is only 3 years old.

Oct. 29 - AM - Entertained groups from the U. of Malaya, National Museum, and Institute for Medical Research aboard.

Afternoon - Collected mangrove swamp molluscs, incl. Nerita birmanica Philippi, Littorina melanostoma Gray, L. Scalra (L.), L. carinifera Menke, Terebralia sulcata (Born), Telescopium telescopium (L.), Two spp. of Ellobium, & Melampus & other pulmonates. What Kaicher calls Pteryodius capucinus quite common in mangrove swamp at upper intertidal level; surprising to see a <sup>68</sup>murder there, but there are plenty of grey herons.

1915 - Anchor weigh for Pulau Jarak.

Oct. 30 - AM Collected around shore of unclaimed Pulau Jarak, in the Strait of Malacca. We could not go ashore, because of scrub typhus there. The island is a half mile long, 500 ft. high, thickly wooded and with a rocky, boulder shore. The shore is fairly steep-to, with boulders and coral. Echinopora lamellosa (Esper) was dominant, but considerable Portia lutea and in some areas Acropora variabilis, all spp. that can stand much turbulence. 3 specimens of C. weufandi, "C. swells" and C. aculeatus by Larry Kille, and a C. emaciatum by me.

The first and last appear to be new locality records for Malaya, if Pulau Jarak is considered part of Malaya.

The water was very clear, and presumably saline. Conus, with a long narrow foot, must have a difficult time in the surge.

We collected in what appeared to be the most protected region, a small cove on the NE side, just W. of the rocky spit.

Afternoon - took a dredge haul with 6' beam trawl - mostly sponges of various sorts, many alcyonarians, a Turris, & many small bivalves. 37-38 fm.

Then underway for Pulau Perak.

Oct. 31 - Off Pulau Perak at daybreak. A dense population of brown bushes inhabit the rock; a few ~~plants~~ nodules.

Afternoon - Nansen bottles, BT + dredge station off Pulau Perak. A living C. praecellens and dead shells of several species of Conus. A large Stenaspis and an odd Holothurian. - Sandy mud in 53-55 ft. Then off for Phuket; sea smooth.

Nov. 1 - Entered Phuket 0830 (0800 local time). No customs or harbor master visited us, so skipper & Bolin went ashore.

We dined at noon on curried tuna - caught last night, cold sliced turkey, string beans, lettuce & tomato salad, rice pudding w/raisins. The cook has outdone himself.

Into town in a driving rainstorm in the afternoon, back to watch the LOI KRATHONG festival, of Buddhist derivation but now rather secular (like Xmas) in the evening. Watched the elaborate, prayer floats sail away - found some floating out in the bay the next day.

Nov. 2 - Up at 6 AM to collect on the slack tide. Few Cypraea, a dead C. teretica, but everything is covered

to Nov. 8. Collected at Goh Similan in  
pres AM, Goh Haying in PM. At old station,  
~~was~~ added 2 more spp. of C. to the list -  
Nov. 19 spp., 93 specs! Why is C.  
Vesp. abundant in some areas, not in others?  
Where C. leopardus and/or C. litteratus  
<sup>or</sup> ~~are~~ are common, diversity seems to be  
low. Perhaps their habitat precludes  
occurrence of habitats suitable for the  
other spp. Apparently our last collecting  
Nov. trip in Thailand, as we are underway  
spp. for Phuket at 2130.

Nov. 9. En route to Phuket in AM,  
leave about noon for Butang group.  
Stopped at Goh Phi Phi, a striking  
sheer limestone cliff, which shelters  
a sandy cove in a small bay, and  
is inhabited. Collected a very large  
C. leopardus + 1 C. milium late in  
the afternoon. Then left for Butang  
group.

Nov. 10. Worked on the reef, rather  
dead reef at Goh Tenga, in the  
Butang group. En route to Penang at site

Nov. 11. In Penang. Walked around the

city + took bus to Ayer Itam; visited  
the rather grungy-looking Victorian Chinese  
temple of Kek Lok Si. Built in 1891  
with many donations - foundation of Pagoda  
from Du Boon Hoo, standpipes from another  
donor, crematorium from another; later  
aluminium covered walkways from a British  
aluminium company. Many of the needs of  
Buddha, etc. are used in teaching. Chinese,  
Japanese + Indian Buddha has hands clasped,  
Siamese with both palms out, Burmese with  
one hand down, one on hip. <sup>all are represented</sup> A pond of  
300 turtles symbolizing longevity, a pond of  
carp symbolizing happiness, and a large  
rock on which is carved a reminder to  
pray every day for both.

Nov. 12 - AM - worked on developing  
larvae of 3 spp. of C., and fecal  
matter observations.

Afternoon - bought set of 8 rosewood  
horses for Libby's birthday, visited  
botanical gardens - A nice park, but  
it's not easy to learn much tropical  
botany from it, as the trees are not  
well labeled. However there are  
several short, off-the-beaten-track  
trails, including one that just goes into



the jungle a way, and gives the visitor a good taste of a Malayan jungle. In other parts the forest comes right down to the road. Monkeys begging for peanuts abound, and Tamils washing in the stream and sleeping on benches along it.

Nov. 13 - AM Went up Penang Hill Railway, a funicular that rises to 2500 ft. in 24 min. It is a very fragrant hill, with many junipers and flowers. <sup>Philippine</sup> Dublins - Bougainvilleas x African tulips are planted, and many native forest trees are easily seen - Podocarpus (?), Pandanus with leaves 10' long, many orchid plants on the vertical granite rocks, but only one in bloom, a ace. the Captain; Tree ferns to a diam of 6" + birds nest, maidenhair + other ferns. Palm with fan-shaped leaves + small fruits

Walked along road to Govt. Hill, about  $\frac{1}{2}$  miles, past several estates with fine views of Georgetown + the ~~straight~~ Strait. One is called "Stoker" and ~~to~~ commands a view of a valley reminiscent of Hawaii.

Cloud

Fog rolls in and out, creating different moods. Many birds, audible because there is as yet no automobile road to the summit, the one is being hunted.

Departed Penang ca. 1700. Weather stormy, and ship rolling a bit. Main Staysail + fore staysails set - our first travel under sail on the cruise. En route to Langkawi.

Nov. 14 - AM Anchored at W. side of Pulau Langkawi. Tried to collect at high tide, found some Littorina scabra on the mangrove (Rhizophora) roots, Planaxis, Turbo cinereum Born? + other mollusks, dead Conus shells, but impossible to see more than 2'. Bolin + Olsen collected 2 additional species of orchids.

Left ca. 1330 to stop at Butang gap again. Collected at P. Tunga in P.M.

Nov. 15 - Arrived Go Pin Pin in AM, collected, but few Conus. Then off for Phuket at 1145. At Phuket 3:00; went ashore + met Dr. Van Arsdell, who gave us directions for good Conus locality. Thai dinner in town at The Vera Hotel - Pig stomach + vegetable, a balone + vegetable, sweet-sour fish (whole) shark fin soup, Fried rice.

Nov. 19. At sea all day, arriving off Kota Raga 1900. Did laundry, read part of Pete Kopper's book, & examined developing C. textile embryos. Cleaned up cabin & condensed gear in anticipation of being joined by an Indonesian biologist.

Nov. 20 Anchored off Kota Raga in AM. Learned how to operate the Leica M3 in MİKAS photomicrograph attachment, & made some pictures of developmental stages of C. textile embryos, kindly developed by Klaus Ritzler.

Afternoon - Underway for Pula Bente, collected there in afternoon. Island planted to ca. 700 in coconuts, has a narrow fringing reef subject to swell, but we managed to get thru breakers to collect.

Off at 2000 for Simalan, a 180-mile trip. ca. 4 nm

Klaus Ritzler sting by a surgeon fish (Acanthurus ~~lineatus~~ lineatus (L.)) that he was picking up after it was rotenoned. Sting on distal segment of ~~the~~ ring finger. Wound bled considerably. Pain spread from finger to hand to entire arm, lasted 2 hrs. Victim

felt generally poorly, rested in bed on ship, did not feel like eating dinner <sup>soon</sup>. Following morning - finger red, swollen, but pain in arm & hand gone. When pain in arm and hand subsided, finger was numb. Initial pain reported as similar to slamming car door on finger, with waves of pain passing up arm. Certainly suggests presence of venom. Only treatment iodine on wound completely recovered 2 days later.

Nov. 21. Took a deep dredge haul on way to Simalan, in 1150 m. A large Colossendeus copossea (?), several Amussium with Crepidula attached, Pogonophora <sup>(Siboglinum)</sup> tubes, polychaetes, ~~the~~ shrimp. Arrived off Simalan ca. 10 PM. Took more photomicrographs of C. textile development with Leica + Braun flash.

Nov. 22 - Collected on Pula Benja, small islet off Simalan. C. pennaceus & C. tigrinus? common. Local people traded fruit & shells for sugar, coffee, cigarettes.

Nov. 23 - Collected in Banjarah group - over 100 spec. of C., mainly litteratus. Measured pop density - 4/75 sq. m.

News of President Kennedy's assassination  
on Voice of America.

En route to Nias at night.

A 17-hr. day collecting and preparing  
all the specimens - many heads increase  
the sample size.

24 Nov. Off southern part of Nias  
at daybreak, sea calm, but rather  
heavy swell. Ben transcribes a news  
report on the death of the President and  
posts it.

As per sailing directions, Nias is steep  
to. We landed by going up a small  
stream, & visited a small village of  
Nias people, who seem to differ socially  
from the other Indonesians. Many are fairer  
skinned, with more oriental features.

We take them for power boat rides, and  
collect a bit in the surf. Then en route  
to Batu Islands. Driven off Batu about  
1130, anchored because of the many reefs.

25 Nov. Steamed at slow speed into  
the Batu group - a maze of islands and  
reefs, as soon as squalls blew away  
permitting visibility. Crossed the  
equator at 0931 local time, and ~~at~~

less than 2 miles later Capt. gave order  
for full astern. We had gone as far as  
we could & and dropped anchor in 10 fm.  
of clear water, about 1 mi. N. of Pulau Bai.

Collected around Pulau Bai - 14 spp. of  
Conus - C. episcopus & C. pennaceus common!  
We will be here for 3 days, so can  
make a more serious effort at field  
work & habitat study than our 1-day stands.  
Have 10 spp. developing in egg capsules &  
~~the~~ photographed them all at night.  
Finished at 0130, having interrupted the  
work for an equator crossing celebration  
with Klaus, Joe & Llewellyn.

26 - Collected in AM, & took underwater  
pic of C. penn. & C. episcopus habitats.  
Detrit abundance of C. annulus there, as  
found radula probably of it in fecal  
matter of C. e. More collecting & taking care of  
specimens in PM.

27 - Another collecting trip produces  
amazing diversity of C. - 3 of us collected  
15 spp. - 29 individuals! In 3 hr. Strip low  
on water & gasoline for outboards, left  
for Padang at 1500. Threaded way in  
treacherous waters between Pulau Bai  
and P. Nasa, and through the Batu,

with several slips and hard turns and a few full asters. Out of the danger area at 1700, and riding easily on course of 139.

Took night 20<sup>th</sup> Hamilton hall with 1m. rat.

28- Arrived in Padang 0900. In AM, drove into city from port, ca 4mi with agent. A sprawling city with few ~~cars~~, cars, many buses, horse drawn carts + bullock carts. Almost all bldgs. are old, but a new telephone exchange. First to Dept. of Agr. to clear Bolin's orchids. Bought stamps at a post office that seems to do rather little business, bought a rice batik sarong Rp4,750 - makes one feel like a millionaire. At the cloth shop, saw in Res Bblika ~~the~~ the last picture of President Kennedy, saying goodbye to Caroline.

For lunch, had nasi Padang - the typical dinner of the region, rather hot fried chicken, liver, beef + very hot beef, + a very good dish called gadu gadu - salad - lettuce, tomato + cucumber, with hot beef + a gravy. Also crackers resembling pears Crackers but apparently

flavored with seed of a plum. In evening, went out with Eddie, Elsie, Kasajan and steward of the Norwegian Anne Reed, with the local Navy commanding officer, a lieutenant, and his attractive wife, born in Antton. An extremely pleasant evening, with very cordial relationships between the Malaysian, Eddie and the Indonesian naval officer. Invitations to meet in Singapore were extended for "when conditions improve". The lieutenant assured me Indonesia did not want communism, but they see no point in turning down foreign aid from Russia. The military are highly esteemed here - live in fine houses, has a land rover, etc. The emphasis on the military and the amt. of money spent on it, must make it very attractive to the bright young men of the country.

At 4 AM, the watch discovered a prowler, armed with knife in mouth, who evidently took several shirts from the clothesline before being discovered, whereupon he jumped into the water.

(ahave wutler on deck in dark)  
No Thanksgiving celebration aboard T Vega.

Nov. 29. Took a trip arranged by Messrs. Lim + Tja of Tin Bhakti to Bukit Tinggi (High Hill), ca. 90 km. from Padang. The ride revealed a fairly well populated roadside, with many rice paddies, coconut groves, and papaya fields, and some corn, potatoes, and pineapples. The people seem to grow plenty of foods and have enough goats and carabao. However they must have very little cash, and the country is suffering from inflation. There are very few motor vehicles except for buses and Govt. cars, and trucks, and horse drawn carriages are common. Produce is hauled by bullock cart or carabao-wait with very large wheels. There is plenty of water, fertile soil, and the people produce enough to appear to live rather well. The houses are sturdy and the sarongs and hijabs very beautiful. The people are generally healthy and friendly, as well as quite curious to see Caucasians. We saw only 2 others on the day's trip - they appeared to be Russians.

Stopped along the way to photograph a train, examine the waterfall and

RK bridge, and in Bukit Tinggi, to see the gorge of the river Ngarai, 300 m. deep in loesa. Visited some shops in B.T., & had lunch - mostly Chinese style. Then visited zoo, which contains an ~~amirang~~ Kaban built in 1935 but of the old Sumatran style. It serves as a museum, with many dusty relics of older times in Sumatra: Cars from the 15<sup>th</sup> cent., models of houses, dolls, tempots, loats, and money from Japanese and Dutch occupations, and early independence. Outside are 2 Rang Kiang Temput Padi, smaller storage houses for ceremonial utensils. The zoo itself is on the hill, overlooking the town and the rice paddies on two sides, and being looked down upon by the Marapi volcano on a third. A small zoo, but many interesting specimens - tigers from Sumatra, porcupines, orangutans, gibbons, & 2 spp. of Viveridae - civets. Also hornbills & other birds.

1600  
Drove back to Padang at 4:00, ship underway for Sipora at 1800. Passed a Maersk line ship anchored in Padang Harbor - they are seen in almost every port in the world. The line has 80 ships.

Received an Indonesian Navy petty officer as a roommate until return trip to Padang. We surmise he is to watch the Malaysians.

Nov. 30 - Three collecting trips - morning, afternoon + our first attempt at night collecting, at a small island N. of Seporan. Not excessively rich, except for many C. litteratus. Also spent 15 min. to extricate a Bonellia from a large coral head - the 1<sup>st</sup> entire one I had seen.

Dec. 1. - Made a few observations on ciliary patterns in Bonellia. Rejection pathway is up and over lip of groove, and down on outside. Food current very slow in groove, particularly near lip, toward mouth. Constant slow peristalsis of body. Eggs visible in uterus thru body wall.

Tried dredging in sandy areas in 4-40' No Corus, few other molluscs. Mollusc pop. density seems rather low at Summit 1, despite the fine reefs. Water is clear, and the coral and reef edge the most beautiful I have ever seen. We hang over the reef edge and watch the comings and goings and feedings and closings of

many spp. of fishes. In a large Acropora thicket, we heard Dascyllus and other fishes talking.

In evening. Photographed developmental stages, + tested response of C. coronatus to living coral; ~~the first~~ in first of a series of tests. As predicted, the foot is stung upon contact, and there is an avoidance response.

Underway for S. Page at 1600.

Dec. 2 - Arrived in Veckens Bay, S. Page, in a dull morning. Chose a very small island with exposed reef limestone, + other habitats to work. It appears to be washing away on one side and building out on the old reef on 2. Took pictures showing various stages of weathering of a coral reef that must have been uplifted at least 2-3 ft. On the side that takes the most swell (SE), it is worn down now, + there are boulders on the flat. The rock is very hard, having been altered from condition during life of the corals. Mangroves appear to be leading the march of the land out on the flat, competing with the sea, which is wearing it down through abrasive action

\* has caused many surge channels, and the rain, which causes solution pitting. Also coll. at night - several C. chloratus set, but not abundant enough to measure density. Then took midnite dredge haul - no Conus, but many other toxoglossans - Terebra, Terris, etc. To bed at 0130, & Ship underway for Meza. Rolled heavily & irregularly in swell.

Dec. 3 - Ship rolling in swell at anchor off W. side of Meza. A preliminary trip ashore indicates sailing directions to be accurate - one can land at high water. Rolf Bolin finds a beautiful flat - saw live netting & no barnacles - where we walk out on to the ocean beach. Collected on the windward, seaward reef, which like S. Page shows evidence of uplift. Here, however, surf is much heavier, and planing has proceeded further, so that much of reef lies at or below LWS (ca + 1.5'). Some high blocks of coral ca 2-2½' above reef surface still show evidence of uplift, and higher portions of reef are characteristically pitted cemented reef rock. Took a breaker over bow of the boat coming out,

but no damage or injury. However, a dangerous area for entrance. We decide to forego Engano, which ~~is~~ probably has equally heavy surf, for Sanding. Underway for Sanding at 2330.

Dec. 4 - Collecting at Sanding richest place for C. yet, & suitable for quantitative studies of several types. Coll. 180 specs. of 17 spp., incl. 3 new to expedition! Up till 1:00 AM putting them away.

Dec. 5. Made portion of transect with Jim Nybakken, coll. 7200 specs. in 13 4x4 quadrats! Will continue tomorrow. To bed at ~~0100~~ 0100, after processing 218 specs, incl. the Expedition's thousandth. 5 Stelata caught several sea snakes, one of which is now in aquarium, & two in HCHO after being loose for a time on deck & in the lab.

Dec. 6. Made more progress on the transect, but not finished yet. Density lower in the offshore portion, but still took care of over 100 specimens. Then party for Klaus on St. Nicholas day.

Dec. 7. Finished the transect across reef - 116 meters - 464 m<sup>2</sup> with 347 conus. In all 774 specimens coll. at Sanding. Much help from Jan Nybakken running the transect. Probably the densest biomass of Conus I have seen.

Structure of Sanding is extremely interesting; unfortunately I had to spend all my time on the study reef near the anchorage. The broad channels shown on the chart have evidently been closed across, as the reef is almost continuous. The Captain thought the ship might have gotten into the lagoon but did not try - Maintained anchorage off Pulau Stapai, with intermittent moderate swell + calm periods.

Is Sanding an atoll? Shore party reported no high ground or terrigenous rock - highest points on the main island, as <sup>width</sup> on Stapai, are dunes.

I saw a terrestrial rock on the reef, but unfortunately did not collect it. This would have been a good place to spend the rest of the Expedition! Perhaps we can return some day to make a more concerted study. Much flotation in the water today.

Saw Nautilus, Spirula + Sepia shells, piece of a Porpita, and many pieces of wood, palm leaves + bamboo with Lepas on them. Also coll. a floating piece of pumice with Lepas on it. Underway for Sipora at 1610.

Dec. 8 - A day different from all other days. Main engine disabled by broken drive shaft at 0930, off N. Tip of Sipora. Making way under sail for Padang, after which the plan is to sail to Colombo.

Examined developing embryos of several spp. - hina tyrimus, Frigidus, chraeus + levidus + sp. F. going, + photographed, but the day was not effectively spent. A day of more or less rest, and getting used to sailing.

Dec. 9. Ship made very little headway, due to lack of wind and unfavorable currents. Whalboat launched at 1830 to take her in tow. She makes a net of 1 knot, heading north.

Picked up large jars, and started changing fixatives of all specimens.

Joe R. lectured on Tudorax, + Col. G. Bolin asked me to lecture tomorrow night on Conus. Checked + photographed



living exchamps, + checked Specs. retained alive for fecal matter.

Dec. 10. AM - Ship becalmed between Sipora and Sumatra. Tom Mac Donald building a Sanson post for the whale boat, to make a safer tow.

Analysed abundance, diversity + distribution data from Sanding I. transect + from Luluu Bay, in preparation for lecture on ev. of Coma.

PM - a good breeze brings on a squall and sends the ship flying, at least for a short time, on a good course toward Padang. Winds of force 4-5 for 15-20 min. The best progress we have made since breaking down.

Favorable winds carry us to within 35 miles of Padang before falling off about midnight.

Lectured on general + comparative ecology of Coma. Some good discussion, mainly from Mike Ghazalin, + Lou D. Selis, + Elsie Williams.

Decided that it may be necessary to leave the ship at Padang - she may not get to Colombo under sail on time, and began packing gear to go either way.

Dec. 11. Ship becalmed most of the day, but drifting toward Padang at night. Got a fix on 2 lights at 2300, showing 21 mi from Padang.

Changed fixatives in more specimens, and packed white box.

Gave lecture on feeding mechanism + venom apparatus.

Dec. 12 - Another day becalmed, with no steering. Whale boat towed the ship in the morning and made a little progress, but the possibility of wind made them secure the boat, and the wind proved non-existent. Ship drifted all afternoon, not making ~~much~~ headway against the current. At 1700, launched a Boston Whaler with Jensen + Tohing, to make the 35 mi. to Padang. After supper a good breeze came up, making ca 5 knots.

Did a demonstration dissection of C. striatus for the students. Continued to change fixative in specimens, which job should be finished tomorrow.

Dec. 13. Taken in tow by Indonesian tug at 0600, and arrived Padang about 1600. Two letters from Marian, the first in

more than a month.

Completed changing of fixtures, + reasoned that a Japanese passenger ship will call at Padang in a day or two, so we will try to book passage for Djakarta. So we will probably not be able to collect here.

In evening, drove up mountain with the Navy Commander and his wife, Korojari, Ror Jensen, + Elsie Williams, to see the panorama of Padang. Saw an anteathe along the way, but no tigers.

Students were informed this evening that their final exam was to be tomorrow at 2, and most got drunk later in the evening.

Dec. 14. Open house on the ship mainly for students at the Universitas Andalas (name of the region), which has six faculties and about 5000 students. It is 8 yrs old, and has faculties of economics, pedagogy, medicine, science, law, ~~and agriculture~~, and agriculture. One of 13 universities in Indonesia and 5 in Sumatra.

Got haircut in an open air barber shop on a side street in Teluk Bajaw, to the amusement of many

kids and a Bloody Mary type, who was especially entertaining to the kids and the harbor's womenfolk, but not to the poker-faced barber, who cast water on them when they crowded in too noisily.

In evening, visited the older brother of Mr. Lim Gim Mo, who has a Dutch wife and is dean of the medical faculty of the University. A beautiful home with carpets, and everything in its place, and a Ming dynasty China collection. The dean has traveled widely in the U.S., was educated + spent 25 yrs. in Europe, and stayed at the Hotel Atlanta on Gähringerstrasse in Vienna. Sherry and Dutch gin-jenever, and many delicacies.

Dec. 15 - Most of day spent partying. Showing visitors around + visiting our island off the harbor. It looked like a good Corn spot, but none seen alive.

A steady stream of visitors - kids, students, nuns from the Catholic maternity hospital, teachers, and the American population of Padang, one peace corps member teaching English and athletics. We have helped relationships a little

by our hospitality, we are told.

Now that we are about to leave, we are learning a bit about Indonesia. Invited for the evening to the home of the local mgr. of Shell Oil. Mainly a storage facility - petrol is Rp. 5/l., Kerosene Rp. 1/l. No wonder we have been driven about so much so freely. A nice family, with 3 little girls, holding about. Present were Eddie Cheong, Joe Rosewater, L. Colman, E. Williams, Gene Beavert, K. Kitzler from Te Vega, the Capt. of the Indonesian coastal freighter Enggawi, which will tow the Te Vega to Loti Kadja, and the Belang prosecutor and his wife. Indonesian food, including a dish made of bat, and the more typical side dishes - fried chicken, cold deep fried tofu, ~~the~~ string beans + bean sprouts, chunks of fish, liver in hot sauce, etc. etc. Little taste of the bat, due to its hot surroundings. The host told us the Wayang story Ramayana, with the hide shadow figures from Central Java. He had Anora, the white monkey, and the giant King. The story told very well, of King Rama, whose queen

wishes him to get her a golden deer she has dreamed of. While hunting for it, she is left in protective custody of the King's brother. She forces him to disobey the King and leave her, by saying that he has designs on her if he does not. He leaves and she is carried off to Ceylon by the giant King. King Rama punishes his brother by forcing him to live in the forest thereafter. He then gains aid from the white monkey, who takes his ring and in one leap delivers it to the imprisoned queen. (The bird King has told the King where she is before dying from ~~the~~ his fight with the giant King.) The white monkey is caught by the giant King, but escapes hurriedly by leaping back to India. The King now knows the queen is alive, and will make war on the giant King. The latter has two brothers - one, also a giant, knows he has done wrong, but will stand by his King and country as the source of all that he has. The other, a <sup>Sudra</sup> ~~Shudra~~ - Hindu warrior class - knows the King has done wrong, and therefore deserts to join King Rama + fight for right. They cross Adam's bridge and win the war, rescuing the queen. The striated brother of the giant King is given Ceylon to rule,

and the queen proves her purity by surviving burning by fire.

In the Indonesian view, the country's development was delayed 300 yrs. by foreign rule. Pius Soekarno says it is a plant whose growth has been stopped for 300 yrs. But the plant now grows in a quite different garden.

Walking back to the ship - a mixture of smells - copra and spices. Cloves grow on the hillside and cinnamon is also produced locally, and an interesting coffee.

Soekarno: Diff in the past for a guide to the future. According to our host, he finds much advice in the wayang. Its operator knows all the ~100 characters, their lives and families, directs the musicians with his foot, and alters his lines to fit the level of the audience. The wayang often begins at 9 PM, lasts till 5.

Dec. 16. MP Tong Hoo arrived at 0800. Spent morning finishing parking and showing more University students around the lab. Also into Padang to complete lengthy arrangements with immigration regarding visa extensions, etc. Bought 3 Phys.

Padang coffee for Rp. 450.

A big day in Padang, with the arrival of apparently several hundred passengers on the Tong Hoo from Dabunta. Traffic jams in Telok Bajur, and people, possessions and luggage scattered about.

Sailed goodbye on TE Vega after lunch; left her with towing arrangements still uncertain, due to haggling over price, but hoping to sail later today or tomorrow.

Sailed for Djakarta on MPV Tong Hoo at 1500. Party incl: Colinvaux, Ratzler, Roswata, DiSabu, Kelts, Barrett, Chiselin, Nybakkin, Brunson, Olson. Built in England, the ship is on charter by PELNI, the Indonesian State Shipping Line, from the Dutch Shipping Co. of Singapore and Hong Kong, and flies Panamanian flag. Well appointed and fairly comfortable, but a fireplace in the lounge + in general originally a cold climate ship.

Dec. 17. A relaxing day on the Tong Hoo. We are served fairly hot Indonesian food, but there is a cool breeze most of the time. Stopped off Beng Kulu

0900-1200, then off for Djakarta. Quite a few passengers on and off in lighters, lurching in the swell. A beautiful sight, with a broad reef, small town, then high mountains and low clouds.

In evening Lt. Eddie told us the legend of the Queen of the Indian Ocean. The good young Indonesian fisherman was out in his prahu <sup>and</sup> in the I.O. with several friends. They caught no fish, when the waves became high the friends all left for shore. The young fisherman stayed, and when he did not return was officially listed as dead. But he eventually returned and told his story: The seas were very heavy, but then were suddenly calm where his boat was, and a beautiful girl appeared in her own prahu. She sailed to him, and he took her aboard ~~her~~ then he ~~started~~ began catching many fish. The girl, the Queen of the I.O., then said, "do you like rice, the fish or me," to which he answered, "I like the fish and I like you." Since he said the fish first, she disappeared and he returned to port with the boat full of fish.

Dec. 18. Arrived at Djakarta about 4:00 PM. Met by representatives of Tri Bhakti, then by Amer. Embassy man. T.B. had made reservations at Hotel Indonesia, but they require dollars, and TB has no foreign exchange, so eventually we are settled in T.B.'s sumptuous guest house.

The first impression of Djakarta from the sea is one of flatness, and low red roofs common to Indonesian towns. The harbor is a busy one, with many ships moored. A surprising proportion are Indonesian, including many modern freighters mostly coasters.

A delay of an hour waiting for pilot, then a further delay as a hawser broke as tugs were pulling the ship into her berth.

The waterfront is rather run down, and the drive into the city from it was through rather poor area.

A few parts of the city are very modern, however, including the ultra-modern Hotel Indonesia, at 14 stories the highest building in the city. But a "24-ceiling" skyscraper is under construction. The Hotel Indonesia is across a roundabout from the leveled out English Embassy, now vacated. The government will replace it for the

British. That avenue is the most modernized we saw, with wide lanes, many new buildings and bright street lighting.

Dec. 19. In Djakarta. AM spent trying to arrange air transport at Panam office in new ultra-modern and cold Hotel Indonesia. Afterwards, an exotic American luncheon of hominy and chocolate sundae.

In afternoon, visited Marine Research Institute Lembaga Penelitian Laut, with Kasijan. The laboratory occupies 3 buildings, including one new one for storage, algae and plankton, and has quite adequate space and furnishing for the synoptic collections they are beginning to require. The chemical oceanography section is not well equipped, but Mrs. Oediono at least has done some good work. There is a small public aquarium, and a few pelicans and crocodile, on the grounds also. They have a small working library but lack of literature is their main handicap. The scientific staff numbers nine, most of whom are young and have been there about 4 years. They have 3 ships of 700, 300 and 50 tons, and all the scientists go on most of the cruises. Missed Bayard McConaughey by 1 day he

had gone to Bogor. The laboratory seems to be off to a good start. They will profit greatly from short stays by foreign workers.

Mrs. Oediono, chemical oceanographer there for 4 years and now secretary of the National Council for Oceanographic Work, is a very bright, very attractive young wife of a Garuda pilot, and has helped us with many arrangements, including a collecting trip for Saturday. Her paper on Salinity dist. in Java sea looks quite good.

Dec. 20. Joe Rosewater and all 7 students left at 0530, on Air France. Went to Pan Am, but reservation still unconfirmed. Then picked up by I.M.R. mollusc man, to arrange trip to Bogor to visit Botanical Garden + Zool. Museum. Rented a small bus at I.M.R. expense in Djatinegara, a rather teeming section of Djakarta. Through much of the city, over a bit of a very smooth American built 4 lane divided super highway, then on the more typical rather roughly paved 2-lane highway to Bogor, 60 km. away.

A not especially interesting ride, but interesting to see the villages, and the handover

a Javanese woman in Sarong and Kebaya  
over baji. Some rubber plantations and  
a small rubber mills along the way, and  
some rice and vegetables, but in general  
apparently not a rich agricultural region.  
In Bogor, first visited the zoological  
museum. A rather dark dingy building, but  
the exhibits are excellent for the most part.  
We watched the talented preparator repairing  
tigers. Most of the exhibits appear new  
and well kept, and bright in contrast to  
the dark building - very effective. The  
mollusks are displayed against a most  
effective vertical board of ~~beach~~  
sand. All of the Conus were correctly  
labeled, though 2 spec. to represent one of the  
oc. spp. were different.

The botanical garden is very large and  
a well-kept. It contains the president's  
second palace, the zoological museum and  
gen. laboratories, some microbiology laboratories,  
several botanical laboratories, including  
one for orchid culture, and a large  
natural history library, which unfortunately  
was closed; we had arrived close to  
noon on Friday, when everything closes  
for the Muslim Sabbath.

The garden itself is perhaps the finest

in the world. All of the trees are labeled  
prominently with Latin name, family,  
Indonesian name in some cases, and place of  
origin. There are wide roads, (though <sup>all</sup> vehicles  
are prohibited) wide and narrow paths of  
rounded stones set in mortar, and trails  
through the jungle. Even on the latter the  
plants are labeled. Broad lanes of old,  
large Kanar. trees provide substrate for  
many epiphytes and shade for the visitor.  
Saw durian trees with fruit, rhamblutan trees,  
a large area with many varieties of ginger,  
and so on. One broad expanse of lawn  
and formal garden, with a fine home for  
~~the~~ an Indonesian science official.

Also on the grounds are a fine director's  
home, vacant because of its large size,  
and a number of homes for government  
research scientists.

We visited Kasjars home, a pleasant,  
well-furnished one on the edge of a  
very nice section of the garden, with  
plenty of place for kids to play away  
from traffic, and the quiet <sup>and stirring</sup> of the  
forest. There appeared to be about 12  
houses, several of which were occupied  
by Institute of Marine Research people.  
We had tea and Javan style peanuts

and crabs, and met Kisijan's wife and  
1 year old daughter, Vityaz. The next  
will be named Vega!

Returned to Djakarta via hired  
goat jeep, whose driver earns extra  
Rupiah this way on the side. Visited  
Tok. Oedang in Djelan Madjapahit,  
and brought ruyang figure of Andoro,  
common man, a Djogje elephant skull,  
pins in hairpin for M.

Dec. 21. Again to Panam unsuccessfully  
to try to confirm flight tomorrow. Then picked  
up by lab. (IMR) jeep for field trip to  
Pulau Sakot (Sick Island). With several  
lab personnel and their stowage ca. 20'  
boat with Johnson 45(?) engine. First along  
side down the river - choked with small  
ships. The characteristic heavy sailing ships  
of each of the islands, most with double  
maddus. And larger ships with engines in  
various states of repair and disrepair. At  
one point it is barely wide enough between  
the ships for the boat to pass. The sailing  
boats look very heavy, but they move  
well in a slight breeze. Most with 2 or  
3 masts, depending on island of origin.

The island produced 4 cones of 2 spp., one

of which however, was the typical C. textile.  
Much algae, dirty water, and surl on the  
reef however. A nearby island served the  
Dutch as a quarantine hospital for small-  
pox victims. They were then buried on  
Pulau Sakot. In recent years, parts of  
the island have been washing away, and in  
addition to coral rubble, the beach is littered  
with human bones. We found no skulls, which  
are taken by people, but all other bones  
and teeth. Collected 2 vertebrae.

Then returned to lab., + finally confirmed  
Space with Carulus at 1700. Then returned to  
Tie Bhakti guest house in Pegangsaan Timur,  
next to Pasar Khikini, where we had  
spent 3 delightful days. It is built with  
expert knowledge of how to build a house  
in the tropics - very high ceiling,  
ventilating spaces over the doors,  
cross ventilation from one end to other  
and across rooms, + large doors that open  
onto wide verandah protected by broad  
overhanging roof.

In evening, celebrated our impending  
departures with Klaus Ritzler + Llewellyn  
Colinvaux + bottle of rum.