

13. Marine Archaeological Exploration of Byramgore Reef of Lakshadveep in the Indian ocean

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Abstract

The Western Naval Command of the Indian Navy in collaboration with the Marine Archaeology Centre of the National Institute of Oceanography, Goa undertook a preliminary offshore survey of Byramgore Reefs in the Lakshadveep Group of Islands in the Indian Ocean in the month of February in 1990, with a view to find suitable anchorages for a subsequent detailed survey for locating shipwrecks mentioned in Marine Records. The problems faced by the Expedition in the course of geophysical and manual survey, the strategy that had to be adopted for archaeological explorations in the reefs and high surf zones and the extent of success achieved are briefly narrated in the paper.

The name Byramgore was given to the reefs off Lakshadveep on account of a very important ship of the same name that sank in 1827. P.Gudigar's research in the Madras Archives revealed several interesting facts about the circumstances in which *Byramgore* sank and the attempts made to save the crew, ship and cargo which is termed as 'treasure'. The *Falcon* of the East India company was lost on the same reef in 1844. The *Ceylon*, another East India company vessel carrying valuable cargo bound for Laccadives was lost on the Cherbaniani bank in 1844. The *Futti Rasool* was wrecked in Akkatti (Aggatti) shoals in 1848 and the *Wuzeer* of Smiths which sailed from Liverpool to Bombay was lost in 1853 on the Cherbaniani Reef. The *Bankers Daughter* of 1121 tons sailing from Melbourne to Bombay was wrecked off Male Atoll. The *Hamoodi* was wrecked on the Byramgore reef in 1854 and the *Hopewell* in 1860 in Kalpani shoals. The *Lord Brougham* was wrecked off one of the Islands in Lakshadveep in 1865 and the barque *Mahabaleswar* was lost on Ancutta reef in 1880. The list of ships lost in Lakshadveep will grow if marine records in the archives of the European countries which traded with India from 16th to 19th century are studied. The group of 27 Islands known as Lakshadveep lies on direct trade route between Africa, Arabia and India. The potable water available in plenty in the islands attracted all the ships on the route. Recent archaeological explorations by M. C. Joshi and A. K. Sharma of the Archaeological Survey of India have shown that the islands had Buddhist settlements dating back to 3rd century B.C. which is an indication of adventurous spirit of Buddhist merchant captains of India. They must have had knowledge of the regularity of trade winds two centuries before Hippolous rediscovered them. Without such knowledge on the part of Buddhist settlers it would not have been possible to go regularly to the island in the Indian ocean. Naval adventure

of the Kadamba king Shashthadeva of Goa is highlighted in the inscription from Narendra 8km from Dharwad, which introduces this ruler as having conquered Kavadi dvipa and built a bridge of boats upto Lanka and demanded tributes from Lankan king. Kavadi dvipa referred to in the inscription is Kavaratti the capital of the group of islands known as Lakshadveep. The Narendra inscription also mentions Shashthadeva's feat in undertaking a voyage on high seas from Goa to Saurashtra. Any exploration of shipwrecks in Lakshadveep waters should include a search for the pre-Islamic ships also. Bearing all these facts in mind the Indian Navy was approached in 1989 to explore Byramgore reefs which had taken a heavy toll of ships. Bearings of the wreck site appeared to be fairly precise and there was also indication that geophysical survey undertaken a few years earlier had pointed out wrecks near Cherbiniani and Byramgore shoals.

Captain K. R. Srinivasan commanding the Naval Hydrographic Survey vessel INS SANDHAYAK informed the author in January, 1990 that I could join the expedition to Byramgore (Lakshadveep) as he had planned a survey of the reefs. The ship arrived on 9th February, 1990 at Berth 2 in Marmagaon Harbour. Initially the exploration programme was discussed with commander A.V. Gupchup after comparing the Hydrographic chart 272 with the sketch map of Byramgore given in the Marine records. The survey done in 1948 shows a slight change in the position of the Byramgore wreck. However, it was decided to take all the data together and survey afresh for the wrecks if any.

The chief diver photographer of Marine Archaeology Unit Sri. Srinivas Bandodker and I embarked the *Sandhayak* on the 10th February and the vessel sailed out of Marmagaon Anchorage at 11 AM. After discussing the *modus operandi* of exploration with Commander Chakravarti, Head of the

Geophysical Survey Group, I settled in a cosy cabin next to that of the captain. Captain Srinivasan and I had a long discussion about shipwrecks in Indian waters in general and those in Lakshadweep in particular. After lunch Chakravarti joined us to study the charts. It was decided that after *Sandhayak* approaches Byramgore the next day (11th February) around 10 AM the configuration of the reef should be ascertained and checked with what is shown in the latest Hydrographic Chart before searching for Byramgore wreck. In this connection it may be recalled that the Master Attendant Dan Ross says that the danger shown in Naval Charts is too easterly and is an error likely to be fatal to ships (*Fort St. George Gazette* December 13, 1844).

Captain Srinivasan arranged my talk on *Sandhayak* in the evening for the benefit of naval staff, the subject being archaeology in general and marine archaeology in particular. In my lecture I explained that the purpose of exploration and research was to reconstruct the economic, cultural and political history of India and to preserve the cultural remains for posterity so that the achievements in the past may inspire the younger generation while the failures could provide an opportunity to rectify the past mistakes. After dinner the discussion centred round the geology and history of Lakshadweep, Andaman and Nicobar islands. The video film 'Dwarka a Sunken City' was also screened.

The *Sandhayak* is well equipped for survey with side scan sonar, transponders, radar and a helicopter besides underwater camera, an excellent diving team, and position fixing system based on satellite data. After a sound sleep I woke up at 4.45 AM on the 11th and the meditation was deep. I had the satisfaction of getting concentration effortlessly. By the time I had my breakfast at 7.30 AM the helicopter *Rama* had made 2 sorties to the island of Batra, when *Sandhayak* was about 18 miles from Byramgore. At 9.30 AM the boat *Polaris* was lowered. After collecting some corals the boat sailed towards Byramgore and was joined by the second boat *SPICA*; both had to find a suitable station for anchoring *Sandhayak* which was then in 700 m water depth. The crew of the helicopter found some Indians collecting samples of coral and sand around Lakshadweep. Finally *Sandhayak* was anchored. Commander Gupchup and his team from *Gemini* (inflatable rubber boat with inboard motor) dived near the breakers. It was realised that it is better to have a portable battery - operated underwater TV Camera for such offshore operations. Side scan sonar survey on the SE of *Sandhayak* was conducted to locate the wreck. Some whales and sharks appeared on the scene when diving from *Gemini* was in progress. Manual and Sonar survey from *SPICA*, *PLUTO* and *POLARIS* was continued in the afternoon. The Byramgore reefs are visible at low tide but get submerged in high tide and the breakers are high. Perhaps due to heat *OSPREY* TV Camera

was not recording audio and visual. The rocky contour of the sea bed could be seen from the surface and sonar and echosounder also recorded it. The divers reported a steel barge wrecked and lying on the reef. The 1828 Hydrographic Chart shows a wreck but when distances are calculated the stations are within the lagoon which is improbable because the water depth here is just 1 to 3 m only. The marking of the position in 1828 chart does not seem to be correct.

The use of side scan sonar in Byramgore in less than 50 m depth is risky because of the ridges between 10 and 50m. The tow fish cannot be kept at one depth and a predetermined track cannot be followed because of the ridges. It was therefore decided to follow 50 m contour irrespective of the predetermined track and this could be ascertained from the radar and satellite.

Suddenly the survey boat and *Gemini* were pushed to dangerous coral reefs because of the swell at low tide. They were trapped and attempts to extricate them failed. By 7 PM food and bedding were sent to the crew through the helicopter as they had to stay on the boat at night. However by 10 PM the boat came out safely and reached *Sandhayak*.

On the 12th also side scan sonar survey was in progress. The wreck, it was presumed could be in 30-40 m depth, but if it is covered by coral sand, the acoustic reflection may be almost the same as that of the reef making it difficult to distinguish between the wreck and reef, unless the height of the wreck is 2 to 3 m above the sea bed. In the absence of a profiler it would be impossible to trace wreck buried deep in the sediment. The echosounder shows a row of pinnacles along the reef in 10 to 30 m depth. Along the 50-40 m depth the sea bed covered by coral sand is fairly even but slopes gradually. The sonar shows some features reefward but the depth seaward suddenly increases to 200-400 m and this is not recorded by the sonar fish tracking at 20-40 m depth. The record of the Sonar was examined in the evening for locating probable wreck sites. Seven locations were marked on the 30 m contour and 3 on the 20 m contour. After star shape running of the boat, echosounder and sonar the divers were to dive at more probable sites. The possibility of the wreck having survived in less than 30 m depth is remote because the impact of waves and currents on the wreck sunk between the ridges is so great that it may break up and its timber may float away. Secondly if the wreck has survived the coral sand cover on the hull is so much that it cannot be recorded on the sonar. It is learnt that in one of the earlier surveys one of the boats grounded between ridges and was torn as under while retrieving it.

While *Pluto* was surveying on the northern side of the reef I could see the floor on the monitor screen of *Osprey* TV Camera lowered in water. The boat moved gradually from 30 m depth to 6 m depth but nothing of archaeological significance came to notice. By 11.30 AM visibility was so

good that one wondered while seeing through mask and using snorkel whether there was any water medium at all. Coral world was amazing. The fishes were few upto 10 m. I ascertained the positions of our boat from *Sandhayak*. After 12.30 the Echo Sounder Deso 10 started recording well. One wreck was suspected east of the pillar.

Next day right from early morning there was hectic activity; every one including me was anxious to join the search in the lagoons. The *Gemini*, *Pluto* and *Spica* took all members through a risky track between rocks. The search continued upto 11.45 AM. Some crossed 3 to 4 m high breakers. A metallic device and a large potsherd of thick Red Ware are the only two significant finds from the lagoon. The potsherd has been sent to PRL for TL dating. The metallic piece must have been a fixture in the ship that wrecked here.

At 1.45 PM the side scan sonar showed an arch-like feature and on reverse course an oval-shaped object at 35m depth which suggested a possible wreck. Close to it at 10 m depth there are rocks. The ship must have hit the rock and slid to 35 m depth. We discussed the technique to be followed for locating the wreck. It was decided to lay 4 pellets and tie cables connecting all the four at 20 m depth so that divers can stay on for 30 minutes each and photograph on the still camera. Two Video Cameras were to be suspended from the cable to 35m depth for close up views. Facility for recompression was available on boat. The wreck was presumed to be 300m NE of *Sandhayak*.

The side scan sonar showed another feature similar to a wreck in 20 m depth while the earlier one noted above is in 35 m depth. Underwater light for photographing was found necessary as it was getting dark. If an iron anchor was lowered, stoppage at 20 m depth with shackle was possible. The divers were to move from one pellet to another to lower the camera to 30 or 33m. Power supply was given from 2 boats while diving was done from 3 *Geminis*. Only one diver had to dive for 8 or 10 m at 35 minutes as he was to be put in Recompression chamber, if necessary.

Pluto was still tracking crisscross at 5.40 pm, for side scan sonar recording. Two boats were waiting but no diving was undertaken. By 7.30 pm it became known that wreck-like feature might be a cluster of waves. An alternate explanation was that the marker pellet had drifted. Hence only Commander Gupchup dived and further diving was given up. Next morning Lt. Commander Chakravarti told me that the wreck-like feature could not be recaptured on side scan sonar. At night the *Sandhayak* had drifted to 42 m; the pellet too might have drifted. The sea became rough and it was decided to try our luck some months later.

This expedition was useful to the extent that the problem of anchoring the mother ship and survey avoiding ridges could be solved. The drifting of marker buoys after some time may mislead the surveyor. Hence diving should be undertaken soon after the object is suspected. Perhaps ROV is more useful in such surveys.