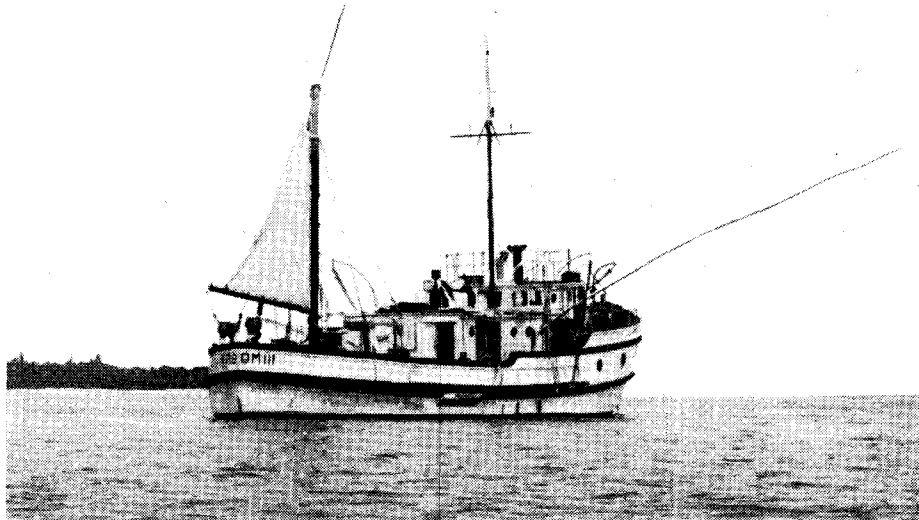


Orsom III is 75 feet overall in length, with a beam of about 18 feet, nett tonnage being 67-54 tons. She is powered by a 135 h.p. V8 diesel engine.

A Cruise In Orsom III

... A first-hand account of a brief cruise in ORSOM III, recently-commissioned oceanographic research vessel of the French Institute of Oceania, Noumea.

By LOUIS DEVAMBEZ*



HAVING for some time felt keen curiosity concerning the activities of Orsom III, it was with great pleasure that I accepted an invitation for a brief cruise.

On arrival, I was shown over the ship by the Captain. The inspection began in the spacious and comfortable fo'c'sle, which houses eight berths for the officers and research workers, and also serves as a wardroom. A short flight of stairs leads directly into a very small galley where we found the Indo-Chinese cook, Antoine, busy putting away provisions.

Beyond the galley is the laboratory, with its two sinks, central table, and storage units around the walls. An assortment of curiously-shaped equipment caught my attention, and my mind was already formulating the many questions I would ask the oceanographers as soon as they were free.

From the laboratory we climbed down into the engine-room, where I was introduced to the Chief Engineer and the Second—both New Caledonians—who were occupied with last-minute preparations. They proudly showed me around the main engine, and the generators supplying current at 32 and 110 volts.

Back on deck, the Captain led me to the bridge, then to the after-deck, where he showed me the oceanographic winch, the davit used to lower oceanographic apparatus into the sea, and finally the crew's quarters, where eight men live in reasonable comfort.

On each side of the superstructure, approximately opposite the main mast, stood a long bamboo pole. These are the outriggers which make it possible to spread ten trolling lines at a time, as was

explained by the First Officer, to whom I had just been introduced. Short and blond, the First Officer offered a striking contrast to the Captain, who is tall and has slightly greying hair. Both, however, hail from Brittany and, with the two New Caledonian engineers, and the three oceanographers—respectively from eastern, central and south-western France—they make up a very colourful staff indeed. Something of the same originality is reflected in the crew, where I found, among a group of Belep Islanders,¹ a sailor born on Palmerston Island in the Cook Group. What really matters, however, is that whatever their origin, all on board love their work.

The Captain had left us to attend to some final details. In his soft Breton accent the First Officer explained that on this trip we were to make some trolling experiments with a motor dinghy very close to the main reef. As the dinghy was to be towed at the stern it would not be possible to troll the three after-lines. When pressed for an explanation he answered with a smile, pointing out the five trolling lines bent onto each outrigger and the hauling lines used to bring them inboard when a fish is to be landed. I was soon to see all this gear in action, since by that time we were pulling away from the wharf. We were barely in the middle of the harbour when the great outriggers were put in working trim, and the trolling lines were in operation.

The traditional *aperitif* brought together on the bridge the officers, the oceanographers and the stranger seeking information. The weather was good, the sea calm; everything was right, including the lunch which followed.

Halfway through the meal the First Officer, warned no doubt by some sixth

sense, hastily excused himself and rushed out on deck. I should have liked to follow him so as not to miss the first catches, but he reappeared as fast as he had left, announcing two misses. Lunch ended uneventfully and the First Officer then took me off to explain the differences between the various trolling lines—the first one very long, then two others of diminishing length every third of the outrigger's span. These three lines (six in all on the outriggers) are of hemp, with a nylon leader about 33 feet long tied to a double hook. This hook is trimmed with a handful of nylon "horse-hair" containing a mixture of white and red or white and yellow threads.

All these lines are equipped with rubber sandows which act as shock absorbers against the strikes of large tuna to prevent breaking.

At this very moment one of the sandows began to stretch, followed closely by a second—five strikes in all, of which only the first produced a kingfish.² This was poor fishing in comparison with the tuna caught on previous cruises. The marine biologist was puzzled by the succession of misses but the First Officer accepted them philosophically, as he was sure there was nothing wrong with his lines—he had assembled them himself—and fishing was always a matter of what the fish decided.

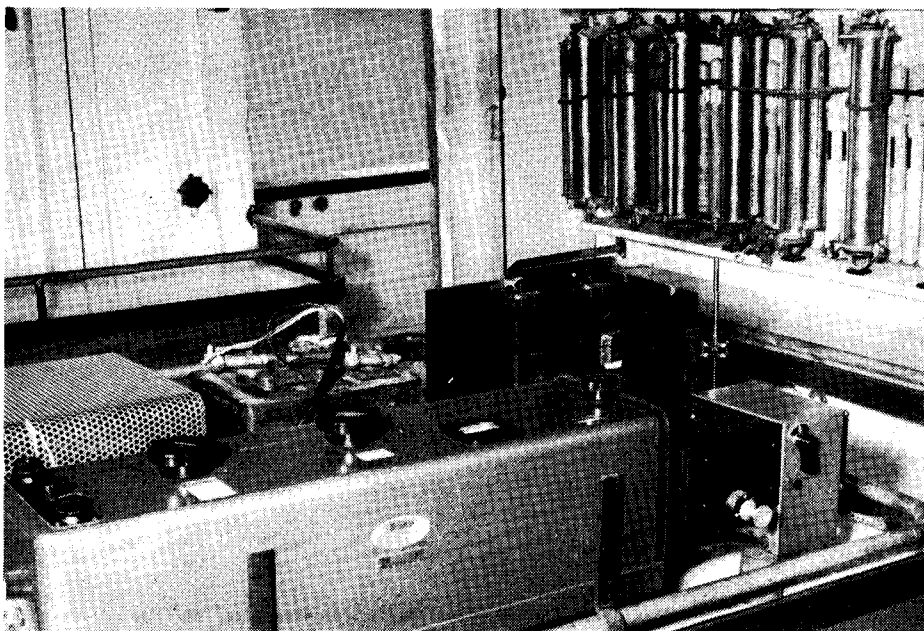
We were scheduled to anchor that evening some twenty miles from Noumea, after doing some experimental dredging and setting out gillnets.

Out came the dredge, a sort of magnified steel rake, followed by a sturdy bag

¹ The Belep Islands are a small Group 45 miles N.N.W. of New Caledonia.

² In this case, *Acanthocybium solandri*, C. and V.

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The ship's laboratory. Reversing bottles and thermometers are kept in racks appearing at top right. The apparatus on the table is a spectrophotometer, used for making analyses of sea water.

net made of heavy hemp material. This gear was dragged by the motor dinghy along sea bottoms that were sometimes rocky, sometimes sandy. We wondered whether we would find scallops—those relatives of the European species, smaller, but just as palatable as their cousins. The first drag produced only empty shells; so did the second, with however a curiosity, a beautiful Venus' comb—not a very large specimen but a perfect one.

We changed course and went to test the vicinity of an area where the First Officer had already dredged a week earlier, with some success. On the first drag the heavy gear came aboard three-quarters full of the branchy, finger-thick sponges which clutter certain sandy beds when there is a slight admixture of mud. In this tangle we found about half-a-dozen scallops, some of them of good size, and a second Venus' comb, unfortunately broken.

A further series of drags successively brought up scallops, a tiny seahorse, some pipe fishes; then nothing more but mud and seaweed. Evening was approaching and we still had to return to the ship for the nets, go out and set them, and then make for the scheduled point of anchorage near a group of small islands, the inner channels being too shallow. The First Officer was to do all this and precede us to the rendezvous.

During dinner conversation centred first on the scallops, which I was to taste raw for the first time. They are delicious, to be recommended to all who like sea-food. The whole catch was devoured without adversely affecting our healthy appetites, and we proceeded

to do honour to the excellent cooking of Antoine.

After dinner a group went hand-lining in the motor dinghy, but I did not join them since I wanted to see the hauling-in of the nets at dawn next day.

I was wakened at 4.30 and we hastily gulped down our coffee. Meanwhile the First Officer was already steering the motor dinghy towards the channel where he had set his nets. We met with a brief shower en route and saw some lightning far to the south.

We were now at the marker buoy. One by one the nets were taken in. Seaweed clung to them, but no fish. This is one of the minor mysteries that the First Officer is patiently trying to solve. He is well aware that one cannot be successful every time, but he wants at least to determine the best combination of meshes, bottoms and currents. Then? Well, then he will look for another fishing problem to study. There is no scarcity of them.

Directly we returned *Orsom III* was under way. The trolling lines were put out again and the watch resumed. We had to keep a look-out for the flocks of birds announcing tuna. Here they are black, or rather dark brown birds; in other places fishermen follow only white terns.

Before reaching the pass we saw some fish jumping in the distance, and changed course. We were on the school in a few minutes, and immediately caught three tuna.

I will never tire of admiring these splendid creatures, with their bright yellow fins and their flanks washed in gold. The gaff had wounded their flanks and the deck was streaked with blood.

A stab with a marlin-spike soon stopped their vain thrashing. They were already gutted and I bent over a stomach with one of the oceanographers, trying to make out something recognizable in the handful of half-digested food. The marine biologist obligingly pointed out some crustacean larvae and two or three small fish which had not completely lost their shape. All the stomachs were then examined at leisure in the laboratory of the French Institute of Oceania.

During this time we had covered some distance and were now in the pass. We were scheduled to travel about 15 miles outside the main reef. A south-east breeze had risen, and was freshening.

For a few minutes we had been gradually drawing away from the reef. This, explained the marine physicist, was in order to carry out oceanographic "station" work. The ship hove to and the crew went into action around the davit and winch.

First the bathythermograph was lowered to a certain depth, then taken up again. This apparatus, the Captain explained, simultaneously records depth and temperature. It is, indeed, of great importance to determine exactly at what depth each sample of water is taken. By knowing the length of cable paid out and the angle at which the wire deviates from the vertical as it leaves the davit, it is possible to obtain an approximate indication of depth. However, the ship always drifts slightly, or sub-surface currents pull the cable into a curve, thereby distorting the results of calculations. These must be based on another known factor, which is given by the bathythermograph. The temperature varies in different layers of water, and its true recording in relation to depth gives accurate data. Since each Nansen bottle is fitted with a set of reversing thermometers, the depth at which each sample has been taken can be determined with a high degree of precision.

It is now the turn of the bottles to be lowered. Briefly, the oceanographer explained their working. Fixed at the top and bottom to the cable of a special winch, these bottles remain open at both ends while being lowered into the water.

Once they arrive at the required depth—which is calculated approximately from the angle of the cable with the vertical—a small cylinder of metal is sent sliding along the cable to strike the release mechanism, thus causing the bottle to pivot around its lower end, at the same time closing two plug valves at each end. The bottle then contains a sample of seawater taken at a certain depth.

All this information was being given as the corresponding operations took place, which made it easy for me to follow. I cannot hope to present them as clearly here.

The bottles were beginning to reappear from below, twelve of them in all, at

intervals from the surface to 500 metres depth. As had been explained to me, the first one was released by a messenger sent from the ship. Upon reversing it released a second messenger, which struck the second bottle, and so on down the cable.

As they arrived aboard, the bottles were stripped from the cable and immediately placed in their racks. Interest was now centred on the laboratory, where operations followed each other in rapid succession. Samples were taken from each bottle to measure the pH and dissolved oxygen content, the salinity, phosphate content, calcium carbonate, silicates, etc. All these analyses were carried out on the spot. Some samples, however, were kept aside in hermetically-sealed bottles, for analysis by more precise methods at the French Institute of Oceania.

The ship was under way again, and I came out of the laboratory in time to watch a plankton haul being made. A very fine-meshed wire net of nylon was fixed to a metal ring 0.50 metres in diameter. This funnel-shaped net led into a glass jar. It was to be dragged along at various depths for one hour at a time. An instrument attached to the net measures the volume of water passing through it. It is therefore possible to evaluate the average quantity of plankton in a given volume of water over the area tested. Here again the various determinations were made aboard the ship.

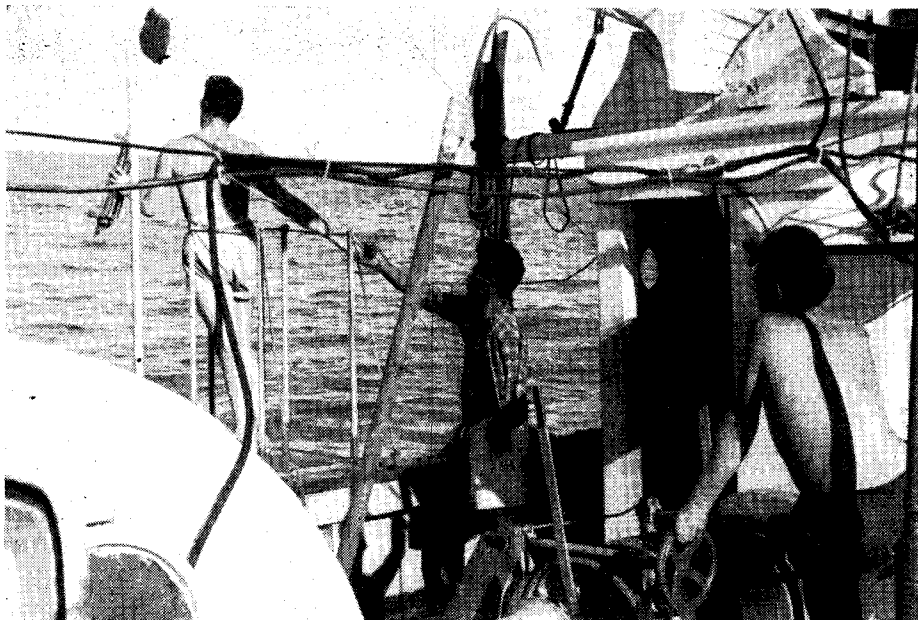
We constantly observed isolated birds which seemed to be looking for schools of fish. An occasional kingfish caused minor excitement.

Around 10 a.m., near the Isié Pass, it seemed that we had suddenly sailed into breakers, for spray dashed high on all sides. The First Officer gave two sharp orders, a number of fish suddenly appeared on the deck, and the men were still hauling tuna in without a break. My wishes had been granted in good measure. There on the deck, after half an hour's fishing, were about 30 tuna weighing from 10 to 20 kilograms each (22 to 44 pounds). This noisy feverish burst of activity, punctuated by shouts and laughter from the crew, ceased as quickly as it had started, as the school suddenly disappeared.

The deck hose spat and rumbled, the last smudges of blood disappeared, and here we were again examining stomach contents and the surprises they held in store: fish, small squid, etc.

The pass itself was a surprise. Instead of offering a mere break in the barrier reef it opens behind a curve of that reef and one must almost sail beyond it to find the opening.

As we were about to enter it a flock of birds was spotted just north-west of the pass. No mistake was possible; they



A water-sampling operation in progress. The last reversing bottle is ready to be lowered. The dark object at top left is the meter wheel which records the length of wire paid out. At bottom right is the winch.

were onto a school of fish. We made speed towards them and were soon in the midst of a pack of brownish gulls, which were screaming deafeningly. We had barely time to catch half-a-dozen skipjack and set course again for the inside of the lagoon, for the seas were becoming heavier and the motor dinghy, which was still in tow, threatened to give trouble.

It was by the inside route that *Orsom III* reached her anchorage that night. As soon as the anchor was down the First Officer broke out his dredge and the motor dinghy resumed its slow toil. First, however, part of the crew had been put ashore on a little island as they wanted to cook a whole tuna in a stone oven, in the way so dear to Pacific islanders.

The dredging did not produce anything that day, but in compensation we sailed close to an islet I already knew for the tasty rock oysters to be found there. As we still had some time the First Officer decided to land, and for half an hour we feasted, not omitting, however, to gather a few dozen oysters for our colleagues aboard ship.

That night the menu was clearly influenced by the environment: fish soup, fried fish, steamed tuna, and assorted shellfish.

This was already the third day. We were scheduled for another trip outside the lagoon but the motor dinghy would stay at the anchorage, as the weather did not permit the experiments envisaged.

In the pass we caught two tuna, then a blue-striped runner—a splendid fish, more slender than the tuna, with blue and yellow stripes down its flanks. Another strike produced a fish of another species which looked somewhat like a

cross between a tuna and a trevally.

Time passed so quickly that I barely had time to take notes. We had caught more tuna, bonito, trevally and other fish. Again we had dragged plankton nets, lowered the reverse bottles and examined the stomach contents of all the fish caught. At the appointed time the ship's radio had provided information from the Noumea Weather Bureau on the direction and force of wind and seas, as well as general weather reports.

I noticed that for several paragraphs I have been making increasing use of the pronoun "we", and this makes me realise the real aim of this cruise and all those that have preceded it.

The fact is that all the cruises logged by *Orsom III* to date have been made not only for scientific purposes but also with one major objective in view: that of creating on board a team spirit which is at one and the same time solid and dependable, and yet capable of adaptation to both the rude toil of life at sea and to the delicate work of research. This aim has been so successfully achieved that I, a stranger on board, almost felt that I belonged.

However, the cruise was drawing to a close, and it was not without regret that I spent the last morning keeping watch over the trolling lines as *Orsom III* brought us back to Noumea. Admittedly, I would not see the studies in the fields which will make future contributions to our present knowledge of marine life, but at least I shall know, when IFO publishes its oceanographic findings, that they are the result of extensive and varied research, carefully checked and cross-checked, requiring not only sound scientific knowledge, but also real seafaring courage.