

Preliminary assessment of about a 2000 years old shipwreck at Godawaya, Sri Lanka

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Abstract

An international team comprised of experts in diving and underwater archaeology from Sri Lanka, India, Indonesia, Malaysia and Philippines participated in the assessment of the shipwreck at Godawaya, Sri Lanka. The main objective of the exploration was to make assessment of the wreck site based on the data generated during the fieldwork. The surface observation suggests that the site is spread in an area of 40 m by 22 m. The important findings include various sizes of jars, carinated cooking vessels, quern stones and unidentified cargo and possible ship structure. The analysis of pottery retrieved earlier and observed during the present investigation suggests that the pottery is not similar to those found from the shipwrecks of the 10th century AD onwards. Comparative study of pottery and stone artifacts indicate a possible time bracket for this wreck between the 4th century BC and the 2nd century AD.

Keywords: Historical Period, Shipwreck, Pottery, Stone quern, glass ingots.

Introduction

Anciently Godawaya was known as *Godapavata-patanaha* that is mentioned in a *Brahmi* inscription found in Godawaya (Falk, 2001:328) dated to the 2nd century AD (Roth et al., 2001:296), and in *Mahavamsa* the etymological identifiable term “*Gotapabbata*” is used (Geiger, 1912: 255). There are two other *Brahmi* inscriptions reported from Godawaya area. The earliest archaeological evidences from Godawaya trace the history of this region from the Mesolithic period onward. The Mesolithic site is situated on the eastern bank of the river Walawe Ganga, on a raised hillock and a few projected boulders might have served as shelter for prehistoric people. The river merges with the sea immediately after the site.

Godawaya is a small fishing village (Figure 1), situated between Ambalantota and Hambantota near the mouth of the river Walawe Ganga which is the fourth biggest river of the country on the southern coast of Sri Lanka. However, the mouth of river near Godawaya is blocked by sand deposit and now the river is debouching in the sea at Ambalantota 3 km west of Godawaya. Along the course of Walawe River a number of ancient settlements and monasteries such as Ridiyagama, Mahanavulupura and Ramba monastic complex have been either excavated or thoroughly explored. There are also reports on the discovery of Indo-Roman coins from this area (Bopearachchi, 1996).

An on land excavation was conducted by the Archaeological Department of Sri Lanka and the German K.A.W.A. project in the last decade of the previous century. After a series of explorations and excavations from 1994 at Godawaya some of the very significant structural remains such as a temple, a harbour and an important inscription were unearthed (Ruth, 1998). An inscription carved on a natural rock north of the *Stupa* states about a seaport situated at Godawaya (Falk, 2001).

The present paper deals with the underwater explorations at the wreck site off Godawaya that is lying in 32-33 m water depth. The program was jointly organized by the Central Cultural Fund of Sri Lanka, UNESCO and The Netherlands. The preliminary investigation indicates that wreck may be of wooden hulled dated to the early historical period. On the basis of archaeological findings the date of the wreck will be discussed in detail.

Results

The site of Godawaya shipwreck is situated about 4 km southeast of the Godawaya monastery and water depth varies between 29 m and 32 m. The seabed near the site is comprised of coralline rocky formation whereas a wide area is covered with thick grained coralline sand towards northeastern part of the site. The maximum height of the reef on the northwestern part is approximately 1.5 m. There is no vegetation growth observed at site, however, at a few places gorgonian growth was noticed besides some marine pinkish layer on the rocks.

The measurements of the artifacts visible on the surface indicate that the site is spread about 40 m east-west and 22 m in north-south directions (Figure 2). However, extension of the site may increase when

surface sand is removed from the site. Interestingly, at one place the removal of sand by hand fanning yielded a number of potsherds just below 10 cm in the sediment. Thus the actual extension of the site may be determined only after thorough examination of the site by the removal of surface sediments.

A large number of artifacts were observed on the seabed, those include varieties of pottery, stone benches/ querns and a large area in the northwestern part covered with the remains of a shipwreck including unidentified cargo. There are several potsherds lying on the wreck site area which are comprised of two huge storage jars (Figure 3-4), medium sized jars, carinated cooking vessel besides a number of rims of jars (Figure 5) and body parts of other pots. The surviving height of two storage jars was 100 and 85 cm respectively and diameter of rims were 45 and 40 cm respectively.

Another interesting find from the wreck site includes stone benches or querns (Figure 6). There are four such artifacts and they are of various sizes (table 1). A few stone benches were also found attached either to wreck parts or some other incrustation. Therefore, actual size may be slightly different when the measurement obtained after retrieving the artifacts from the wreck. They are rectangular in shape with four legs served as a base. The raw material used for these benches appears to be basalt. Due to thick incrustation growth over these artifacts no symbol or designs could be noticed. However, a bench retrieved earlier by local divers has some symbols (Figure 7) on the extended front portion.

Table 1. The details of measurements of Quern Stone

Sr. no.	Length	Width	Height
1. Displayed at Maritime Museum, Galle	37.5	15.5	16.5
2. Underwater (<i>in situ</i>) SB 1	30	20	10
3. Underwater (<i>in situ</i>) SB 2	45	30	26
4. Underwater (<i>in situ</i>) SB 3	45	30	20
5. Underwater (<i>in situ</i>) SB 4	37	16	10

Other important finds from the wreck is glass ingots from the site. Two ingots were retrieved earlier and are presently displayed in the Galle Fort Maritime Museum (Table 2). This is blue in color and semi spherical or bun-shaped. As per report from the earlier investigation, there are about 3-4 ingots visible on the surface (Figure 8).

Table 2. Details of glass ingots retrieved from the wreck site.

Registration no	Height	Diameter	Weight (in grams)
2008/SL/S/GODA/M/2/01	9	19	3987.6
2008/SL/S/GODA/M/2/09	9	18	2722.4

In the northwest part of the site a large area with wreckage was noticed (Figure 9). This area is divided into two separate blocks and appears to be the heaps of cargoes. From the surface observation they appear to be wooden logs covered with marine growth on them. One block measures 4.6 m in length and 1.2 m in width. This block is further divided into 2 bunches. The height is about 1 m with at least 4 layers visible. However, the entire wreckage part has been integrated due to overgrown with marine incrustation and thus making difficult to identify. Another big block is squarish with 3.9 m length and 3.7 m width and further subdivided into four blocks. The height of this block is about 1.2 m. The measurement of a log is approximately 10 x 15 x 200 cm. The blocks appear to be the major part of the cargo of the ship. From the shape and size they appear to be wooden planks but from close observation underwater it doesn't appear to be wood. Possibly the material is metal. This needs to be further investigated.

Discussion

Many ships have been wrecked around Sri Lanka (Manders et al., 2004) but Gudawaya is a very unique shipwreck and no parallel has been reported in publications. It is therefore of the utmost important to continue the investigation of this site in order to fill in the gaps of our knowledge in the early historic trade. The material found from this wreck such as pottery, stone quern, glass ingots, wreckage part and the possible date of this wreck will be discussed in the following paragraphs.

Pottery

Pottery discovered at shipwrecks sites has served daily household purposes in the past, but nowadays a good way to date the archaeological complexes. At the same time it is also an indication for the movement and extension of a particular culture. Thus it is pertinent to have a detailed discussion on the pottery observed in Godawaya shipwreck.


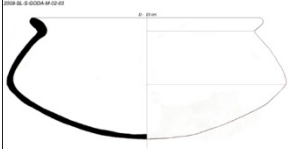
Large numbers of potsherds were noticed during the present exploration and a few were recovered earlier those have been identified as Black and Red Ware. At least two large sized jars with at least 1.3 m in height have been observed. The earliest findings of large sized jars, like the ones from the shipwreck come from the Mediterranean Sea dating back to the 1400 BC at Uluburun (Pulak, 1998:203) and continued till the 17th century AD. Besides large jars, a few medium and smaller sized jars were also noticed. These have been very common for a long time span. However, the other important sherds

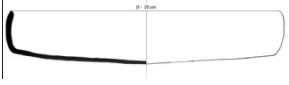
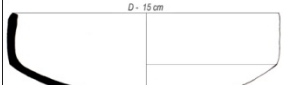
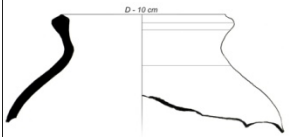
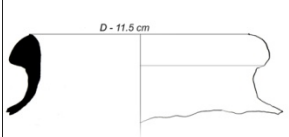
are of black and red ware and special mention may be made of a carinated cooking vessel. Examples were found at several Megalithic sites in India (Wheeler, 1948:274) and Sri Lanka ((De’Silva and Dissanayake, 2008: 197).

Black and red ware has a special place in the archaeology of the Indian subcontinent and the earliest date of the ware goes back to the 3rd millennium BC and continued with some variation till the early centuries of the Christian era (Gurumurthy, 1981: 242). However, it has been prominently associated with the Megalithic culture of the South India (Wheeler, 1959: 62-63) dating back to the beginning of the first millennium BC to 3rd century AD (Gurumurthy, 1981:245). There has been debate over the firing technique of this ware and initially it was suggested that it was the result of inverted firing with the rim covered with ashes (Petrie, 1910:530) however the study of Majumdar (1969:90-93) shows a different observation: “ the ordinary kiln without special arrangement can only produce either a wholly red or wholly black pot irrespective of its position in the kiln”. According to him there are ways in which, under special arrangement, the double color effect can be achieved. These are: “1. single firing and 2. double firing, when the pot is first fired red and firing it, so that the region intended to be black purposely , protected against oxidation, turns black and 3. double firing, but this time, firing the pot black first and re-firing it when a portion becomes red.”

Pottery reported from the site is very commonly used and might have been used for storing water and other liquid substance like oil on board (may be grain also but one need information). The comparative study of pottery of Godawaya wreck with other terrestrial sites of Sri Lanka suggests a time bracket of the 4th century BC to 1st century BC (Table 3).

Table 3. Comparison of pottery of Godawaya wreck with other terrestrial sites of Sri Lanka

Pottery from Godawaya	LKB Lower Kirinda Basin Typology	Gg Anuradhapura Gedige Typology	Tss Akkurugoda Tissamaharama Typology	Comparative Dating
2008/SL/S/GODA/M/2/02 				
2008/SL/S/GODA/M/2/03 	Form 13A 1 / Phase III 350-250 BCE/page 148-9	Form 3b? no Reference Form 4a or 5f ? no Reference	Form A1-1 / Rim type 4 / Phase a ,b& ci/400-200 BCE Page 61/75/114/139/140-142/152/157	400-100 BCE
2008/SL/S/GODA/M/2/04				

<p>2008/SL/S/GODA/M/2/05 BRW plate/Pathra</p> 	<p>Form 1A3 / Phase I / 900-500 BCE Form 1A3 (Sub type 1c1) TB/1/54, exterior 7.5YR, 6/6 Orange, interior - black, paste fine, luster- medium, ware- BRW, diameter 21cm, thickness - 5.33mm(Phase I) RS page 212/ (900-500 BCE)</p>	<p>Form 16c (iii) 800-100 BCE Gg page 76/77/111/11 5</p>	<p>Form G / Rim type 5a / Phase a & b /400-200 BCE Page 61/93/120/140/148/1 51</p>	<p>900-100 BCE</p>
<p>2008/SL/S/GODA/M/2/06 Small RBW bowl/cup</p> 	<p>Form 5I -1 / Phase III/ 350-250 BCE</p>	<p>Form 16a (iii/iv) 800-100 BCE Gg page 76/77/111</p>	<p>Form G / Rim type 5a & 4 Phase a /400-300 BCE Page 61/93/120/141/154</p>	<p>800 BCE - 350 CE</p>
<p>2008/SL/S/GODA/M/2/07</p> 		<p>Form 8n (ii /iii) 50-200 CE Gg page 72/74/114/11 5</p>	<p>Form F1 / Rim type 5 & 4b/ Phase b /300-200 BCE Page 61/91/119/140/141/1 50/150</p>	<p>300 BCE – 200 CE</p>
<p>2008/SL/S/GODA/M/2/08</p> 		<p>Form 8d (ii) ??-?? CE Gg page 72/73/118</p>	<p>Form F / Rim type 1,2,4b / Phase a & b /400-200 BCE Page 61/91/119/140-142/ 146/147/155/159/19 2</p>	<p>400-200 BCE</p>

Stone Quern/ Bench

The important finds from the shipwreck of Godawaya is the presence of stone querns in significant numbers. In archaeological literature this stone artifact has been referred as querns for grinding the soft substance for food stuff like curry paste. The archaeological evidences for the stone quern dates back to the Mesolithic period in rudimentary shape but during the Neolithic and protohistoric periods the querns were well shaped. A large number of querns have been reported at archaeological sites in the Indian subcontinent (Ghosh, 1989:184). However, our concern is with a four legged quern and this shape appeared some time during the 4th century BC in Hastinapur (Lal, 1955) and continued till the 3rd century AD at several sites in India and Sri Lanka and some of the important sites include Nevasa (IAR 1955-56: 10) dated to the 1st century BC, Bahal (IAR, 1956-57: 18) dated the 3rd century BC, Nagarjunakonda (IAR 1957-58: 8) the 1st century BC, Atter (IAR 1957-58: 23) dated to the 3rd century BC, Nagal (IAR 1961-62:12) the 3rd century BC, Kundanpur (IAR 1961-62:29) the 1st century AD, Noh (IAR 1963-64:29) the 1st century BC, Paithan (IAR 1965-66: 28) the 3rd century BC to the 1st century AD, Udapur and Adam (IAR 1975-76: 35-36) associated with black and red ware, Satanikota (IAR 1977-78:9) the 1st century BC/AD, Boregaon (IAR 1980-81) associated with megalithic period,

Khairwada (1981-82:52) dated megalithic period, Nadner (IAR 1986-87: 57) the 4th-3rd century BC, at Adam (1988-89:56) legged querns have been dated to 500-150 BC and they have incised designs like *Swastika*, *Nandipad* and *Mina*, at Bet Dwarka (Gaur, et al. 2005) stone querns have been found in association with the early historic period. The most interesting site for legged quern is Pauni (IAR 1989-90:58) in Maharashtra where a few hundreds of such querns have been discovered and most of them are broken into two. Most of the querns are rectangular in shape but a few are square and apsidal shape. They are made of different stones like sand stone, quartzite and Deccan trap. Another interesting site at Nasik (Sankalia and Deo, 1955:117) in Maharashtra yielded 16 legged querns and majority of them have one end projected with a view to let any pounded material fall into a dish kept below the projection. These ends are either rectangular or rounded and 4 of them are decorated with a crescent-shaped incised dotted portion over which in embossed the figure of the Buddhist *Triratna*. Nagda (Banerjee, 1986: 258) and Kaundinyapura (Dikshit, 1968) are other important sites where legged querns have been found in association with Satavahana period (2nd century BC to 1st century AD).

In Sri Lanka, the Yatala monastery (Somadeva, 2006:193) close to Godawaya yielded several stone querns with four legs and one the querns has a *Brahmi* inscription dated to the 250-100 BC (Figure 10). Ramba, a large Buddhist site on the southern Sri Lankan coast also has evidence of a quern which is displayed in the site museum.

There has been substantial discussion on the uses of this stone object and question has been raised why so many of such artifacts are found in the wreck site. Let us examine the possibility of the use of this object. As stated earlier in archaeological literature of India and Sri Lanka the object has been mentioned as quern and nowhere any doubt has been raised about the uses of it as a quern stone. The question raised, why so many such objects in the shipwreck? If this was used as a quern stone for own use, then one or two are enough and also decoration on the surface of stone on the front part of it wouldn't be necessary. But what about a different use? What about it being a seat for monks to meditate? The discovery of a number of such stone artifacts from Buddhist monasteries at Yatala and Ramba does support above notion. However, if one carefully examines then a few stones at Yatala and Ramba have a significant depression in the middle of the stone suggesting their uses as a quern stone. The height and the size (very small for use as seat for meditation) of the artifact does not favour as a comfortable seat for meditation. Thus the use of this artifact as seat for meditation may not hold strong footing. The alternate use of this artifact is as quern stone. However, a stone such as one at Yatala which bear *Brahmi* inscription might never had been used as grinding stone and rather just for some symbolic purposes. As stated earlier that a few hundreds of querns have been found from Pauni in India, must have been a production centre for supplying other contemporary areas. Similarly, the findings of a large number of this artifact may be assumed as one of the export items of the ship for the destined country.

An interesting domestic scene is depicted in a sculptural panel on the south side the Eastern gate of the main Stupa at Sanchi (Central India). Amongst the women depicted in the panel who are engaged in doing several domestic works like winnowing, grinding, churning etc., one is using a quern having four

legs. Here it has been clearly demonstrated that the projected part of the grinding surface of the quern is at the farther end from the woman and only this particular scene gives us an idea of the exact position in which quern was placed while in use (Ghosh, 1986:154). This depiction is dated to the 2nd century BC and leaves no doubt on the uses of these stones as quern. As discussed above the most probable use of this stone artifact is as quern and in archaeological context it may be dated between the 2nd century BC and the 2nd century AD.

Glass ingots

This artifact has been referred as glaze ingot (Muthukumaran, 2009:21-26) in earlier publication. It is in fact silica glass in a bun-shape. Glass ingots have been recorded from the Uluburun wreck (Pulak, 1998) dating back to the late Bronze Age. However, glass ingots are not reported so often thus this discovery became an important one from this region. The first regular production of glass was in Mesopotamia and Egypt around 1500

BC or slightly earlier (Shortland and Eremin, 2006:581-603). The evidence of glass objects from this region dates back to the early historic time and often bangles and beads are common find from these sites. The mechanism of the use of these ingots as raw material for manufacturing bangles and beads need detailed investigation. Similarly, these ingots may not provide independently the possible time bracket and origin of it. However, elemental analysis may provide the origin of these ingots.

Possibly wreckage part

Although the ship construction might be possible the most interesting part of the site unfortunately no conclusive work could be done due to the limited working time at 30 meters and the fact that no wooden structure has yet been positively identified at the site bulk part of what appeared to be the structure is scattered approximately about 10 m in length and about 3.5 m in width. Observations underwater however, initially indicated that this appeared to be bunches of wooden logs. Closer examination by scraping of some of the material revealed that it did not look like wood but rather be some kind of metal. This part needs a detailed investigation not only underwater but also by taking a few samples for analysis.

Possible date of the wreck

In published material the earliest shipwreck in this region has been investigated in Belitung island of Indonesia that has been dated to the 9th century AD (Flecker, 2001:335-354). The material found from this wreck includes Chinese ceramics and has no parallel with Godawaya wreck in respect of ceramic or other finds. Thus the date of Godawaya wreck is the pre 9th century AD. Another reason to argue earlier date is the absence of any pottery like Martaban, Khmer or Islamic glazed which has been used exclusively for the overseas trade irrespective of the origin of the ship during this period. The age of the wreck is an important point need to be discussed in light of the archaeological material found from this wreck as no parallel dated shipwreck has ever been found from this region.

Pottery found from the wreck may be crucial in understanding the time bracket of the wreck. As it has been earlier stated, that large-sized jars have been used in ship for the cargo transportation since the Bronze Age (Bass, 1973:29-38) and continued until the late medieval period. However the shape of jars significantly changed in the later period. As for the jars in Godawaya wreck, they have a globular base and must have been placed in a place where some kind of additional base was provided to them otherwise they would roll down. As of now it is difficult to say if there are other types of jars present in the wreck, because of the fact that major parts of the wreck are still buried. Other ceramics like carinated dishes may be important to determine the approximate time bracket. Though this variation is available all along the prehistoric and historical time but the fabric of these pots indicate their association with later period of megalithic.

At present the most valuable and prominent finding is the stone quern which provided substantial information on the possible date of the shipwreck. The stone quern has been reported from various archaeological sites in definite context from India as well as Sri Lanka. Though stone quern appears from the Mesolithic period onwards but the appearance of four legged quern may be dated to the 4th century BC in many archaeological sites in India. And more prolific appearance may be traced during the *Satavahana* period (2nd century BC to 1st century BC) (Dikshit, 1968). Thus a date between the 2nd century BC and the 2nd century AD may be the possible time bracket of this wreck.

Conclusions

There has been report and publications on the several shipwrecks in and around the Indian Ocean countries during the last two decades or so. However, those wrecks are dated between the 9th century AD and up to the early 20th century AD. Thus the information on the early shipwrecks was virtually zero and the Godawaya wreck site has provided much needed impetus to the maritime archaeology of this region. The shipwreck is lying or trapped in an isolated reef (which virtually surrounded the wreck and only northeastern part is open) in 31 meter water depth. The surface observation indicates that a large part of the wreck is buried in the sediment and the extension of the site can only be determined after the complete investigation. The cargo material such as quern and pottery appears to be originally of the Indian subcontinent region, hence it is very possible that origin of ship may be traced to this region itself. A large number of quern and pottery indicate that these items may also be the part of trading commodity. The major part of wreckage need to be identified and that will reveal the kind of cargoes ships use to carry at that time. On the basis of findings from the wreck it may be suggested that the origin of the ship may be traced regionally (in broader sense the Indian subcontinent). The comparative study of archaeological findings such as pottery and stone quern indicate a possible date of the wreck between the 2nd century BC and the 2nd century AD. Hence the wreck of this period is a lone example from this part of the world. We are very much open on the dating and the major cargoes of the wreck as this is initial attempt and same may be changed drastically subject to additional data from the wreck in future.

Acknowledgements

We thank Professor Nimal de Silva, the Director General of the Central Cultural Fund and Dr. Senarath Disanayake, the Director General of the department of archaeology for supporting this program. Authors are thankful to the funding agencies including UNESCO and The Netherlands. We also acknowledge the assistance rendered by Mr. Sunil and Preminde during the survey work.

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