

TE VEGA EXPEDITION

GENERAL NARRATIVE--INSTALLMENT #14

Students and staff assembled as planned by January 14, 1965, in Singapore, only to learn that the sailing was to be postponed--partly because of slow work on the ship, and because of a transformer to be air-freighted from California, but also because a lift-van of equipment from Pacific Grove was delayed by the late arrival of the "President Coolidge." This ship was hung up in Saigon harbor for a considerable time.

We utilized the delay by visiting the old Portuguese and Dutch town of Malacca, on the outskirts of which is a most interesting fish culture experiment station, with fine new laboratories. Its director, Dr. Prowse showed us around, and gave us, with his staff, a tremendous Chinese dinner. The following day we took launches out to some islands west of Singapore, where most of the students had their first experience of tropical flora and fauna--as well as of tropical sun! On January 18, a Singapore holiday, we saw the color and action of a Hindu religious festival. Finally, on January 20, most of us moved aboard TE VEGA (still in dockyard); on the twenty-first we sailed out to anchorage in the roads, took on our remaining students, fuel, water, and provisions, checked compasses, and the next morning we departed.

The northeast monsoon was blowing steadily as we moved into the South China Sea, making some swell and chop, which put a few under the weather, and gave everybody a chance to get adjusted to cramped quarters, and to the extremes of temperature between hot decks and lab, and cool staterooms. It had been decided, because of the delay in starting, to omit the first call at Zamboanga, and use instead (on the recommendation of the American President Line office at Singapore) the North Borneo (Sabah) port of Sandakan, as a base for our stay at Sibutu (being only about 90 miles away). So we skirted the north shore of Borneo for 5 days, seeing only distant high mountains, and the glare of an oil refinery near Brunei.

A biological watch was kept around the clock, with customary records of flying fish, porpoise, many sea snakes, purple Porpita, and masses of yellow Sargassum. Mats of the latter were frequently brought aboard, and examined for their peculiar plant and animal associates. Several good plankton hauls were made while the ship made its customary noon-day stop for engine oiling. Salinities of the sea water were also measured on the induction salinometer. These showed steadily increasing salt content as we moved up the China Sea from the more dilute waters of the Straits.

On the night of the fifth day, the large Philippine Island of Balabac was sighted, and the tortuous Straits of Balabac negotiated in the dark with radar and direct sight alone--all three of the light-houses indicated on the charts being out of commission! The land smell was fragrant with some tropical bloom, as we left the China Sea and entered the Sulu Sea. For the rest of the day we saw outlying Philippine Islands, and toward noon sighted the immense red bluffs which guard Sandakan like two Gibraltors. We moved into harbor slowly, in gathering rain, and had a real tropical downpour for two hours after anchoring.

There were good piers, and many freighters waiting to take on logs or sawed timber. Forestry is the chief business of the region. Finally the port officials came aboard, and we were cleared by evening.

Most went ashore to look around, finding a clean new town, mostly built since the war, largely Chinese in population, but with a fascinating suburb consisting of Malay houses on stilts. Next morning, after business at the very modern and efficient agents building, one of the students was X-rayed (no trouble) and fresh snake anti-venin obtained to replace some thrown out by mistake in Singapore. Some of us walked up the hill into the neat and attractive region where most of the Europeans live, and a few were fortunate enough to see the new forestry research laboratory, and a number of captive orang-utangs at a nearby timber station. Such was the fine new town of Sandakan on the dark isle of Borneo!

Cohen and some "ich-and-herp" cohorts took a Boston whaler across the bay, to find some interesting fishes, and Schuierer acquired a few frogs and toads ashore. Fuel and water were put aboard by four o'clock, and then, our ears having been filled with fearful tales of pirate raids, the staff decided to avoid Sibutu, our long standing goal in the southern Philippines, and keep under the protection of the Royal Malaysian Navy, which is now patrolling the Sabah coast on account of the Indonesian "confrontation." This patrol has effectively stopped the pirates as well.

We decided to work Darvel Bay, at the northeast tip of Borneo, and specifically picked the island of Gaya (Pulau Gaia in Malay) which looked as if it might afford good anchorage, and give access to nearby reefs. This island is actually the nearest large one to Sibutu, being only about 40 miles (and a frontier!) away from that target. Therefore we changed our clearance to it, rather than the uncertain entry port of Bongao on Tawi-Tawi. On Sunday, January 31, we slowly entered a beautiful bay with forest covered peaks, 1500 feet high, on three sides of us, dropped anchor, and by 10 o'clock we were off in three Boston Whalers to explore the shores. One went to the reefs, the others to a nearby sand spit joining the main island to a smaller one. All hands were ready for this kind of "confrontation," since we had been having a week of evening seminars on the kinds of plants and animals likely to be found on Sibutu--and presumably on Pulau Gaya.

Many of them we immediately found, and during the next days Pulau Gaya proved itself to be an excellent showcase of tropical marine biology. So much so that we have decided it would be a fine place for an equatorial marine station--or for the new Scripps vessel to spend some time. The sand spit yielded immediate treasures, Yonge finding two genera of bivalves very similar in outward appearance and habitat, but differing in fundamental anatomy. As the tide fell they put on a most amusing "jet d'eau" each squirting a stream six inches or so high while they close up shop for the day. In the afternoon, on the rising tide, thousands of brittle stars then appeared (upside-down) apparently to catch the thick scum which floated in, but perhaps just to re-oxygenate after their long hide in the crevices of the "clam-bed," waving their arms violently.

Blinks, meanwhile, had spotted just below this "clam-bed" some 100 square meters of an almost pure stand of Valonia--more than he had seen in 40 years of hunting this alga. Actually the clumps were large, but the cells fairly small, being of a species which does not produce large cells. However, in very shallow, hot pools not over two inches deep--

and sometimes actually exposed, were hundreds of the very large cells of another species, formerly known as V. Forbesii, but now referred to the genus Boergesenia. He wished for apparatus to measure its electrical properties, but perhaps he can bring some home alive. It is certainly tough, withstanding temperatures of close to 100°F., and greatly increased salinities.

At the same time Gonor was energetically assembling nudibranchs and other molluscs, Linda Kahan corals, Pearse echinoderms, Cleland algae, Eikenberry worms, Fell sponges, etc. etc., each according to his or her chosen group. The same region was revisited several times, with increasing collections and observations by the algologists and invertebrate zoologists. Meanwhile, the ichthyologists and scuba divers had established fish-poison stations, one in the sheltered bay beneath towering cliffs, one on the outer side of the island where the reefs were narrow, and another in a region of shallow pools. The first yielded 75 species, the second over 90, and the third still more, making a total of over 200 species. Since this region has not been collected before, some new things may emerge. A seining expedition over sandy bottom brought in still different fish, though of few species.

Reefs and shores continued to yield fine hauls, and many took the opportunity to visit the Japanese "factory" on Bohaydulong Island, at the east side of the bay, where pearls are being cultured. We had the manager and the radio operator aboard for dinner. The place is heavily fortified against pirates, but has had no raids for two years. An RAF plane passed close overhead one day. Otherwise nothing has been sighted but small Malay fishing boats.

Finally, and regretfully, but because of the exigencies of schedule, and of fresh water supply, TE VEGA had to leave Pulau Gaya on February 8, after a most rich eight days of collecting and observation. The reefs were mostly of the "patch coral" type, without the outer rampart cemented together by coralline algae--because there is protection in the bay against pounding surf. These we shall hope to see later as we sail southward. Everyone agrees that our chance selection for our first real station was a fortunate one, and we shall long remember the beautiful bay and cloud gathering peaks.

Now we pass into the deep Sulu Sea, for our two day run to Zamboanga, where letters and iced Coca Cola await us. On the way we shall use the Tucker trawl, and the bathythermograph to locate the thermocline, which lies deep in this sea.

Following Zamboanga will come quite different water--the open Pacific for nearly two weeks run down to New Britain. This will be the subject of a very different report.

GENERAL NARRATIVE--INSTALLMENT #15

Our departure from beautiful Pulau Gaya was occasioned by imminent exhaustion of fresh water supplies, and perhaps slightly by the reports of pirates 25 miles away. This brought a Malaysian police patrol boat to our side the last night at anchorage; its lights at the reef passage gave us confidence all night.

The run up to Zamboanga took us past the north end of Sibutu, and the mountains at Port Bongao, both originally planned instead of Pulau Gaya. But the latter proved a fine substitute, and we do not regret the last minute change, no matter how occasioned. In the Sulu Sea we tried a mid-water trawl at midnight, only to find that the hydraulic winch did not function. This probably resulted from taking it apart for inspection in Singapore; air or dirt got into the delicate mechanism; it has not been cured even as far as Rabaul.

Zamboanga took a busy four days to refuel, rewater, launder, and do a little collecting--the latter on the last day at Santa Cruz Island, just across the channel from town. Zamboanga was colorful and interesting, very different from modern Sandakan and Rabaul--both built since the war. It is a great center for the shipment of tropical shells to collectors and shops all over the world. It was amusing to see the Moros try to see US coral and shell from their outriggers! We visited a couple of their fishing villages--which are literally OVER the water. If the monkeys have no tails, they are at least aquatic.

Lectures on care in using water, based on the shortening of our stay in Borneo, had their good effect, and on the long nine-day run over open water to Rabaul, we did much better. Since the winch still was obdurate, and two good plankton nets were lost on the run, no collecting or observing could be done. In any case the water was deep blue, and little life was apparent in it. Not even floating rafts of Sargassum were seen; the South China Sea was much richer.

To keep from boredom, a series of talks were organized, first by the faculty (including authoritative information on molluscs by Professor Yonge on things not yet in the text books)--then by the students on various topics. The small library was well searched through for information.

A seasonal northwest squall sped us into the wonderful harbor of Rabaul, still studded with a few wrecks, even though nearly a hundred have been salvaged--by the Japanese, of course! Caves still dot the hillsides of this war time stronghold, now peaceful and clean under very efficient Australian Territorial administration. Even the harbor proved to be a good collecting region, especially the spectacular bee-hive rocks which suddenly were uplifted around 1870. Blinks was startled by the abundance of Valonia ventricosa, with some of the cells as big as tennis balls. Cohen made many fine fish-poisoning stations, and guesses he may have collected some 600 species of tropical fish so far on cruise 6; certainly many are new to science. We also spent one day on the Duke of York Islands, east of Rabaul; here shallow, very clear water, yielded somewhat different organisms from the volcanically enriched Rabaul Bay--in which pieces of pumice are everywhere afloat. Most of the staff and students climbed the small active volcano a few miles from town, and inspected the lava flow which keeps the sea water at well over 40° C. at its foot. Yet a few meters away there are some snails, and the alga Padina.

As I write, we are expecting the arrival of Dr. Torben Wolff from Copenhagen, who is flying through Rabaul on his way to Honiara and Rennel Island. He will be picked up by cruise 7 at one of these places.

Rabaul will be remembered as a place of friendly Australians, interesting natives, and good marine biology. Miss McWilliam, our Australian student, is tempted to come back to it, and work on plankton. Kieta next stop! Then probably Vella Lavella.

TE VEGA EXPEDITIONS

GENERAL NARRATIVE - INSTALLMENT 16

The ship was forced to stay in Rabaul for over a week, to make a new collar for the foresail gaff, and (due to engine room flooding) have the air-conditioning motor re-wound. Fortunately facilities for both existed in this busy, modern little Australian town. On the other hand, the town is so small that it does not pollute the waters of its bay, so that very good collecting regions could be reached by the small boats while TE VEGA was at dock. Amongst these were the "Beehives," the volcanic plugs which arose in the middle of the harbor about 1870. The region is one of intense volcanic activity, and one small cone, Matupi, still is smoking, and contributes hot water to the sea at its base. This made an interesting biological situation: one alga, Padina (though diminutive) and a littorine snail were living within a few meters of the hot spring. An all-day excursion to the Duke of York Islands, in the boat of Pat Roberts, a local character, (who also owned the island at which we landed) yielded shallow water forms. Yonge especially was delighted by the abundance of a mollusc boring in the coral Fungia. Fish poisoning also brought many new specimens, at the edge of the mangroves.

We felt that we learned a great deal about the marine life of New Britain from our enforced delay at Rabaul; and the warm hospitality of the inhabitants, especially of Monty Stobo, the Burns-Philp manager, will be long remembered. Cars were rented by some of the staff and students for trips to the south and west, including a visit to the agricultural station, where Gordon Dunn recalled the previous visit of TE VEGA.

A short run brought us to Kieta on March 7, with a chance to use the rehabilitated winch along the way. The Singapore dry-dock had cross-connected the arterial and venous systems of the hydraulic lines, and this was only corrected from plans flown out to Rabaul. Color coding (red and blue??) would seem to be indicated by any student of comparative anatomy! Unfortunately (vide infra) the correction was short lived, for the circuit breaker had to be cannibalized due to another accident a week later.

A brief run into Arawa Bay to salute the McKillops, preceded dropping the anchor in Kieta harbor. Formalities were briefly disposed of, since we were still in New Guinea Territory, and the boats went out to work in the afternoon. The nearest Island, Puk-Puk, first attracted one party, while another headed for the reefs. The latter had been tempting us for the past six weeks, since their exposure seemed to promise a real barrier type, with Lithothamnion rampart, so far not seen. Unfortunately, no such rampart was found; but the general coral formation was good, even though the nearby land masses, and heavy rainfall, rendered the water rather turbid. Puk-Puk however, was good for shore collecting, and its spectacular landscape of tall tropical trees, dripping with orchids, and with white cockatoos flitting about, made a rich back drop for our work.

The Kietans supplied (all 30 of the resident Europeans) warm hospitality, which was returned by the ship with a barbecue, scheduled for the beach, but adjourned to the Kieta Club because of heavy rain. Yonge and Blinks will especially remember this rain, for they were taken out to Arawa by Mr. McKillop in his Japanese "Land Rover" type

of car. The road out seemed rough enough, but after an inch or two of rain had fallen, the rivers were swollen, and running a foot higher on the return trip. The McKillop plantation, one of the largest privately owned in the islands, produces quality cocoa by virtue of its good management.

After four or five days of biological work around Kieta, Yonge and Cohen felt that the region was too much dominated by land masses, and we should seek out a true oceanic atoll before the expedition ceased. The only such place reasonably close appeared to be the Carteret Islands, 90 miles north. On March 12 we headed toward them, hitting rough seas immediately outside the reef. The norwester was really blowing, and the ship tossed and rolled heavily. After dinner (taken mostly on deck), a high wave broke into the engine room ladder shaft, and shorted out the electrical control board. Fortunately the engineer worked under great difficulties, and jerry-rugged a shunt around the main circuit breaker; so we again had electricity (on which the ship is almost entirely dependent). The storm was too great to face any further and we turned around, re-entering quiet Kieta harbor Saturday morning, to make better repairs (including the cannibalizing of the big circuit breaker of the winch). So we are again without that essential of deep sea operation. Fortunately this cruise centered around coral reefs, or it would indeed have been a wash-out.

Saturday afternoon and evening brought a downpour of rain, some 4 or 5 inches falling, so that the harbor was as brown as the Missouri; but by morning the tides had cleaned it up, and the stream between town and the Catholic Mission was limpid clear on Monday morning. On the latter half day, final trips were made by small boats, and we pulled anchor at 1:00 p.m., for Honiara and the assurance of airplane flights home. It seemed foolish to tempt Neptune further; indeed his warning on Friday probably saved us other troubles, for we learned from a coastal steamer that the anchorage at Carteret (at high tide!) was just the depth of our keel.

As I write we are entering "The Slot," between Choiseul and Vella Lavella. Cruise 1 found the latter region rich in fish, birds and whales. We can vouch for the abundance of life as well, for at dawn came streams of frigate birds by the thousands from Choiseul headed toward Vella Gulf. Unfortunately we feel we can not risk stopping there. We had better reach Honiara, and learn about our reservations out and the plans of the next cruise--especially whether we are to take Torben Wolff to Rennel Island. The outcome will have to be divulged in my final report.