

Princes Royal – Excavation of ancient shipwreck in the Arabian Sea

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A historic shipwreck lying on the outer slope of coral reef, in a depth of 9–54 m, with abundance and diversity of objects of archaeological significance, off Bangaram Island in the Arabian Sea was identified for archaeological excavation. A large number of artifacts of iron, copper, stone, wood, glass, pottery, bricks, etc. were identified lying on the slope. Six trenches in the southern sector and two trenches in deeper depths were excavated. A large number of bricks, pieces of brown glazed thick storage jars, pieces of wood, corroded and cemented parts of the ship, copper vessels, shard of porcelain, pottery with embossed design, complete brown glazed pots, green glazed shard, bowl, etc. were retrieved from the trenches. One of the cannons was also lifted. The anchor of the ship is lying in 40 m depth. The entire hull was covered with a thin sheet of copper to protect the hull from woodborers.

Excavated material evidence suggests it was a sailing ship of last quarter of 18th century. A bronze bell recovered from the site was inscribed with the name and date of the ship. It can be concluded that the bronze bell inscribed with *Princes Royal* – 1792 belongs to this ship. Archaeological evidence excavated from the wreck site corroborated with historic documents will shed light on the maritime history and trade in the Indian Ocean.

INDIA with her most prominent position in the Indian Ocean has over a 7000 km long coastline and an over 5000 year old maritime history. Although the evidence for boat building can be traced back to prehistoric period, India's long maritime history is still sketchy and archaeological evidences are widely scattered in time and space. Search and study of material evidence buried and preserved on the ocean floors is the best way for reconstruction of maritime history, which has now become possible with recent developments in underwater technology and their adoption in archaeology.

It is known that the brave Indian mariners set several voyages and crisscrossed the Indian Ocean since antiquity. There is ample evidence from the Harappan period onwards to suggest maritime activities and long distance trade from lands across the sea. Many of the voyages, which were set out to distant lands, in the past, got wrecked on their way. Some of these shipwrecks get covered under the

sediments and remain preserved on ocean floors. Systematic study of ancient shipwrecks generates data of archaeological, scientific and educational value. Information revealed by the study of ancient shipwrecks helps to understand and reconstruct the past societies, who built and used them.

In 2002, the Underwater Archaeology Wing of the Archaeological Survey of India in collaboration with the Indian Navy excavated an ancient shipwreck, *Princes Royal*, off Bangaram Island in the Arabian Sea. It is the deepest archaeological site ever studied in Indian waters. This is also the first systematic excavation conducted in India as per the provisions¹ of the Ancient Monuments and Archaeological Sites and Remains Act, 1958.

Location

The Bangaram Island is a small, boat-shaped, uninhabited coral island with a huge lagoon around it. General pattern and disposition of all the islands in Lakshadweep is almost identical. Lakshadweep archipelago consists of 12 atolls, three reefs and five submerged banks, irregularly scattered in the Arabian Sea between 8° and 12°30' north latitude and 71° and 74° east longitude. The tiniest Union Territory has merely 32 sq km land mass. Of the 36 islands, only 10 are inhabited. Tops of these islands are built up of coral reefs from the late tertiary times. Storm beaches and old dunes, rising to a height of a few metres above the sea level, are the only topographic features of these flat-topped low-leveled coral islands².

Shipwrecks in Lakshadweep

The Lakshadweep Islands were the landmarks for the ships sailing in the Arabian Sea. Ships have played an important role in the history and culture of these Islands. They were necessary for the people living on these isolated islands as the only means of their survival and their contact with the outside world³. Since antiquity, many ships have wrecked around these dangerous reefs. Being far away from the main land they were not disturbed and some are still preserved on the seabed. Some of the shipwrecks of the last few centuries are recorded in archives⁴ but many more are lying buried unrecorded.

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Previous works

In December 1990, some sport divers noticed a few objects lying on the outer slope of the coral reef off Bangaram atoll and lifted some of them. As soon as the Union Territory administration learnt about the finding of the objects, they confiscated these articles and requested the Archaeological Survey of India to investigate the site to assess its archaeological importance.

In May 1991, the Archaeological Survey of India carried out its first underwater archaeological investigation on this historic shipwreck in 9–40 m depth. The objects of archaeological significance lying on the reef were studied. The wreck was recognized as the deepest submarine archaeological site in the country⁵ and was also identified for archaeological excavation.

Once the site was known, it became a tourist attraction. In April 1992 a diving team from the Marine Archaeology Club, Bombay also carried out diving at this site⁶. Frequent diving by tourists had caused some damage to the site. During one such dive, a bronze bell inscribed with the name and date of the ship was also recovered. In March 1995, divers of the Southern Naval Command of the Indian Navy on *INS Sujata* fixed the position of the wreck.

Survey

A team of hydrographers carried out acoustic survey on the site with the help of side scan sonar and echo sounder. To cover the entire area and get the details close profiles were made at 10 m distance. Side scan sonar was operated at the range of 50 m either side. As anticipated, the side scan sonar was not very effective to detect the objects on these uneven coral reefs covered with great knolls and plateaus of corals growing to several metres.

Echo sounder was also used to obtain the vertical profile of the reef, which could not produce the desired results due to some problem. In order to build reliable ingredient of the reef, parallel profiles were run with the help of G.P.S. and soundings were taken at a regular interval of 2 m, from 6 to 64 m depth. Two reference points, at the northern and southern ends, were also fixed with the help of Global Positioning System. Marking buoys were tied with these points for fixing position of other objects at the site.

Methodology

The entire site was divided as three-metre square grids with the help of 8 mm lines running east to west and north to south. Each grid was given a specific number for controlled excavation and documentation. Two grids were identified for excavation in the northern sector and six in the southern sector. One grid was used for initial training to the divers working for the first time on an archaeological

site. When the diver was found performing satisfactorily in training grid he was allowed to work in other grids. Excavation was conducted manually and mechanically, depending upon the nature of the area and type of finds. In the areas where small fragments and artifacts were found, layers of sand and dead corals were removed manually with great care. Manual excavation was also adopted near the cannons so that the position of these cannons is not disturbed.

A low-pressure airlift was also used in southern sector to carry out excavation in few grids where there was a thick deposition of sand and dead corals over the artifacts. The airlift with long flexible pipes on either end was fixed on a high coral reef far away from the site. The inlet pipe was kept longer than the outlet pipe to transport and deposit excavated sand and corals at a safer distance. Selection of a suitable site at a safe distance is necessary so that it does not disturb the visibility at the site. The outlet of the airlift was kept in an area after thorough study so that the sand deposited there does not affect the submarine environment. Initial exploration, fixing of reference points, marking of objects (Figure 1), laying of the grids, removal of the top layer of loose dead corals and excavation in the southern sector during the phase-I provided good opportunity to the team to acquaint themselves with the process of underwater archaeological excavation.

Results

The excavation was conducted systematically with extensive documentation. A large number of bricks, pieces of brown glazed thick storage jars, pieces of wood, corroded and cemented parts of the ship, utensils of copper, shards of porcelain, pottery with embossed design, two complete brown glazed pots, green glazed sherd, etc. were retrieved from the trenches.



Figure 1. Diver marking the artifacts lying exposed on the seabed off Bangaram Island.

Cannon

Four cannons, lying in the southern sector are around 2.2 m long and weight more than a ton. These cannons have heavy incrustations. Three of them are lying in a group whereas the fourth one lies to the northeast of them. The group of three canons is the most eye-catching object on the site and it was decided to leave it undisturbed and preserve them *in situ* for future visitors.

The fourth canon was almost half buried in the dead coral and hard sediments. The area around this isolated cannon was excavated manually (Figure 2). Detailed documentation was done through measured drawings and photography before it was lifted with the help of two lifting balloons of 1 ton and 500 kg capacity. A wooden boat towed the cannon hanging with the balloons. After a long journey along the coral reef it reached to ship where it was lifted with the help of the ship's crane and kept on the quarterdeck of the ship.

Anchor

The iron anchor of the wrecked ship is lying on the edge of the middle terrace upside down. It is the largest object found on the site and was measured precisely. Its upper part, consisting of arms, is at a depth of 35 m whereas the lower part, consisting of rings, is located at a depth of 40 m. The shank of the anchor is 4.40 m long. The ring measures 70 cm in diameter and the each arm is 2 m long.

Iron objects

A number of fragmentary iron objects were found on the site earlier but the function and nature of many of these iron objects remain obscure as they were found highly oxidized and in small fragments. In some cases, only



Figures 2. Manual excavation near cannon, at 10 m depth off Bangaram Island.

incrustations remained and the objects had disappeared completely. A large group of heavily rusted and incrustated iron objects was noticed to the southeast of the excavated trenches in the northern sector. Being out of the excavation area it was not disturbed and documented *in situ*.

Copper objects

Copper seems to be the most favoured metal on the ship and a number of objects of copper were found during the excavation. These include rods, nails, vessels and pieces of sheet. A complete vessel of copper, around 52 cm high, was found earlier. The upper half of the similar pot was found close to the iron anchor. A pan of copper was excavated from the northern sector.

Several heavy rods were found on the slope close to the keel. These were thick, round rods, about 135 cm long. Their size and proximity to the keel suggest that these were perhaps fitted in the keel to fix the frames. Copper rods of similar thickness but smaller in length were recovered from this site earlier. These heavy rods, about 35 cm, with outspread heads, might have been used to fix thick wooden parts of the ship.

A number of square-headed, flat pointed nails were recovered from this site earlier. These nails were perhaps used for fitting the planks with the frames. One similar nail was found during the excavation. A number of small nails were also found during the current excavation. These smaller nails were probably used for fixing the copper sheet on the hull. Most of the nails retrieved from the lower layers were in a good state of preservation, with very sharp pointed ends. Small, torn and fragile pieces of protective copper sheet of the ship were noticed all over the site. The entire hull was covered with a thin sheet of copper to protect the hull from woodborers.

Bell

A bronze bell found on the site earlier is now housed in the museum on the Agatti Island. This bell is 49 cm high having a circumference of 83 cm at the top and 147 cm at the bottom and weight about 100 kg. The bell inscribed with *Princes Royal 1792*, is in good condition, but for a broken upper rope hole.

Glass

Bottles were the only glass objects noticed on the site. Numerous small fragments of green glass were found from the lower layers in southern sector along with shards of brown glazed pottery.

A variety of pottery is found on the wreck site. It includes jars and bowls of brown glazed ware, blue on white porcelain, thin potsherds with embossed designs, green glazed pot, etc.

Brown glazed jars

Pots having thick dark brown glaze on the outer and inner surface form the main part of the assemblage. The shapes included jars, bowls and dishes. The jars are of different shapes and sizes. They can be divided into three broad groups based on their size. Small jars are without handles whereas medium and big jars have four loop handles. The upper portion of big storage jars is also decorated with embossed designs. Few of these containers were intact (Figure 3). Sherds, which got buried soon after the wreck and retrieved from the lower layers, were found largely free from marine encrustation and in very fine condition.

The ship was carrying a large quantity of these jars as they are found spread everywhere on the site from the top most to the lowermost terrace. A large number of potsherds are also found in the excavations. The sherds retrieved in the southern sector were of very small size whereas those found on the lower terrace in the northern sector were bigger in size. The contents of the jars could not be found because their mouths were open. Glazed inner surface of the vessel suggests that they might have been used for carrying or keeping liquids or food items.

Porcelain

Small sherds of blue and white China ware are also found in the wreck. Many European ships of trade often carried huge quantity of blue and white China ware. So far, only few sherds are found but there is a possibility of finding more pots lying buried beneath sand and corals. However, one of the potsherds found earlier was dated to 16th century⁷ but now when the date of the ship is more or less established it seems improbable.

Bricks

A large number of bricks were found in the northern sector; the main concentration was in the area to the east of anchor, close to the edge of the lower terrace. Most of these bricks were intact and covered with marine incrustations. These bricks were perhaps used in the belly of the ship. A copper pan found below these bricks also supports it.

Ballast stones

Heaps of ballast stones were noticed to the southwest of the cannons. Covered with calcareous deposit these stones appear like dead lumps of coral and were very difficult to identify. Stones lying in two trenches were cleaned and documented.

Hull

On the basis of the study of the site, so far, it appears that the exposed portions of the hull of the ship have been damaged by marine woodborers. Long copper rods, outer planks with copper sheet, and absence of any frame of the ship also support it. Among the parts of the hull, mostly wooden planks forming the shell of the ship are found spread on the site. Main concentration of these planks was noticed to the south of the anchor on the slope. Most of the planks lie north south parallel to the keel of the ship. Some of the wooden planks, which are buried under the sand and sediments, were found well preserved. The planks lying exposed on the surface were found deteriorated and very thin. Some of the small wooden pieces were badly damaged by woodborers. Detailed study of the hull would be taken up in the next field season.

Discussion and conclusion

The bell found on the wreck site indicates that the wrecked ship was built in 1792 and named *Princes Royal*. Some diver had lifted the bell from this site earlier and it was not sure whether it belonged to the wrecked ship. To cross-examine the authenticity of this find, many other objects were also studied. All of the evidence obtained from this



Figures 3. Brown glazed pot excavated from northern sector, 35 m depth.

site suggests that the bell inscribed as 'Princes Royal' had indeed belonged to the ill-fated ship.

The main task after the recovery of the bronze bell from the wreck site was to search the records of Princes Royal to find more evidence that could be related to the wrecked ship. Search of archival records was carried out to find the details of the ship. A large number of archaeologists interested in this field were contacted and web sites were browsed. During these searches and interactions with archaeologists and maritime historians, information about a number of ships was gathered.

Preliminary archival search made it clear that a number of ships were named *Princes Royal* and more commonly *Princess Royal*. Here in India also a 14 gun Grab named *Princess Royal* was constructed in 1768 in Bombay dock for Honourable Company's Service⁸. Several ships bearing the similar name were built during the historic period. They belonged to different countries and different centuries. More than one ship bearing the name *Princess Royal* were plying in the last quarter of the eighteenth century, but so far none is found as built in 1792.

Right from the beginning it seemed most probable that *Princess Royal* might be a British ship. Search in Lloyd's register proved useful. Fifteen vessels, named *Princess Royal*, are listed in the Lloyd's register. There are references to fourteen ships in the main part of the register whereas one ship is recorded in the supplement pages at the end of the register. These ships were constructed between 1763 and 1791 and nine of them were sheathed.

Besides these, one 805 ton ship named *Princes Royal* is also recorded in the 1793 to 1795 editions of Lloyd's Register. It is interesting that the list of the lost ships of British East India Company also mentions of an 805-ton ship by name *Princes Royal*.

If the date on the bell is the year in which the vessel was built, then none of the above-mentioned ships could be identified with the excavated shipwreck. The last mentioned vessel was constructed in 1786, about six years

before the date inscribed on the bell. The discovery of Chinese porcelain and Southeast Asian brown glazed wares indicates that ship made her last voyage to China. However it may be possible that an earlier built ship was refitted in 1792, when the bell was also inscribed. In the 1796 edition of Lloyd's Register, the vessel is no longer listed. All these evidence suggest that the ship was lost in 1795–96 during her return voyage from China.

Underwater investigations made it clear that much of the parts of this shipwreck are lying in the limit of conventional compressed air diving. Systematic excavation has proved the ability of Indian underwater archaeologists to carryout underwater excavation till 54 m depth. The site extending from 10 m to 54 m depth is an excellent spot for the training of the underwater archaeologists. The excavation in this site is continuing and further study of the archaeological evidence together with historic data is expected to provide more information on the maritime history and trade in the Indian Ocean.

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