

Michael Flecker



Miscellaneous Artefacts

Identifications and Implications

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The wide ranging scholarly research presented in this volume has led to the conclusion that an Arab or Indian ship loaded a full cargo in a Chinese port, then sank in Indonesian waters while voyaging back to the western reaches of the Indian Ocean. But the question of whether it called, or planned to call, at an Indonesian port remains open, as does the question of who exactly constituted the crew of this ship. The answers will never be clear, but it is the miscellaneous artefacts that may provide the best clues.

The author had the opportunity to briefly examine several of these artefacts as they came to the surface during the second season of excavation, although at that time some of the features were obscured by corrosion and/or marine encrustation. This report is largely based on photographic material, and composition assumptions made by the conservator. Chemical component analysis of the artefacts has not been undertaken, partly because such analysis might have been destructive.

Several artefacts remain unidentified, but others have been found to be important discoveries, as artefacts in themselves, as well as in the overall context of the Belitung wreck.

Apart from identifying each artefact and discussing its function, we set out to discover more of the Belitung ship's movements and crew through the context of these finds on the wreck site. With this in mind, it is worth summarising the likely provenance of each artefact.

Origin	Artefact
China	Cymbal (no. 305)
	Inkstone (no. 309)
	Die (no. 311)
	Lacquer dish (no. 312)
	Needle (no. 313)
	Spoons (no. 317, 318 a, b)
	Sword handle (no. 325)
	Tweezers (no. 326)
	Scale weights (no. 300 a–c)
	Scale bar (no. 301)
Southeast Asia	Grindstone and roller (no. 302)
	Aromatic resin (no. 322)

These one-off type artefacts are not trade goods. They are ship's equipment or items belong to members of the crew or accompanying merchants. The fact that most of the artefacts are

Chinese in origin comes as no surprise given that the ship loaded a full cargo in China. Perhaps Arab or Indian members of the crew developed a taste for Chinese things. Some could have been in China for many years, as there were large populations from both nations living at the main trading ports (see above p. 61). Then again, there is a reasonable chance that at least one Chinese merchant embarked on the voyage, and took his personal possessions with him.

The glass bottle no. 319 with a possible Middle Eastern origin has not been included in the table, for the possibility is not sufficiently high. Given the origin of the ship, it is indeed surprising that the only definitively Arab or Indian artefacts on board are two turquoise-glazed amphoras (nos 292, 293).

Of primary interest, however, are the artefacts of Southeast Asian provenance. They strongly imply that the ship either called at a Southeast Asian port on the way to China, or that it had done so on the return trip, before being wrecked. Certainly Palembang was a major entrepot port at the time, and the powerful Srivijayan navy ensured that the majority of passing ships made

a call. Furthermore, having crossed the northern reaches of the Indian Ocean and traversed Malacca Strait it is more than likely that the ship would stop to resupply, if not to trade.

If such a stopover was made, there may well have been a replenishment of crew as well. The crew losses suffered during voyages made by European vessels many centuries later were extreme. While the journey from the western Indian Ocean to Southeast Asia or China is considerably shorter, there was still ample opportunity for decline through disease, malnutrition, battle, and accident. Just as the Europeans did in later times, the Arabs or Indians could have taken on Southeast Asian crew to make up the numbers. Likewise, they could have taken on Southeast Asian pilots with a sound knowledge of local waters, and perhaps of the entire route north.

The conclusion must always remain tentative, but intense interaction is likely to have occurred throughout the voyage between the western Indian Ocean and China. A stopover in Southeast Asia, most likely in Sumatra, is probable (cf. above p. 153). A mixed crew is just as likely.

300 a–c

Scale weights

9th century

Copper alloy

Southeast Asia

No. 300 a: Ht. 1.8 cm, diam. 3.8 cm, weight 147.98 g

No. 300 b: Ht. 1.8 cm, diam. 4.0 cm, weight 151.64 g

No. 300 c: Ht. 1.9 cm, diam. 3.6 cm, weight 105.73 g

Three scale weights were recovered from the Belitung wreck, all made from a copper alloy. They are in the shape of a thick circular disk, two with well rounded sides and the third with a sharply angular hexagonal cross-section. The angular weight has a hole drilled out of one side. The hole was presumably used to adjust the weight to the official standard.

This find is particularly interesting for it is the third instance of scale weights being recovered from ancient shipwrecks in Indonesian waters, and each site is very different. A total of forty-four scale weights were recovered from the tenth-century Intan wreck,¹ most likely an Indonesian lash-lugged craft trading between the Srivijayan port of Palembang and a port in central or eastern Java. Of these, twenty-four were made of a copper alloy, seven were made of a tin alloy (probably of tin and lead), and thirteen were made of stone, usually quartz or marble. Many of the copper alloy weights had holes drilled out of both sides, which were usually filled with a slightly different copper alloy. From the precise and flush fit of the inserts it is likely that the metal was cast directly into drilled holes. If the holes were completely filled the exercise would be pointless as there would be no weight change. It is therefore probable that the inserts are plugs covering a hollow. These weights are thought to be of Indonesian provenance.

From the thirteenth-century Java Sea wreck² fourteen scale weights were recovered; twelve of copper alloy, and two of stone. Some of the metal weights had a scalloped decoration around their circumference. The stone weights had holes

with metallic inserts on both sides. The Java Sea wreck was probably also an Indonesian lash-lugged craft, but in this instance, one that was returning to Java having loaded a full cargo of iron and ceramics in China.

The three weights from the Belitung wreck weigh 105.7, 148.0, and 151.6 g. The small weight discrepancy between the latter two may be accounted for by differential corrosion, so they should be considered to be of the same weight category. From their shape, which is identical to the Intan weights, and from their weight there is a very good chance that the Belitung wreck weights are also of Indonesian origin.

An inscription on a silver umbrella that adorned a temple statue in the central Javanese state of Mataram is the earliest mention of a system of weights and values in Indonesia. It has been dated to 843, and gives the weight of the silver in the umbrella as 1 *kati*.³ Four of the five gold bowls in the Wonoboyo find in central Java also bear inscriptions stating their weight.⁴ This information, used in conjunction with the standard weight of the most common coins in circulation in Java in the ninth century (the silver 1 *masa* coin), has made the determination of the metric equivalents of the ancient Javanese weights system possible:⁵

1 *kati* = 20 *tahil* = 750 to 768 g

1 *tahil* = 1 *suwarna* = 1 *dharana* = 16 *masa* = 38 g

1 *masa* = 4 *kupang* = 2.4 g

1 *kupang* = 6 *saga* = 0.6 g

1 *saga* = 0.1 g

¹ Flecker 2002, 67.

² Mathers and Flecker 1997, 81.

³ Wisseman Christie 1996, 256.

⁴ These are on display in the Museum Nasional in Jakarta and are thought to date to before 929. The heaviest bears the inscription '1 *kati*' and weighs about 750 g. The other weights are '15 *suwarna*, 1 *masa*, 1 *kupang*' (about 600 g), '14 *suwarna*, 15 *masa*, 3 *saga*' (585 g), and '4 *suwarna*, 15 *masa*' (197 g): Wisseman Christie 1996, 257.

⁵ Ibid., 259–261.



No. 300 a–c (left to right)

Wicks is far more precise with his determination, stating that 1 *suwarna* is 38.601 g, 1 *masa* is 2.412 g, and 1 *kupang* is 0.603 g.⁶ Wisseman Christie assigns the *tahil* 38.4 g and the *kati* 768 g.⁷ However, Wisseman Christie points out that, at least for the weight of coins of the period, the margin of error is in the order of five per cent.⁸ This margin of error is consistent with the weights recovered from the shipwrecks, and even those listed by Wicks as being found in central Java.⁹ Small weight variations in the scale weights found on shipwreck sites are also caused by corrosion, erosion, and marine borer attack in the case of stone.

According to Mills (1970), in his translation of Ma Huan's *The Overall Survey of the Ocean's Shores*, the Chinese weight system in the early Ming period (specifically 1433) included the *fen* (0.37 g), of which 10 = 1 *ch'ien* (3.73 g), of which 10 = 1 *liang* (37.3 g), of which 16 = 1 *chin* (596.8 g). The *liang* is close to the Javanese *tahil*, but in the case of the Intan weights the closest weight categories to integral units of the *liang* are all a little too high in weight. Neither the *ch'ien* nor the *chin* are represented, so the weights do not fit the standard Chinese system anywhere near as well as they fit the Indonesian system, at least as it stood in the early fifteenth century. Furthermore, the shape of the shipwreck weights is unknown in Chinese archaeological records. Small Chinese weights are typically bone-shaped, being well rounded at each end and pinched in the middle, with flat surfaces on the top and bottom. Quite often Chinese characters will appear on the upper surface. Two such weights were found on the 1638 Manila galleon, *Nuestra Senora de la Concepcion*.¹⁰

It is more difficult to determine whether the weights fit into any Indian weight system. As noted in Gabriel Ferrand's book of 1921 on weights, measures, and currencies used in the southern seas from the fourteenth to seventeenth century (*Les poids, mesures et monnaies des mers du Sud aux XIV^{ème} et XVII^{ème} siècles*), Indian weights varied markedly from region to region. The weight system also depended on the commodity to be weighed and even the origin of the commodity. This system probably held true for earlier periods, so some overlap with an Indian weight system cannot be ruled out.¹¹

With only three weights from the Belitung wreck it is impossible to determine the origin of the weight system from weight alone. However, two of the three weights are equivalent to four Indonesian *tahil* ($4 \times 38 = 152$ g), an integral number and surely no coincidence. Of course, they could also be four Chinese *liang* ($4 \times 37.3 = 149$ g), but the shape of the weights makes this unlikely, as previously discussed. The third weight is therefore 2 *tahil* and 13 *masa*, allowing for some corrosion.

It is not at all unusual for a weight to be made up of a combination of units, as occurred with many of the Intan and Java Sea weights. Such combinations were also frequently mentioned in ancient Javanese inscriptions, particularly with respect to gifts, payments and taxes. A copper-plate inscription of 860, found near Surabaya in eastern Java, defines how much was paid to obtain lands needed to establish *sima* (tax transfer) grants: '... obtained lands against the payment of 7 *kati*, 12 *suwarna*, 10 *masa* in gold'.¹²

To round off the discussion on scale weights, it is worth comparing the shipwreck material with the scale weights of the same shape found in central Java.¹³ They include 1, 2, and 5 *tahil*, so a 4 *tahil* integral weight from the Belitung wreck is no surprise.

⁶ Wicks 1992, 253.

⁷ Wisseman Christie 1999 (personal communication).

⁸ Wisseman Christie 1996, 257.

⁹ Wicks 1992, 254.

¹⁰ Mathers et al. 1990, 476.

¹¹ Wisseman Christie 1999 (personal communication).

¹² Wicks 1992, 257.

¹³ Ibid., 254.

Scale bar

9th century
Copper alloy
Southeast Asia
Ht. 4.8 cm, l. 14.5 cm

A single scale bar was recovered from the wreck. It is decorated with flanges and pierced leaf-like projections at either end. The centring indicator is 4.8 cm long.

Eight scale bars ranging in length from 13 to 33 cm were found on the Intan wreck.¹ Another example, which also incorporated the scale hanger, was found on the fifteenth-century Pandanan wreck in the Philippines.² A complete scale set is beautifully illustrated in a relief on the ninth-century Buddhist temple, Candi Borobudur, in Java.³

Given the likely Indonesian provenance of the Belitung wreck scale weights (no. 300 a–c), and the depiction on Candi Borobudur, the scale bar would seem to belong to an Indonesian scale set. The operating principle was to hang the scale set from a beam, place the commodity to be weighed in one pan, and then place known weights in the other pan until the centring indicator was aligned with the hanger.

Small Chinese scale sets used by travelling merchants seem to have been very different. Two sets have been found on Asian shipwrecks; one on the early seventeenth-century Binh Thuan wreck,⁴ and one on the c. 1690 Vung Tau wreck.⁵ Both were Chinese ships voyaging towards Indonesia. These sets comprise a graduated ivory bar, a single pan, and a single weight, all stored neatly in a wooden spoon-shaped container. The weight is hung off one end of the bar, and the pan containing the commodity off the other end. The string that suspends this assemblage is shifted along the bar until the bar remains horizontal, and the weight is then read off the graduation that coincides with the string hanger.

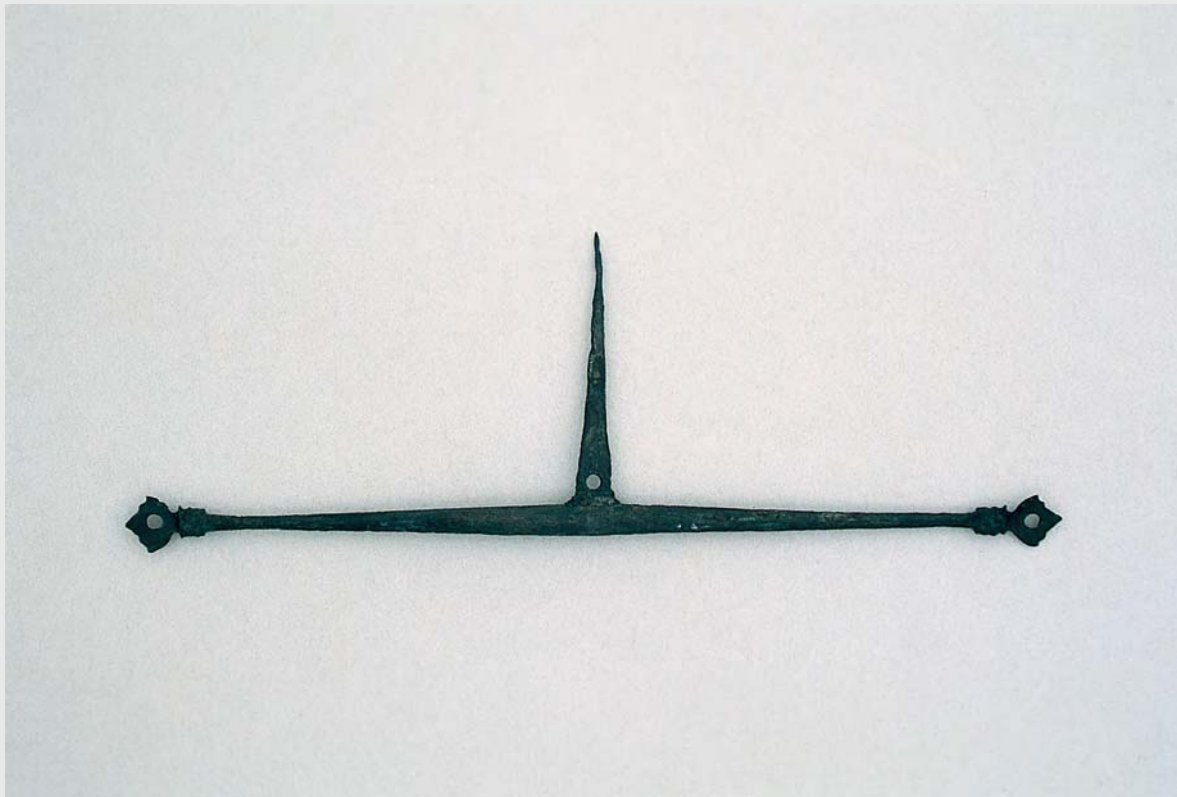
¹ Flecker 2002, 71.

² Loviny 1996, 68.

³ Soekmono et al. 1990, 140.

⁴ The excavation of this wreck was directed by the author in late 2002. The archaeological report is in preparation.

⁵ Jörg and Flecker 2001, 151.



No. 301

Grindstone and roller

9th century

Stone

Southeast Asia

Grindstone: Ht. 14.3 cm, l. 40.3 cm, w. 18–21.5 cm

Roller: L. 27.5 cm, diam. 6.7 cm

A single grindstone and roller set was recovered from the Belitung wreck, both pieces being carved from the same type of stone. The grindstone is shaped somewhat like an ironing board, with the working surface having one end flat and the other rounded, and two relatively long straight legs. Much work would have been needed to give the parent rock these fine lines. The roller is a simple cylinder, tapering slightly towards each end.

Ten grindstones and two rollers were recovered from the Intan wreck, although only one of these grindstones had the same design as the Belitung find.¹ A simple symmetric grindstone with a square base and two rollers were recovered from the thirteenth-century Pulau Buaya wreck,² and similar pieces are said to have been found at Jambi and near Krawang

in west Java. Very similar grindstones, together with rollers, have been found near Malacca and at Satingphra.³ The single grindstone found near Malacca is thought to date from around the fifteenth century due to associated ceramics, while the four grindstones from Satingphra could date from the 13th to the early fifteenth century. Lamb mentions that similar grindstones and rollers can be found in Sumatra, where the grindstone is known as *pipisan* and the roller as *gandek*.⁴ He notes that the hard sandstone used to make the grindstones found in the Malay peninsula is not native to the regions in which they were discovered, so they must have been traded widely in Southeast Asia, or perhaps even further afield. The grindstone finds on the Belitung and Intan wrecks support this hypothesis.

¹ Flecker 2002, 61.

² Ridho and Edwards McKinnon 1997, 88.

³ Lamb 1964, 74.

⁴ Ibid., 84.



No. 302

303

Mortar?

9th century

Stone

Provenance unknown

Ht. 8.5 cm, l. 27 cm, w. 15 cm

This artefact appears to be a crudely carved stone mortar. It is particularly thick walled and heavy for its size. It is rectangular in shape, tapers slightly towards the base, and incorporates two lug handles at each end.

304

Pestle?

9th century

Stone

Provenance unknown

L. 10.7 cm, w. 5.6 cm

One stone artefact from the Belitung wreck may be a pestle, admittedly as nothing else comes to mind. It is certainly shaped for the job, being conical with well rounded edges, although this shape does not conform to that of bone-shaped stone pestles found on the Intan wreck.¹ Opposing sides are slightly flattened, and it is relatively small, being 10.7 cm long and 5.6 cm wide at the base. Presumably it would have been held at the tapered end and used for grinding. Its shape is less conducive to pounding.

¹ Flecker 2002, 61.



No. 303



No. 304

Cymbal

9th century
Copper alloy
China
Diam. 30.5 cm

A single unadorned copper alloy cymbal was recovered from the Belitung wreck. It is 30.5 cm in diameter, and has a small hole through the centre of the central raised dome. A fragment of the rim is now missing, and a crack runs almost all the way to the centre.

To the author's knowledge this is the first cymbal to be recovered from a shipwreck in Asia. However, very similarly shaped bronze gongs have been found on five wrecks. Several undecorated gongs formed part of the cargo of the early-sixteenth-century Bakau wreck.¹ One complete gong and a fragment of another were on board a sixteenth-century Thai wreck that went down in the centre of the Gulf of Thailand.² That ship was probably bound from the Thai capital of the time, Ayudhya, to the Philippines. Gongs with a six-pointed star decoration were found on another sixteenth-century trading vessel that was wrecked on Royal Captain Shoal in the Philippines.³ It is postulated that this ship was bound from China to Borneo with a primary cargo of porcelain. Two gongs were found on the thirteenth-century Java Sea wreck⁴ and eight gongs were recovered from the thirteenth-century Pulau Buaya wreck,⁵ although none of these had the central protuberance common to the other shipwreck finds.

Gongs were manufactured in China from the sixth century and grew to be extremely popular throughout China and Southeast Asia. Made from a copper-rich alloy, they were initially cast, then repeatedly heated, hammered and filed until the desired sound quality was achieved. Presumably cymbals were made in the same way. They were used extensively in civil and religious ceremonies, Buddhist rituals in particular. A poem from the Majapahit era (1294 to early sixteenth century), the *Nagarakrtangama*, describes a posthumous ceremony in honour of the poet's grandmother. In it is mention of the ritual of *parisharma* which involved a rhythmic, possibly vigorous, ring dance performed by dancers in a trance-like state. It was accompanied by the chanting of sutras and the rhythmic beating of drums and gongs.⁶

Cymbals had a piece of silk attached at the central hole so that they could be held one in each hand and clashed together, or suspended and tapped with a stick. The latter is more likely in the case of the Belitung cymbal, as only one was found on the wreck.

¹ Flecker 2001, 228.

² Flecker, unpublished.

³ Goddio 1988.

⁴ Mathers and Flecker 1997, 86.

⁵ Ridho and Edwards McKinnon 1997, 79.

⁶ Miksic and Soekatno 1995, 78.



No. 305

Sounding weight?

9th century

Lead

Provenance unknown

Ht. 8.9 cm, diam. 6.4 cm, weight 1120 g

This is an unusual lead artefact with a spherical body, flared base, and pierced lug on the top. The top lug has a vertical hole 5 mm in diameter, and two smaller holes on each side that pass all the way through from side to side. Green corrosion stains around the smaller holes indicate the earlier existence of a copper alloy locking pin. The sounding weight identification is indeed tentative. However, this type of artefact is not completely unknown, with a number of similar finds having been made on other shipwrecks in Southeast Asia. The others are more elaborate and they are made of bronze, but the size and shape are similar, and therefore the function may be the same.

Three were recovered from the early-sixteenth-century Bakau wreck, a Chinese ship lost in Indonesian waters with a cargo from China.¹ They have the same spherical body, flared base, and top lug, although they are more elaborately decorated, have a flanged neck, and the lug is pierced from side to side for attaching a thin rope. They weigh in the order of 2 kg each. An identical artefact was recovered from the late-fifteenth-century Longquan wreck.² The ship contained a cargo of Thai and Chinese ceramics and was lost on the east coast of peninsular Malaysia.

A similar artefact, which is also of lead but only 5 cm high, was recovered from the tenth-century Intan wreck.³ Apart from having a proportionately larger flared base, this artefact is close in shape to the Belitung artefact. Its smaller size, however precludes it from being a sounding weight. A lace making bobbin has been speculated, although it may be too heavy for that function.

This type of artefact may also be a counterweight. Five stone counterweights of similar shape were excavated from the Majapahit period site of Trowulan in eastern Java.⁴ They were apparently used to raise and lower screens at the sides of pavilions, which kept the rain and sun out of the wall-less structures.⁵

¹ Flecker 2001, 228.

² Brown and Sjostrand 2000.

³ Flecker 2002.

⁴ Miksic and Soekatno 1995, 188.

⁵ Miksic, personal communication.



No. 306 Detail of the pierced lug



No. 306

307

Fishing sinkers

9th century

Lead

Provenance unknown

Ht. 4–8.1 cm, weights 153.61–838 g

Thirteen lead artefacts are readily identifiable as fishing sinkers. They are the same in size and shape as lead sinkers made to this day, ranging in weight from 153.61 to 838 g. Most are trapezoidal in shape, flaring slightly towards the base. Two have a flat base and domed top, and one is ovoid. Apart from the latter, they emulate the shape of early Indian or Arab stone anchors. All are pierced for the fishing line near the top.

Interestingly no two are identical, so they have not been made in a common mould. The trapezoidal examples may have been cut and hammered into shape, although the rounded pieces are more likely to have been cast.



No. 307

Net weights

9th century

Lead

Provenance unknown

Weights 28.17 – 51.79 g

There are thirty-three lead artefacts recovered from the Belitung wreck that are almost certainly fishing net weights. Crudely formed strips of lead have been folded longitudinally to create the weights, which range from c. 28 to c. 52 g each. They are the same as modern net weights, and were designed to be crimped onto the bottom of the net to oppose floats on the top of the net, perhaps made of cork, in order to keep it vertical in the water.

This type of net weight varies little with time or geography. Identical weights were recovered in quantity along the Israeli coast, from wrecksites dating as far back as the first century AD. Others serving the same function were decorated in the casting process. Indeed stone moulds for casting the small rectangular sheets that were later folded longitudinally, were also found.¹

These net weights, and the sinkers described above (p. 307), show how important fishing was to ancient vessels on long distance voyages. Fresh fish would not only have supple-

mented the dry and preserved food stuffs that they had on board, but would have provided the crew with nutrients necessary to stave off diseases caused by dietary deficiencies. Pelagic fish could of course be caught by line in the open sea. But small nets, such as the one that would have incorporated these net weights, would only have been of use in shallow coastal waters. After lengthy open water crossings, ships may well have stopped off at small islands to catch fish, and to replenish their fresh water supply. As it is unlikely that a trading settlement of any size existed on the island of Belitung in the ninth century, the loss of the Belitung wreck less than two miles from the shore may indeed have occurred when the ship was trying to revictual after crossing the South China Sea.

¹ Galili et al. 2003.



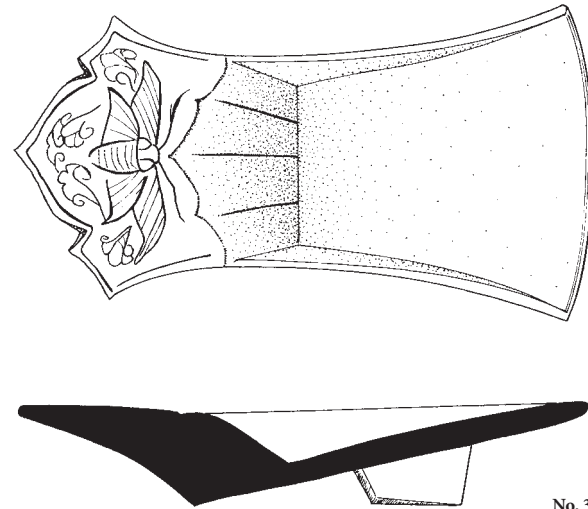
No. 308 Opened net weight



No. 308

Inkstone

9th century
Stone
China
Ht. 1.9 cm, l. 10 cm



No. 309 (Sc. 3:4)

A single adorned inkstone was recovered from the Belitung wreck. It is a remarkably finely carved piece, shaped somewhat like an axe-head, with two projecting legs on the base. A cicada has been lightly carved into one end. Circular scratch marks on the working surface indicate that the stone was not new, and was perhaps used on board the ship.

Inkstones are simple devices for the preparation of writing ink. The ink comes in the form of a hard stick. In the Tang dynasty fine ink was made by combining pine charcoal with an adhesive such as thin lacquer, egg white, or vegetable glue. The mixtures was ground and thoroughly blended until it became smooth and stiff. It was then placed in a finely engraved wooden mould to dry.¹ The resultant ink-stick often featured elaborate designs of scenery or Chinese characters. To prepare ink for calligraphy the ink-stick was ground on the flat surface of the inkstone to create a fine powder. This powder was then mixed with water, with the resultant ink mixture being held in the well of the inkstone for immediate use.

Eleven inkstones were recovered from the c. 1690 Vung Tau wreck,² one of which had an oval shaped well surrounded by an elaborately carved dragon. This is a Duan inkstone, deriving its name from the Duan River which runs through the Lanke Mountains in Guangdong province, where the magnificent purple rock was originally quarried from as early as the Tang dynasty. Duan stones were regarded as the highest

in quality, being dense and smooth in texture, which allows the ink to be finely and evenly ground to produce a smooth black ink when mixed with water.³

In the book *The Quintessential Purple Stone – Duan Inkstones Through the Ages* (edited by Mayching Kao, 1991) is stated that Duan inkstones of the Tang dynasty were purely functional, and only assumed aesthetic meaning in the Ming and Qing Dynasties. This Belitung wreck inkstone definitely displays a purplish sheen, so if it is a Duan inkstone, then this statement is clearly incorrect. Of course, fine grained sedimentary rocks best suited to inkstones, such as hydromica and ferruginous shales, also included the She stone of Wuyuan, the Tao stone of Lintan, and the Chengni clay from Qiangzhou.⁴ But in a more general comment, Wang et al. say that only by the Song dynasty did paper, brush, ink-stick, and inkstone transcend their utilitarian value and become subjects of fine collections among the literati.⁵ The obvious aesthetic value of the Belitung wreck inkstone, regardless of provenance within China, also refutes this statement.

The shape of the Belitung inkstone is typical of earlier pieces. There is a ceramic example, inscribed with a date equivalent to 543.⁶ It is referred to as a 'dustpan shape', which is the most common design for inkstones of that period. They acquired the standard name of *feng* inkstones, because the shape resembles the Chinese character, *feng*, which means wind.

¹ Tseng 1993, 387.

² Jörg and Flecker 2001; Flecker 1992.

³ Rawson 1992, 88.

⁴ Wang et al. 1997, 129.

⁵ Ibid., 129.

⁶ Illustrated in Tseng 1993, 393.



No. 309 Top



No. 309 Bottom



No. 309

310

Inkstone?

9th century
Stone
Provenance unknown
L. 4.1 cm, w. 2.1

One other stone artefact from the Belitung wreck may be an inkstone, although it seems far too small for this function. The stone itself is not entirely suitable either, possibly a banded grey siltstone and slightly porous in appearance. The object is only 0.4 cm thick. One end is squarish, the other is rounded, and a well has been carved out along its length. It is without adornment.

311

Die

9th century
Bone
China
Ht. 1.1 cm

A single die made from bone has miraculously survived. It is only 1.1 cm across and a small chip is missing. Holes have been carefully drilled a uniform depth into the various faces. This is certainly the earliest Chinese die to be found on a shipwreck, but interestingly such finds are not unheard of. Two large dice, 4 cm across, were found on the thirteenth-century Pulau Buaya wreck.¹ They were made of a black wood with bone inserts for the dots. At least sixteen dice were recovered from the c. 1690 Vung Tau wreck,² with some of bone or ivory.

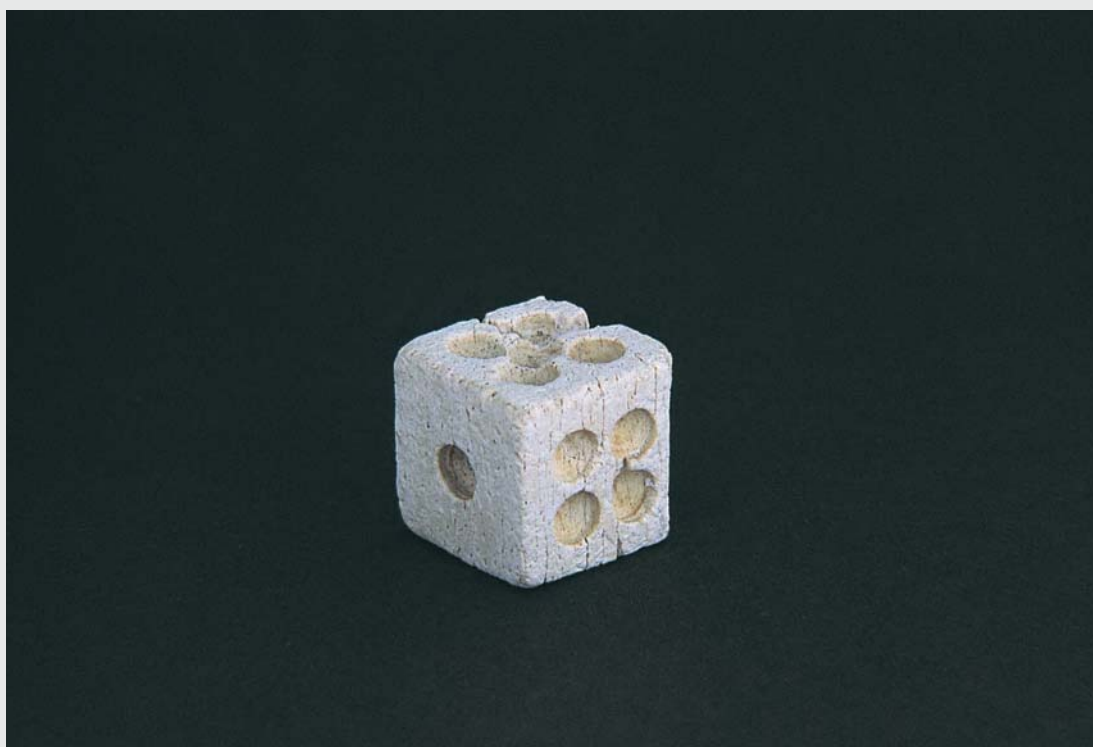
It would seem that games of chance helped the crew and passengers while away the time during the long trade voyages. Gaming pieces have also been found on a number of wrecks.

¹ Ridho and Edwards McKinnon 1997, 90.

² Jörg and Flecker 2001, 137.



No. 310



No. 311

Lacquer dish

9th century
Lacquered wood
China
Diam. 15.9 cm

Fragmentary pieces of a lacquer dish have survived. The remaining central portion of the dish is 15.9 cm in diameter and 0.3 to 0.5 cm thick. The top side is a reddish colour, while the underside is black and somewhat scratched.

Lacquer ware is made by applying layers of resin from the lacquer tree to the core object, which could be a range of materials from wood, to hemp, or even tin. The resin is either clear or black, although it can be artificially coloured, and it has a very high viscosity and a beautiful lustre. The process is laborious, but the end product is light weight, heat resistant, relatively tough, and aesthetically pleasing.¹

Lacquer application is a Chinese invention with seven thousand years of history, being sought by nobility from the Zhou to the Han dynasty. Thereafter, workshops multiplied to produce lacquer ware for the common folk. During the Tang dynasty the highest-quality wares were inlaid with gold and silver. Carved lacquer ware was also introduced at this time, with up to thirty layers carved in relief.² According to Rawson, completely plain, undecorated lacquer dishes were produced more in the Song dynasty.³ The Belitung wreck find demonstrates that at least some of this type were produced earlier. The plain dishes were not necessarily of low quality, for simplicity and elegance were great qualities in themselves.

Lacquer ware has been found on a few other shipwreck sites. Chinese red and black undecorated lacquer bowls and dishes were found on the c. 1323 Sinan wreck in Korea, along with a carved lacquer vase decorated with peonies.⁴ A red lacquer box with cover was recovered from the fifteenth-century Royal Nanhai wreck,⁵ where the base material was woven bamboo and an incised decoration could still be discerned. Lacquer was even applied to ceramics, as was discovered on the early-sixteenth-century Chinese Binh Thuan wreck in Vietnam, where covered boxes had a lacquer coating decorated with gold paint, and on the Swedish East Indiaman, *Gotheborg*, of 1745, which contained a saucer coated in lacquer, gold paint, and inlaid mother-of-pearl.⁶

¹ Wang et al. 1997, 45.

² Ibid.

³ Rawson 1992, 178.

⁴ Ibid.

⁵ Brown and Sjostrand 2000, 57.

⁶ Wastfelt et al. 1990, 46.



No. 312 Top



No. 312 Bottom



No. 312

313

Needle

9th century
Copper alloy
China
L. 12.1 cm, diam. 0.3 cm

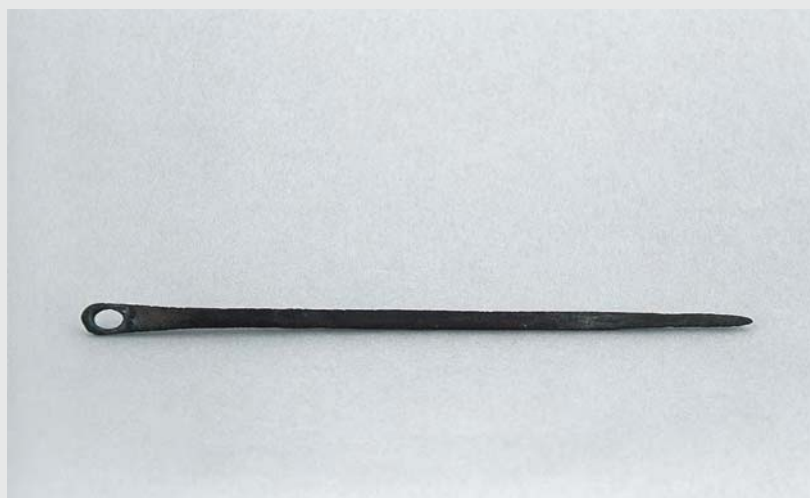
A single copper alloy needle was found. There is no doubt about this identification for the design of the functional needle has not changed in the last thousand years. The large size of the needle implies that it may well have been used on board the ship for sail making and repair. Needles were a major Chinese export during the second millennium, but were usually made of iron.

314

Roller?

9th century
Wood
Provenance unknown
L. 36.9 cm, diam. 4.0 cm

A wooden artefact could be a roller, such as used for baking, or perhaps an axle for some mechanical contrivance. Ceramic discs used for grinding sometimes had a wooden axle, although this artefact seems too long for that role.



No. 313



No. 314

315, 316

Handles

9th century

Wood

Provenance unknown

No. 315: L. 12.6 cm

No. 316: L. 17.7 cm

Two lathe-turned wooden handles have survived on the wreck. One (no. 315) is of a simple cylindrical design, but there is evidence of black paint remaining and six sets of four finely carved lines circle the handle at reasonably even spacing. The third set from the narrow end is carved deeper into the wood. The square hole at one end is rust stained, which is evidence for a no longer extant iron tang.

The second handle (no. 316) is quite elaborate, with multiple shallow flanges along two-thirds of its length. It has rust stains around a square hole at one end indicating the earlier presence of an iron fastening. This end has a narrower straight section that is designed to slot into the hollow end of a shaft. The other end is slightly indented. This type of handle would be typical of an umbrella, or perhaps a fly wisp.



No. 316 End with square hole



No. 315 End with square hole



No. 316 End with indentation



No. 315



No. 316

317, 318 a, b

Spoons

9th century

Copper alloy (no. 317) and gilt-silver (no. 318 a, b)

China

No. 317: L. 25.5 cm

No. 318 a: L. (preserved) 23.0 cm

No. 318 b: L. (preserved) 10,4 cm

Only one intact spoon was recovered (no. 317), along with fifteen spoon fragments. The intact spoon is of a copper alloy and is 25.5 cm long and 4 cm wide at the bowl. The handle is long and straight, flaring slightly at the end, and the bowl is an asymmetrical ovoid which tapers towards the handle. The spoon is unadorned and therefore probably utilitarian. Thirteen of the spoon fragments are of the same type, but two long handles (no. 318 a, b) are of gilt-silver and have an incised or embossed decoration. The latter two may well be part of the gift package that was on board, complimenting the gilt-silver covered boxes (nos 12–18).

Chinese spoons used for eating rice and drinking soup are usually of ceramic, and are short with an indentation along the handle for the thumb. Spoons of this shape were carved out of magnetic lodestone and pivoted on an engraved board as the earliest form of a compass. Such an arrangement is depicted on a Han dynasty stone relief dated 114.

Chinese spoons of the ceramic kind are not rare finds on shipwrecks, particularly the more recent ones. The *Tek Sing* of 1822¹ and the Desaru wreck of the same period² contained thousands of simple ceramic spoons. The c. 1690 Vung Tau wreck also had large numbers of white-ware spoons.³

The long metal spoons from the Belitung wreck would most likely have been cooking utensils, in the case of the unadorned copper alloy examples, or for serving, in the case of the high quality gilt-silver wares. A quite similar shaped bronze spoon, 18.9 cm long, is known from as far back as the early Warring States period (475–221 BC).⁴ It is engraved with a fish design, and was intended to scoop pieces of meat out of a cooking vessel.

¹ Pickford and Hatcher 2000, 135.

² Sjostrand, personal communication.

³ Jörg and Flecker 2001, 90.

⁴ Li 1995, 23.



No. 318 a (below), b (above)



No. 318 a Details of the decoration



No. 317 (fourth from left) and other spoon fragments

Small bottle

9th century

Glass

Middle East?

Ht. 5.6 cm, diam. mouth 1.7 cm, diam. foot 2.4 cm

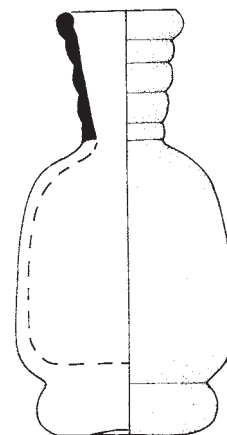
A very interesting small glass bottle is pale blue and contains an unknown hard substance. The body of the bottle is globular, although straight sided. It has a substantial rounded foot with a flat base, and a slightly flared and ribbed neck.

It is impossible to positively determine the origin of the bottle without a chemical analysis of the glass. However, the shape is similar to Middle Eastern glass vessels of the same period.

The first glass vessels are thought to have been made in the fifteenth or sixteenth century BC in Mesopotamia and Egypt.¹ While glass bead manufacture using local materials began in China as early as the fifth century BC, there remained a high demand for imported glass right through the first millennium AD. Textural evidence from the Han dynasty shows that the Emperor Wu (140–87 BC) sent envoys to the South Seas to buy glass.² Roman and Sassanian glass was exported to China from the beginning of the Christian era. During the Tang dynasty, when there was a huge influx of foreign goods via the overland Silk Route, Islamic glass begins to make an appearance. It also came by sea, as evidenced by finds at the ninth-century sites of Laem Pho and Ko Kho Khao, the transshipment point on the Isthmus of Kra.³ Most of the glass found there was in the form of very thin sherds from cups and small bowls, very different to the bottle from the Belitung wreck. Arabian glassware was often sent to China as part of tribute gifts. It has even been recorded as being sent by Jambi in Sumatra in 1156 and again in 1178.⁴

Many fragments of glass, and one complete bottle with the same shade of pale blue as the Belitung find, were recovered from the tenth-century Intan wreck.⁵ These have been conclusively identified as Middle Eastern glass through shape and chemical composition. Small globular bottles from the thirteenth-century Pulau Buaya Wreck⁶ are not dissimilar to the Belitung find, although they do not have a raised foot. They too have not been chemically analysed, although they are thought to be of Middle Eastern origin. There was also broken glass on the thirteenth-century Java Sea wreck,⁷ but that seems to be of Chinese origin.

In conclusion, without chemical analysis the origin of the Belitung bottle cannot be ascertained. It is similar in form to Middle Eastern bottles of the ninth and tenth centuries. However, the high foot is unusual, and therefore the bottle may indeed be Chinese.



No. 319

¹ An Jiayao 1996, 128.

² Ibid., 130.

³ Bronson 1996, 186.

⁴ Wong 1979.

⁵ Flecker 2002, 87.

⁶ Ridho and Edwards McKinnon 1997, 95.

⁷ Mathers and Flecker 1997, 89.



No. 319

320 a, b

Rings

9th century

Ivory

Provenance unknown

No. 320 a: Diam. ext. 2.7 cm, diam. int. 1.5 cm.

No. 320 b: Diam. ext. 2.0 cm, diam. int. 1.5 cm

Two ivory rings were recovered from the Belitung wreck. The smaller piece (no. 320b) could indeed have been a finger ring, but the larger one (no. 320a) would not have fit comfortably between two fingers. They could also have been worn as ear adornments, or as pendants around the neck. Some of the gold rings found on the Intan wreck were probably worn as pendants.¹

Two slightly larger pieces of ring-shaped worked ivory were recovered from the Intan wreck.² One was in the form of a grommet and the other was a wide band.

321 a–d

Acorns?

9th century

Ivory

Provenance unknown

Ht. 2.8 cm, diam. 2.4–2.5 cm

Four acorn-shaped ivory artefacts from the shipwreck are a mystery. Three remain in reasonably good condition, and one is in fragments. The base is slightly concave, and a tiny hole in the centre of some could be where the spindle of a lathe was attached. There is no indication of any method of attachment for these artefacts, either as finials or other type of adornment. Perhaps they were intended as some kind of gaming pieces.

The mystery is intensified by the fact that two identical ivory artefacts were recovered from the tenth-century Intan wreck.

¹ Flecker 2002, 72.

² Ibid., 95.



No. 320 a (left), b (right)



No. 321 a–d Side views (above) and bottoms (below)

Aromatic resin

9th century
Southeast Asia
L. 6.1 cm, w. 3.7 cm

One small chunk of aromatic resin was recovered from the Belitung wreck. Most likely it was for shipboard use, or perhaps it was a remnant from a previous cargo.

Resin with an identical appearance has been recovered from the tenth-century Intan wreck,¹ the thirteenth-century Java Sea wreck,² and from the 1638 Manila Galleon, *Nuestra Señora de la Concepcion*, which contained two stoneware storage jars full of the material.³ Without complex chemical analysis it is impossible to say exactly which type of aromatic resin the Belitung find is. Identification of the specific species is problematic as there are over a thousand species of resin producing plants in Southeast Asia.⁴ However, the appearance and scent of the Belitung piece are the same as the positively identified resin, *Styrax benzoin*, from the *Concepcion*. This was certainly the most commonly traded resin.

Styrax benzoin was tapped from a species of tree occurring in Malaysia, Sumatra and western Java. The trees grew wild, however plantations were established in the north and south of Sumatra towards the latter part of the first millennium when demand rapidly increased. Barus, on the northwest coast of Sumatra, produced the most famous species of resin (*Styrax sumatrana*) and was also renowned for its camphor.⁵

This region was also a major supplier of *Styrax benzoin*, which was sometimes mixed with the superior resin by unscrupulous traders.

Benzoin is tapped by making parallel cuts into the tree through the bark. After eight days a yellowish liquid appears in the wounds, which drying over the course of six or eight weeks, is collected in sticky lumps.⁶ The trees are first tapped after about seven years and continue to yield useful quantities for up to nine years before they eventually succumb to the ill treatment.

Benzoin may have been exported from Sumatra to China as early as the sixth century.⁷ It seems to have been introduced to the Chinese by Arab middlemen.⁸ In southern China it was initially regarded as a substitute for myrrh, but soon began to be regarded as superior. Benzoin was thus destined to become a permanent and valuable trade commodity not only in China, but much later in western Asia and in Europe.

Aromatic products are listed as part of tributary gifts sent to China by Srivijaya throughout the tenth and eleventh centuries. It is not until 1178 however, that benzoin is specifically mentioned as a tribute gift. In that year 210 *katis* of benzoin

¹ Flecker 2002, 96.

² Mathers and Flecker 1997, 81.

³ Mathers et al. 1990, 434.

⁴ Gianno et al., in Mathers et al. 1990.

⁵ Wolters 1974, 112.

⁶ Burkill 1966, 2143.

⁷ Wolters 1974, 111.

⁸ Wang 1998, 110.



No. 322

were sent, which is relatively little compared to the 81,680 *katis* of frankincense sent on a previous mission.⁹ Large amounts of benzoin have been recovered from archaeological excavations at Kota Cina in Sumatra.¹⁰

Throughout Asia resin was burnt as an offering, or as a way of calling certain spirits to the aid of a healer. In Malay culture it was important for rice planting and reaping rituals in which the supplicant is trying to coax the rice spirit to stay and allow an abundant harvest.¹¹ In Indonesia benzoin is considered medicinal, being used internally for syphilitic ulcerations of the nose and for shingles, and externally for muscular rheumatism. Medicinal leaves, perfumed with the sweet smell of burning benzoin, are used in the mystic treatment of serious types of fever.¹² But more importantly, the powerful and pleasant fragrance of burning benzoin took on a spiritual property, being used for centuries in mosques before prayers and by magicians in their incantations.

In China, like myrrh and pine resin, it was used as a fumigant to purify the air and to eliminate pestilence. The medicinal properties of benzoin extended further. Ta Ming at the end of the tenth century describes its uses, '... for evil air, sprites, demons in the womb and foul blood, warding off poisonous cholera, pain from violent wind, involuntary emissions from males; it warms the kidneys and cures menstrual stoppages and post-natal bleeding'.¹³

As with Southeast Asia, benzoin was not limited to a medicinal role in China. In fact, it became far more significant as an incense used in Buddhist rituals. With the adoption of Buddhism on a popular level in China in the eleventh century, the trade in benzoin from Sumatra surged.¹⁴

⁹ Wong 1979.

¹⁰ Ambari 1984, 84.

¹¹ Mathers and Flecker 1997, 29.

¹² Wolters 1974, 116.

¹³ *Ibid.*, 119.

¹⁴ Guy 1990, 5.

323

Amber

9th century
Provenance unknown
L. 6.2 cm, w. 4.7 cm

One small piece of amber was recovered. It measures nearly the same size as the sole piece of aromatic resin. The piece is banded and highly lustrous, but not particularly translucent. It may have been a curio belonging to a merchant on board. There were no insects or other organic inclusions in the amber to enhance its value as a curio.

324

Chain and hook

9th century
Copper alloy
Provenance unknown
L. 7.5 cm

A small piece of copper alloy chain was attached to a thin wire hook of the same material. The chain is crudely made, with double links of varying diameter. It is impossible to say what this tiny assemblage was for. While of the right configuration, it is too flimsy to suspend a hanging oil lamp. Similar pieces were recovered from the tenth-century Intan wreck, which contained a wide array of copper alloy artefacts manufactured by Srivijayan craftsmen.



No. 323



No. 324

325

Sword handle?

9th century
Copper alloy
China
L. 6.7 cm, w. 6.3 cm

An unusual copper alloy artefact from the Belitung wreck is in the form of a hollowed out arch with a band around the base. Apart from raised ridges along the inner edge of the arch and around both edges of the band, there is no sign of decoration. It has been suggested that this is the finial, or rather end cap, of a sword handle. If so, the lack of embellishment would seem to indicate a purely functional weapon, and yet if there was only one such piece on board it must have had more significance.

326

Tweezers

9th century
Copper alloy
China
L. 11.0 cm, w. 0.5–1.6 cm

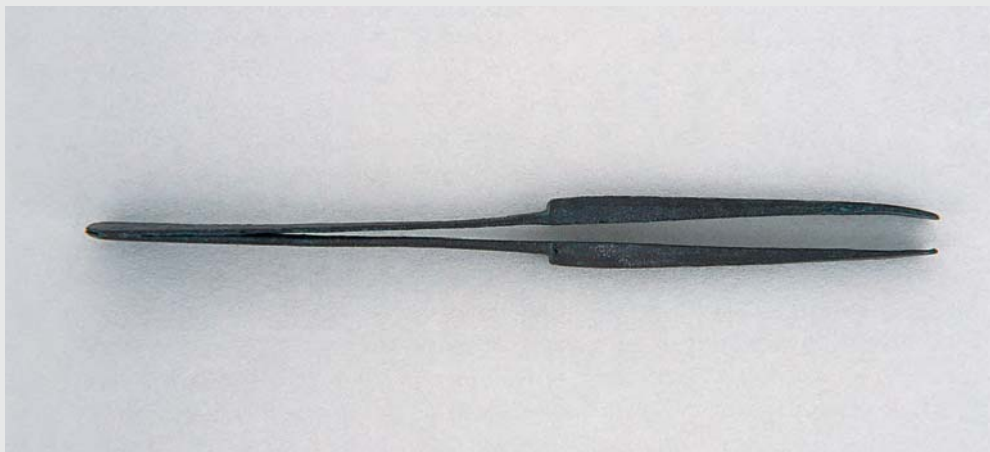
A single pair of copper alloy tweezers recovered from the wreck takes the form of archaic Chinese bronze ware. In profile they are somewhat like an elongated axe-head. The pinching end is thickened for rigidity and is decorated with engraved zigzag lines. The handle displays three engraved circles. The tweezers are quite large and they may well have been for surgical use.

Small Chinese manufactured tweezers used for grooming were found in large numbers on the c. 1690 Vung Tau wreck.¹ One type was flat and incorporated a sliding device to clamp the tweezers closed. The other was very light and simple and was linked together as a set with an ear pick and a tooth pick.

¹ Jörg and Flecker 2001, 160, 164.



No.325



No. 326

327

Sphere

9th century

Stone

Provenance unknown

Diam. 3.1 cm, weight 59.65 g

There are no markings on this tiny stone sphere from the Belitung wreck. While the stone has not been identified, it is not a precious or semi-precious type. Its purpose remains a mystery.

A small quartzite stone of nearly spherical shape and 6.5 cm diameter was found on the tenth-century Intan wreck and, as a remote aside, a spherical piece of quartzite was recovered from the 1638 Manila Galleon, *Nuestra Senora de la Concepcion*. It was 11 cm in diameter and had one slightly flattened surface upon which it rested. Although completely opaque, this artefact conjured up images of a 'crystal ball'.

328

Handle?

9th century

Stone

Provenance unknown

L. 5.0 and 2.8 cm, diam. 2.5 and 2.4 cm

A heavily banded sedimentary rock has been carved into a cylinder. There are two pieces, which do not fit together. They have all the appearances of a rock core sample. The longer of the two pieces has a hole in one end, and it is therefore speculated that this carved stone from the shipwreck is a handle of some type.



No. 327



No. 328

329

Disc

9th century
Lead
Provenance unknown
Diam. 8.8 cm

A thin lead disc with a square hole in the centre has the appearance of a Chinese coin, although the hole is proportionately too small, and of course the disc is far too big. The Chinese did have lead based currency at times when copper was in short supply, but not of this large size, and not without characters delineating the reign. It is more likely that this piece of lead was a seal of some kind, and was perhaps held in place with a square-sectioned iron spike driven through the centre.

330 a–c

Assorted lead artefacts

9th century
Lead
Provenance unknown
No. 330a (ring): Diam ext. 4.0 cm, diam int. 1.7–1.9 cm, weight 53.22 g
No. 330b (bent object): weight 70.94 g
No. 330c (longish object): weight 80.90 g

For the purpose of completeness, a small group of lead artefacts from the shipwreck are mentioned. A bent piece (no. 330b) is similar to the lead net weights (cf. no. 308) apart from the fact that it is considerably longer. It could still fill that role. A lead ‘washer’ (no. 330a) has an internal diameter of 1.7 cm and an external diameter of 4.0 cm. It was probably a seal of some kind, around a pipe or fastening. The last item is simply a strip of lead 12 cm long (no. 330c). It may have been nothing more than raw material carried on board the ship for casting, cutting, or beating into a functional item when the need arose.



No. 329



No. 330 a-c

331–333

Assorted wooden artefacts

9th century

Wood

Provenance unknown

Apart from the wreck's wooden artefacts discussed above (nos 315, 316), there are five others (nos 331–335) worthy of mention, and all come under the 'mystery' label.

331

Ht. 5.3 cm, diam. base 2.6–2.8 cm

This piece is cone shaped, with a small indentation at the base. There is also a raised section around the base, but this may be the result of differential shrinkage during the drying process. It may have been a stopper or bung of some type.

332

Ht. 3.8, diam. 6.5–7.2 cm

This wooden artefact certainly looks like a stopper or lid, apart from the fact that it has a hole all the way through it. It is a tapered disc 7.2 cm in diameter at the widest point and 3.8 cm thick, and the central hole is 0.9 cm in diameter.

333

L. 7.4 cm, w. 5.3 cm

This odd piece is partly hollowed out. It is a rough piece, and could have been mistaken for a piece of dunnage were it not for impressions in the surface that indicate that it was originally wrapped in some kind of material.



No. 331



No. 332



No. 333

334, 335

Assorted wooden artefacts

9th century

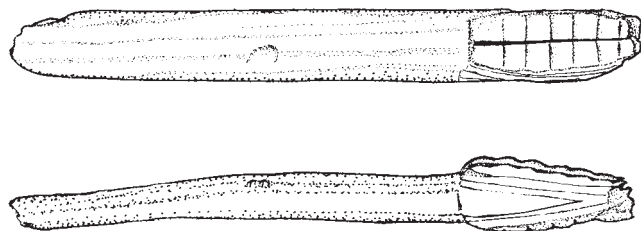
Wood

Provenance unknown

334

L. 8.3 cm, w. 1.0–1.1 cm

This artefact can be described as being a carved one-dimensional lotus bud on a long stalk. It is 8.3 cm long, and the 'stalk' is 1.1 cm across. The 'head' has lightly carved 'petals' on its flat surface and six very fine cross lines along its edge. It just may be part of a stringed instrument, where the cross lines conformed to the strings.

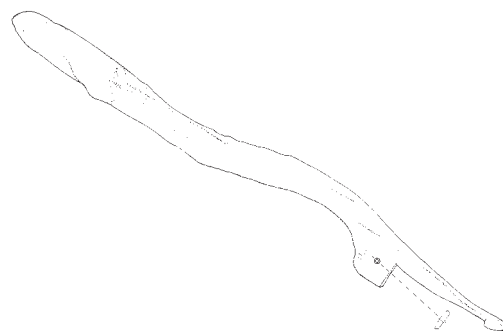


No. 334

335

L. 30.9 cm

The last wooden artefact from the shipwreck to be mentioned is a curvilinear design. A raised ridge near one end is pierced by a small hole, which contained a tiny wooden pin, and a fine one-sided barb forms the tip of this piece. The barbed end brings to mind the Australian aboriginal throwing stick, which hooked into the end of a spear to provide greater throwing leverage. However, the hole with pin voids this suggestion. Another suggestion made by the conservator is that it was used for fish net repair. It is as good a suggestion as any.



No. 335 (Sc. 1:4)



No. 334



No. 335