The Carronade Island Guns and Southeast Asian gun founding

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Introduction

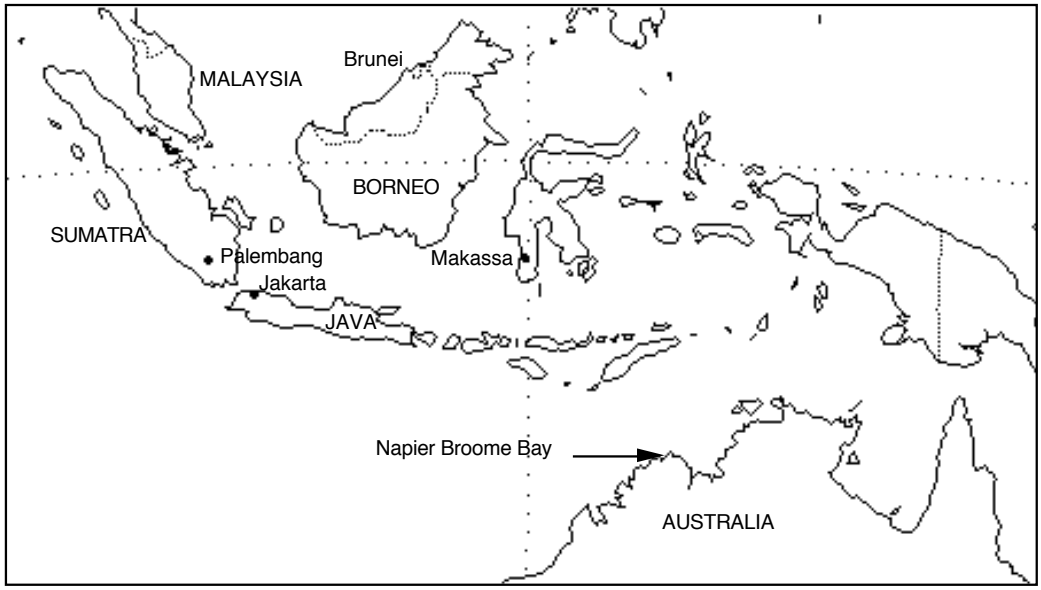

Figure 1. Map showing the location of the sites discussed.

In July 1916, during a visit by HMAS *Encounter* to Napier Broome Bay (Fig. 1).Map showing the location of the sites discussed;{ TC "Figure 1. Map showing the location of the sites discussed" \l 1 }, two small bronze guns were discovered by Commander C.W. Stevens RAN and Surgeon Lieutenant W. Roberts RAN on a small unnamed island. The two guns were found upright "approximately 25 paces from the water's edge, we saw the two carronades protruding, through the sand 2/3rds of each being exposed so that they were easily lifted out. They were ... 6 feet apart and certainly had the appearance of leading marks ... a large number of the ship's company landed and next day, shifted sand over practically the whole area for a considerable depth. The only other object found was a small portion of a brass bound chest. You can imagine the disappointment of the *matelots* who had visions of buried treasure" (letter from Surgeon Commander Roberts, 18 August 1933). The guns were subsequently presented to HMA Naval Dockyard, Garden Island, Sydney, by the finders. Since, at the time, these guns were erroneously thought to be carronades, the island on which they had been found was named Carronade Island. One of these guns (No.1) is at present on loan from the Royal Australian Navy to the Western Australian Museum and is on display at the Fremantle Maritime Museum, Fremantle, Western Australia. The other (No.2) is on display outside the Administrative Building, Office Square, HMA Naval Dockyard, Garden Island, Sydney, New South Wales.

Over the years the guns have been examined and described by various writers and in the process inaccuracies as well as misconceptions about their history have arisen. The decoration on gun No. 1 has been variously described as a double knot, pair of birds, or the Portuguese "rose and crown". The latter view has been strongly affirmed by McIntyre (1977) who claimed that the guns were 15th or early 16th century, cast in Seville, but sold to the Portuguese through whose activities they ended up on the Australian coast. McIntyre suggests that these guns prove that the Portuguese discovered Australia long before the Dutch, and for him the guns constitute "the most tangible extant link with the first European discovery of Australia." This claim is, however, difficult to substantiate. Enquiries made at both the Military Museum, Lisbon and the Naval Museum, Seville have failed to reveal any evidence of an Iberian style in decoration of gun No. 1 and consensus among experts tends toward an opinion that the gun is a Southeast Asian copy of a European gun. More significantly gun No. 2, largely ignored by the various writers, is a *lantaka* of undoubted Southeast Asian origin. Using analytical and X-ray techniques gun No. 1 has been further investigated and as a result it is now possible to make some further conclusions of its origins and historical significance.

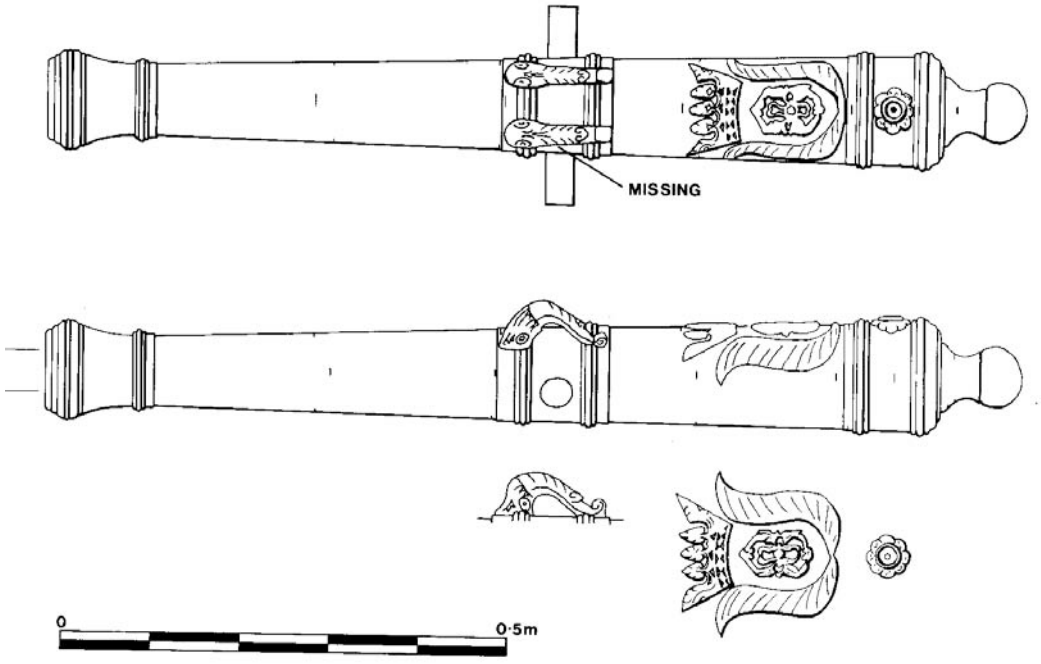

Figure 2. Drawing of the Carronade Island gun No. 1.

Description of the guns

Gun No.1 (Fig. 2). Drawing of the Carronade Island gun No. 1.;{ TC "Figure 2. Drawing of the Carronade Island gun No. 1." \l 1 } is a bronze gun commonly known as a swivel gun. It is 1094 mm long with a bore of about 46 mm. It has a single dolphin (the second has broken off and is missing), on the first reinforce is an emblem surmounted by a crown and surrounded by a pair of wings (?). The vent is surrounded by a decorative flower and has a copper insert and the cascabel button is plain. The gun is

very worn, the emblem and decorative features being completely obscure in some places. The gun has several unusual features: it is very badly honeycombed; the bore near muzzle is heavily scarred; there are a series of 20 small iron plates (15 mm x 1 mm in 5 sets of 4) showing on the surface of the gun (Fig. 3). Photograph showing the decorative emblem on the first reinforce and two of the iron chaplets;{ TC "Figure 3. Photograph showing the decorative emblem on the first reinforce and two of the iron chaplets" \l 1 }; the surface where the dolphin has been broken off is very worn (this last feature may reflect the generations of sailors that have polished this piece with Brasso); also the trunnions do not have a true cylindrical shape, show signs of rough sawing or filing and are very crudely made in relation to the rest of the gun; also the trunnions are much less worn than the rest of the gun. From the above observations the inference was that the trunnions may have been a modern repair, since they appear to be of quite different workmanship than the rest of the gun and that the iron plates were some form of 'chaplet' system used to support a core during the casting. In view of these considerations, it was decided to conduct a chemical analysis of small samples from the trunnions and the main part of the gun to investigate the possible repair work and also to X-ray the gun to investigate the 'chaplet' system.

Figure 3. Photograph showing the decorative emblem on the first reinforce and two of the iron chaplets.

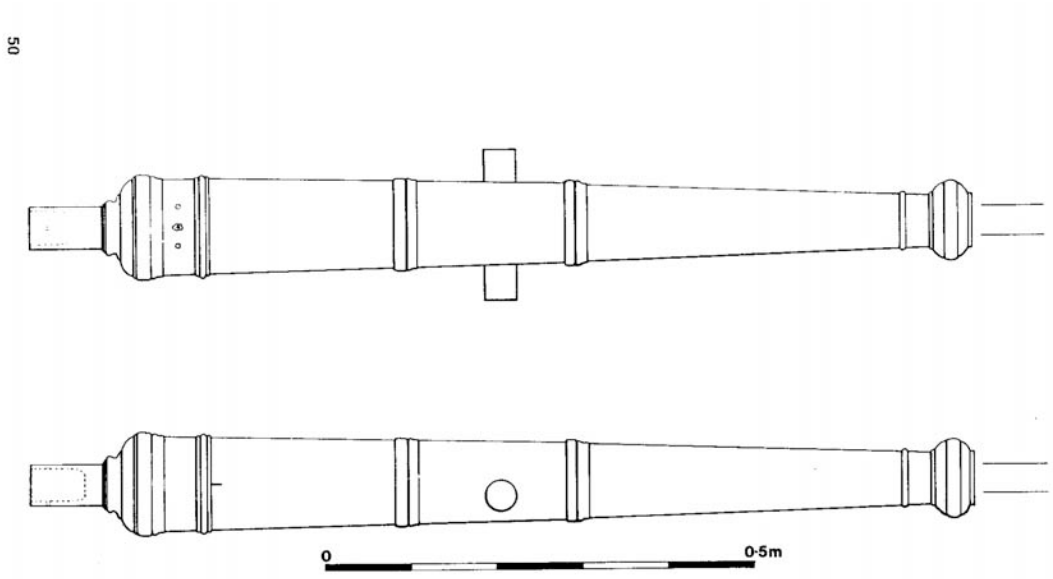

Figure 4. Drawing of Carronade Island gun No. 2.

Gun No. 2 (Fig. 4). Drawing of Carronade Island gun No. 2;{ TC "Figure 4. Drawing of Carronade Island gun No. 2" \l 1 }, the second Carronade Island gun was inspected at HMA Naval Dockyard, Garden Island, as part of an Australian National Cannon Register Project being conducted by the author. The (brass/bronze) gun is plain and unadorned, 1099 mm long and 33 mm bore. The gun has a repaired left-hand trunnion (viewed from the rear); information indicated that this repair was carried out after its acquisition by the Dockyard, suggesting that the Gun No. 1 was repaired at the same time. The cascabel button is tubular and hollow with fittings for a wooden tiller. The vent has two circular holes on either side of it, presumably for some form of vent-cover. There are a pair of small iron chaplets (in a lateral position) adjacent to the vent field ogee and fillets. The gun has scarring on the bore similar to that of Gun No.1. Whilst it was not possible to X-ray or sample the metal of this gun, the shape and form of the gun clearly indicate a Southeast Asian swivel gun known as a *lantaka*. The cascabel is typical of this class of gun, and is not found on European guns.

The analysis

A chemical analysis was carried out on four small samples from gun No. 1, two from the barrel and one from each trunnion. The results are given in the accompanying table, from which one can see that there is a clear difference in the barrel samples and the trunnion samples. This is most noticeable in the Zinc (1.4%/0/07%), Tin (6.6%/10.6%) and Iron (0.3%/0.15%).

Table 1. Chemical composition of Carronade Island gun samples (in % of total weight)

	Cu	Zn	As	Sn	Sb	Pb	Fe
Barrel 1	79.9	1.37	0.14	6.70	0.005	6.78	0.26
Barrel 2	85.5	1.41	0.16	6.50	0.006	7.91	0.44
R. Trunnion	79.3	0.07	0.14	10.60	0.003	9.02	0.10
L. Trunnion	79.8	0.08	0.15	10.70	0.004	8.90	0.18

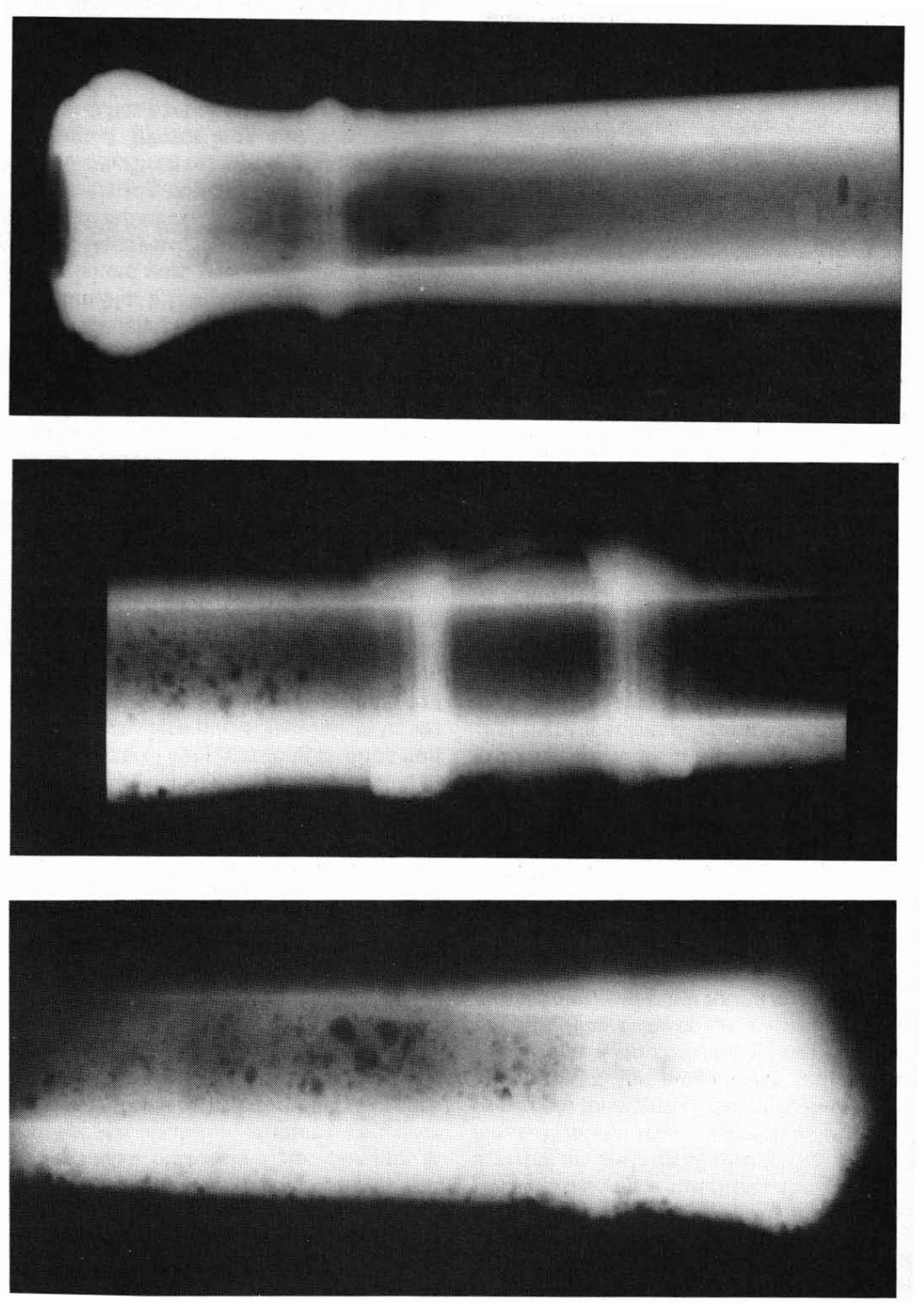

Figure 5. X-rays showing details of the construction of Carronade Island gun No. 1.

Also, five X-rays of the gun were taken of the muzzle, chase, trunnions and breech, together with a second exposure of the breech with the gun

rotated through 90° (Fig. 5). X-rays showing details of the construction of Carronade Island gun No. 1;{ TC "Figure 5. X-rays showing details of the construction of Carronade Island gun No. 1" \l 1 }. The muzzle shows a darkening just behind the muzzle astragals and fillets. This flaw is thought to be a cavity in the body of the gun. Towards the breech in this view can be seen the first of the iron core supports in the centre of the bore with a little further on, one of the two lateral supports. In the middle are a number of dark spots indicating an increasing density of casting flaws. Near the second reinforce astragal and fillets is the next iron core support, and the single dolphin, although the trunnions are not obvious. Towards the breech, the flaws increase in size (up to 5 mm and in one case 10 mm in diameter). At the cascabel button (somewhat darkened because of the reduction in the thickness of the metal), almost 50% of the button volume is flawed. A reduction in the bore diameter can be seen near the breech. In the other view of the breech (with the gun rotated 90°), the touch-hole or vent is seen on the lower side of the X-ray. The increased density of flaws in this view have also moved to the lower part, indicating that they lie in the area of the decoration.

Results

As a result of this analysis, it can be concluded that the trunnions are clearly not of the same material as the main part of the gun, nor are they of the same workmanship. It is suggested, tentatively, that at some point in the life of the gun the two trunnions and the one dolphin were somehow broken off. Subsequently, a new set of trunnions was attached to the gun using relatively crude workmanship, probably after they arrived at HMA Dockyard, Garden Island. The new trunnions would then have served as a mounting of the gun on a carriage, whereas the dolphin was not replaced as it served more of a decorative purpose.

A comparative chemical analysis of bronze guns has recently been used successfully in Austria and Germany to identify European regional gun foundries (Riederer, 1977). In this analysis, 154 bronze guns from the Heeresgeschichtlichen Museum in Wien were analysed. The guns came from Austria, Germany, Italy, France, Denmark, Netherlands, Spain, Russia and Turkey (with a few examples from China and Japan) and it was shown that minor differences in the chemical composition corresponded to the particular regions where the guns were cast. Table 2 shows the approximate percentages (maximum and minimum) for the Wien survey. The figures strongly suggest that the Carronade Island gun (No.1) is of non-European origin. For example the barrel of the gun has a high lead level (7%) in relation to the European average of (2.5%).

Table 2

Summary of Wien analysis of chemical composition (in % of total weight)

	Cu	Zn	As	Sn	Sb	Pb	Fe
Vienna Max	95	0.18	N/A	14	0.18	4.90	0.18

Vienna Min	84	0.00	N/A	2	0.01	0.10	0.01

The X-ray analysis showed that the bore of the gun was very worn. At the vent the bore is 43 mm, this bore enlarges slowly to 50 mm, some 110 mm from the vent and then continues uniformly 50 mm in diameter to the muzzle. The bore enlargement suggests that the gun had been fired many times, and the shot passing up the bore had worn away the metal. The X-ray analysis also showed that the gun is extremely honey-combed (see Fig. 5). The honey-combing may be seen on the surface of the gun as small holes, but the radiographs show large cavities, up to 10 mm in diameter, and the cascabel button shows the extremes of this effect. These cavities are caused by casting shrinkage indicating poor bronze casting technology. Honey-combing was extremely dangerous, since burning material can lodge in the cavities and cause accidental ignition of powder on reloading, a remark frequently referred to in early texts.

Historical evidence relating to the guns

Further to the chemical analysis, a number of points should be noted which help to put this gun in its historical context. The use of a copper insert or bushing in the vent is noted by Gooding (1972) to have been first introduced in Britain as an experiment in 1812. Previously, an iron insert had been used in the worn vents, the vent being drilled and tapped-out and an iron insert screwed in. Furthermore, bronze guns that have been in the sea for any length of time usually have the iron chaplet system completely corroded away due to the intense electrolytic action between bronze and iron in sea-water. Since the iron chaplets on this gun show no sign of electrolytic corrosion, it may be assumed that the guns have not been in the sea for any length of time and thus do not originate from a wreck.

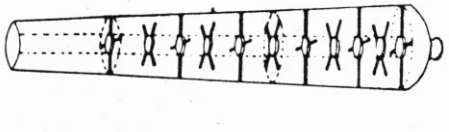

Figure 6. Drawing taken from Wignall (1973).

The X-rays also show that the chaplets extend through the metal to the bore and thus certainly were used for a bore-plug support in the mould. The chaplet system used here is now known to be typical of ordnance cast in Southeast Asia and is not found in European ordnance. A large number of guns exhibiting this chaplet system and known to have been cast in Southeast Asia, have been noted by this author. Little has been published on Southeast Asian guns, although Shariffuddin and Harrison have made a typology of Brunei guns, and Manguin has described a number of Asian pieces existing in Museum collections in Asia and Europe. However, at present, no historical documentation of this multipul chaplet technique has yet been found.

Additionally, there is no evidence that the decoration on gun No. 1 was known or common in Spain or Portugal. In the Artillery Museum, Lisbon, only one gun vaguely resembles the gun No.1 from Carronade Island and dates from 1782 (Anon, undated). Examination of drawings in the Museum's catalogue does not indicate any general trends, except that Portuguese guns in the early period tended to be large with two sets of two lifting rings rather than dolphins and a tendency to have dolphin cascabels. Portuguese guns cast in Portugal, Goa and Macao were generally adorned with the Arms of Portugal and/or the armillary sphere indicating the Company of Brazil (de Valle (1963 & 64), de Mello (1979) and Kirkman (1972)).

Examples of guns with similar chaplet systems include gun 235 in the Armouries of the Tower of London (Blackmore, 1976: 167) with the inscription "Sultan Ranafa Achmet Najm ed-Deem of the country of Palembang [Sumatra] the abode of peace, 1183 [AD 1769]. This gun is cited by Wignall (1973) as an example of an unusual chaplet system. It is possible that the interpretation given by Wignall (Fig. 6) . Drawing taken from Wignall (1973);{ TC "Figure 6. Drawing taken from Wignall (1973)" \l 1 }is wrong, and that the system does not have a circular ring at the bore (as he suggests), but in fact it simply has bars going from the outer surface of the mould through the gun into the core. Other examples of this type of chaplet construction have been noted on the gun known as "*Si Jagur*" (Fig. 7) . The gun known as *Si Jagur*, Taman Fatahillia, Jakarta;{ TC "Figure 7. The gun known as *Si Jagur*, Taman Fatahillia, Jakarta" \l 1 }located in the square in front of the old town hall of Batavia, on Taman Fatahillia, Jakarta (van Diessen 1989) and "*Ki Amuk*" (Fig. 8) . The gun known as *Ki Amuk*, at Banten;{ TC "Figure 8. The gun known as *Ki Amuk*, at Banten" \l 1 }located in front of the Surasowan compound at Banten and inscribed with a chronogram representing AD 1528/1529.

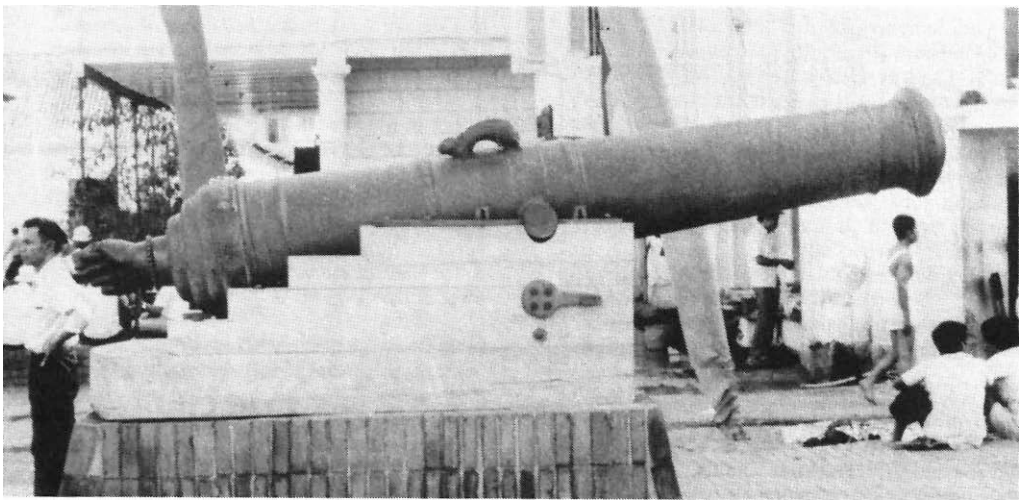

Figure 7. The gun known as Si Jagur, Taman Fatahillia, Jakarta.

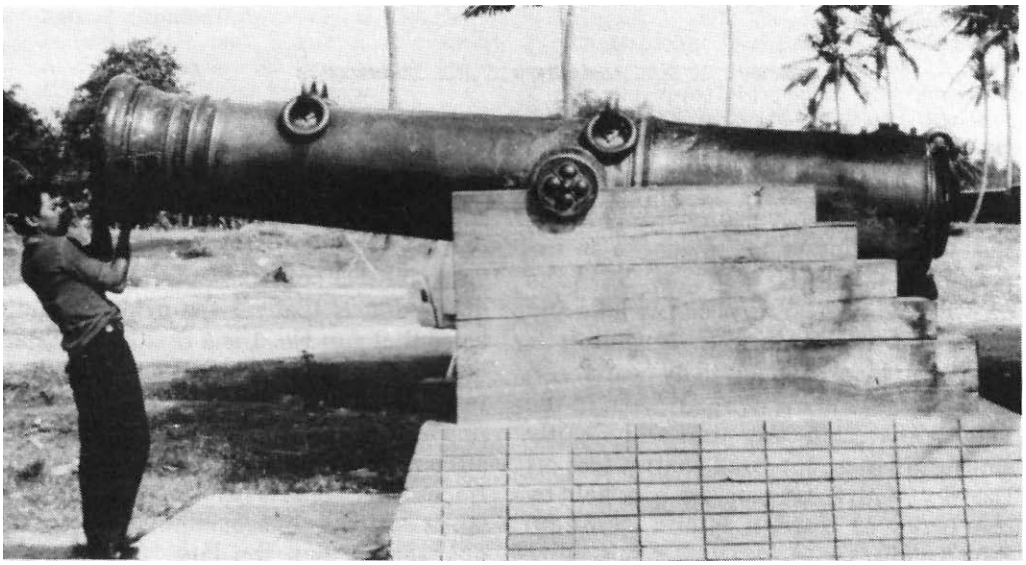

Figure 8. The gun known as Ki Amuk, at Banten.

By coincidence, as part of the Australian War Memorial Cannon Register Project by the author, information was received about a gun, held in a private collection by Mr Quintus Bosz of Sydney, which had almost identical decorations to Gun No.1. This (brass/bronze) gun (Fig.9) . A drawing of the Quintus Bosz gun;{ TC "Figure 9. A drawing of the Quintus Bosz gun" \l 1 } is 750 mm long with a bore of 31 mm. The decoration is almost identical to Gun No.1. The major differences in the Bosz gun is that the wings(?) surrounding the central decoration are inverted, that there are a series of acanthus leaves around the ogee and fillets of the first reinforce and muzzle and the cascabel button is fluted. The gun was given to Mr Bosz by his father in the 1920s and is said to have come from North Surabaya Harbour in the Straits of Madura near Gresik. Since the gun has not been the subject of prolonged polishing, the decoration is well preserved with quite prominent buttons on the crown and on the floral medallion, although only traces of the chaplet system were noted it was clear that the gun was constructed in the same way as the Carronade Island gun No. 1.

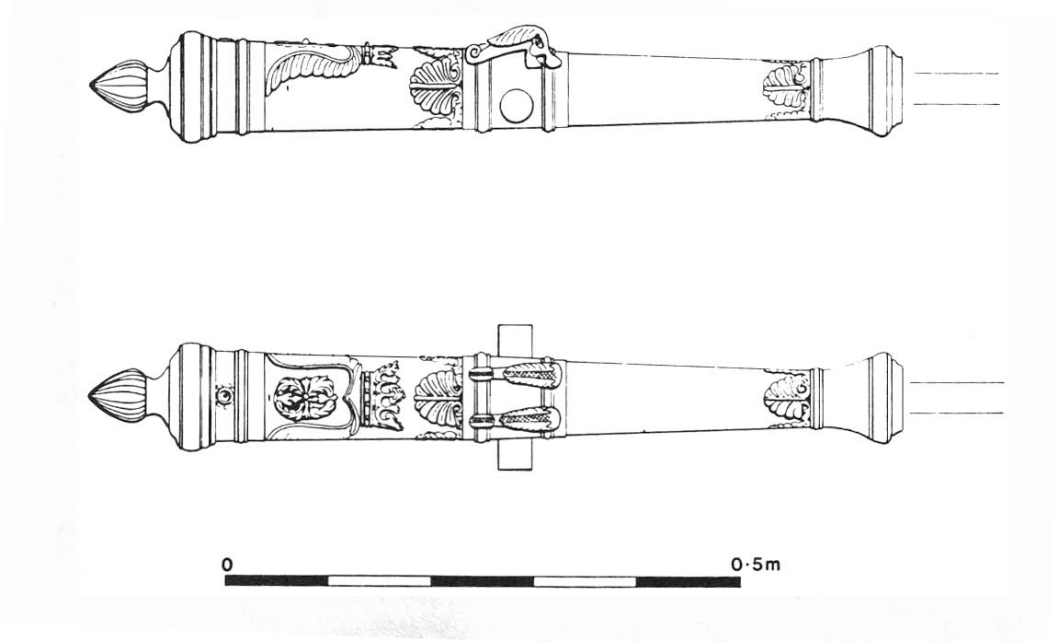

Figure 9. A drawing of the Quintus Bosz gun.

Historically, the discovery of a gun of Southeast Asian origin on the northern coast of Australia does not pose any interpretational problems. There is a wealth of evidence that Macassan trepangers carried and used guns on their visits to northern Australian waters (MacKnight 1969 & 1976). Flinders noted that the Macassan trepanger 'Pobasso carried two small brass guns obtained from the Dutch' (Flinders, 1814), and MacKnight also mentions this fact together with the following account: 'there are occasional references throughout the century. The only account of their use is rather circumstantial. Searcy was told of an incident in which shots were fired at Aborigines from the cannon. There are two guns extant which may conceivably have come from Macassan praus, though the evidence is extremely tenuous. One is a brass swivel-type gun a little over 1 m long and decorated with triangular designs. It is reputed to have been found by pearlers on New Year Island off Arnhem Land in the 1890s. The other is of iron and slightly shorter. It was recovered from a reef off Darwin (both these guns are now held by the Navy at Garden Island, Sydney)' (MacKnight, 1969).

One of the most important references to guns being established on land comes from a description of the 19th century Indonesian trepang fishing industry: 'as soon as they arrive at Kai-Djawa, they work with united forces to erect a bastion that, mounted with rifles and the light guns from the prahus, is brought into a reasonable state of defence and at the same time serves to protect their prahus and other property' Vosmer (1939).

A general conclusion from the above discussion is that all the evidence indicates that Gun No.1 is a Southeast Asian copy of a European-type gun. Furthermore, the discovery of such guns on the north and north-west coast of Australia is strongly associated with the early Macassan trepangers. There is no evidence for Spanish or Portuguese association or for a date any earlier

than the late 18th century. These findings, together with Gun No.2, which is clearly a Southeast Asian *lantaka*, strongly supports this. It is further suggested that the multiple chaplet system of casting bronze ordnance was a Southeast Asian innovation and was used in casting a variety of guns including very small pieces.

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