

DEPARTMENT OF THE ENVIRONMENT

The Armouries of the Tower of London

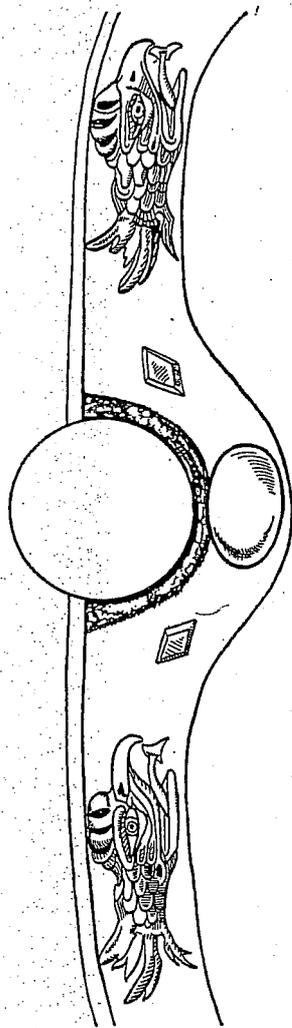
I Ordnance

H. L. BLACKMORE

LONDON: HER MAJESTY'S STATIONERY OFFICE

with it August 1644. At the end of the war it was returned to Dover and it has remained ever since. At some period, probably late in the 17th century, the gun became popularly known as 'Queen Elizabeth's Pocket Pistol', a name at one time given to several large guns, including one in the Tower. A popular rendering of the inscription on the gun was 'Load me well and keep me clean, I'll send a ball to Calais Green'. A footnote in the 1916 *Inventory* suggests that this is a doubtful boast since 'Calais Green' was a part of Dover. There appears, however, to be no basis for this statement.

Jan Tolluys was appointed bell and gunfounder of the city of Utrecht in 1541 and held this office until his death in 1558. In 1553 he cast a large number of cannon for Charles V for which he was paid '60 Flanders sous per 100 livres weight, pour les moulaige, fondaige, fagon et mainoeuvre' (Pinchart, *Archives des Arts*, III, 14).



CARRIAGE

In 1827 the gun, then referred to as 'Queen Anne's Gun', was mounted on an iron carriage designed by Lt. General W. Cuppage, the Inspector of the Royal Carriage Department, Woolwich, and cast by the firm of J. Hall of Dartford, Kent. As the gun was believed to have been presented to Elizabeth I by the States of Holland in 1544 the decoration on the carriage included the monogram *ER* and the crest of a rampant lion crowned for the arms of Holland. There was also the head of Philip II of Spain with vipers hissing at it, and the edges of the brackets were covered with basilisks (the ancient name of this piece of ordnance) and basilisks' eggs (W.O. 44/519). On the rear transom is the inscription CONSTRUCTED ROYAL CARRIAGE DEPARTMENT FIELD MARSHAL DUKE OF WELLINGTON MASTER GENERAL MDCCCXXVII.

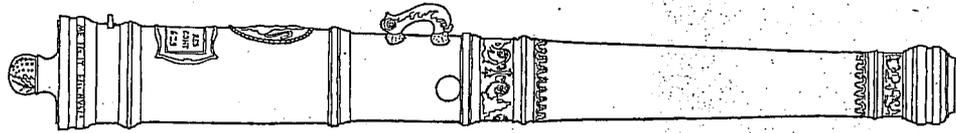
5 Bronze Gun, 8 pdr, and Carriage

XIX. 180

Dutch (Enkhuizen), dated 1623; carriage, English, 19th century

The decoration is of fine quality, with bands of foliage and terminal figures. On the first reinforce are the arms of the Republic of the United Netherlands (*a lion rampant, its dexter paw holding a sword, the sinister paw a sheaf of seven arrows*) with a cartouche below containing the motto *CONCORDIA RES PARVAE CRESCUNT*. ANNO. 1623 ('Small things increase with concord, 1623'). The base ring is inscribed with the name of the founder

HENRICUS WEGEWAERT ME FECIT ENCHUSAE and is incised with the number 1243. The vent has had a hinged cover, now missing.



L 7ft 3 in (221 cm): 7ft 8 in (233.7 cm) Cal 4.1 in (1.3 cm)

Transferred from the Ordnance Depot, R.A.O.C., Hillsea, Portsmouth in 1936. On loan since 1940 to the Royal Hospital, Chelsea.

Henrick Wegewaert, a bell and gunfounder, worked first in Deventer, Holland, where he was born in c. 1580, joining the cannon foundry at Enkhuizen (*Enichusae*) on the Zuider Zee (now the IJsselmeer) as its second master founder in 1621. He died there in 1624 (see C. N. Fehrman, *De Kamper Klokkengieters* (Kampen, 1967), 155-78, 244-5). The foundry started in 1613 and was finally closed down about 1780.

CARRIAGE

The gun is now mounted on an English 19th-century solid-trail carriage.

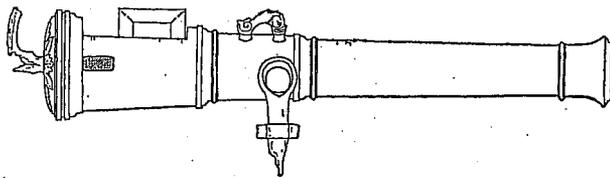
6 Bronze Breech-Loading Swivel Gun, 2 $\frac{3}{4}$ pdr (Pl. 59)

XIX. 238

Dutch (Middelburg), c. 1670



The chase bears in relief the cipher of the Zeeland Division of the Dutch East India Company, the second reinforce is stamped with the control mark of the foundry of Middleburg, the capital of the province of Zeeland, and the number 182A, the weight in Amsterdam pounds (1 'pond' = .494 kg.), is incised just in front of the breech opening. The cascabel is chased with acanthus foliage. There is an iron traversing lever, now corroded and split and bent into an upward curve, which may or may not be the original shape. There are two slots in the base of the breech for the wedge securing the chamber and a third slot in the under side; these slots are usual in this type of gun. The trunnions are fitted with an iron pivot, of which much of the spike is missing. An original chamber is preserved. Made of metal similar to that of the gun, it is of smaller internal diameter than the bore, tapers slightly from base to mouth and has a rectangular lifting handle; the base has a projecting lip to engage with the securing wedge. The chamber bears a repetition of the control mark on the gun. The vent is spiked.

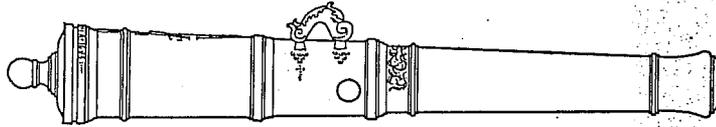


L 3ft 8 in (111.8 cm): 4ft (121.9 cm) Cal 2.9 in (7.4 cm) L Chamber 9 in (22.9 cm) Diam bore 1.3 in (3.3 cm)

Transferred in 1963 from the Royal United Service Museum (Cat. No. 2682) to which it was presented by Captain J. C. Wickham, R.N. Captain Wickham, an experienced surveyor, was appointed to the command of the *Beagle* in 1837 to make a survey of the Australian coast and Bass Strait. The gun was discovered on 24 April 1840 on the largest island (promptly named Gun Island) of the Pelsart Group. With it was a quantity of ornamental brasswork, glass bottles and pipes. John Nort Stokes, who took over the command of the *Beagle* when Wickham was invalided home in 1841, describes the incident and illustrates the gun in his *Discoveries in Australia; with an Account of the Coasts and Rivers explored and surveyed during the Voyage of the Beagle, in the Years 1837-43* (London,

Dutch (Amsterdam), dated 1685

The first reinforce bears the cipher of the Amsterdam Division of the Dutch East India Company and is incised with the Amsterdam town mark. The base ring is stamped 488 (probably the weight in Amsterdam pounds) and inscribed C. FREMYME:F:A:LODAMI: AO:1685 (C. Fremy me fecit Amstelodami anno 1685). There are dolphins, and the chase girdle is ornamented with a band of foliage.



L 4 ft 9 in (144.8 cm): 5 ft 2 in (157.5 cm) Cal 2.7 in (6.9 cm)

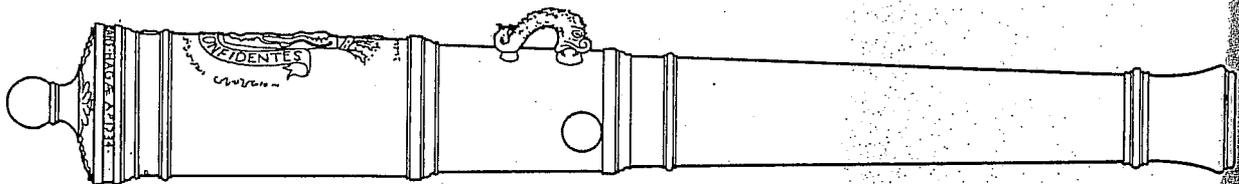
From the Indian disarmament of 1859 following the Indian Mutiny. Presented by the Indian Government in 1861 (Hewitt, 1859 *Inventory (Addn.)*, p. 9, No. 294).

Claude Fremy was the chief bell and gunfounder in Amsterdam from c. 1682 to 1699. A gun signed by him and dated 1694, also bearing the cipher of the Dutch East India Company, was recovered in 1970 from the wreck of one of their ships, the *Hollandia*, which sank off the Isles of Scilly in 1743. Another gun by Fremy is in the Museo del Ejército, Madrid, No. 3901.

9 Bronze Gun, 12 pdr

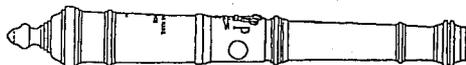
Dutch (The Hague), dated 1734

The first reinforce bears in relief the arms of the Province of Holland surmounted by a coronet and surrounded by a ribbon inscribed with the motto VIGILATE. DEO. CONFIDENTES (Be vigilant and trust in God). The base ring bears the name of the founder etc., ME. FECIT. ADRIANUS. CRANS. HAGAE. AO 1734, and is stamped with the number 3990, probably the weight in Amsterdam pounds. The first reinforce ring is engraved TO HIS ROYAL HIGHNESS THE PRINCE REGENT with below, on the reinforce, HUMBLY PRESENTED WITH EVERY SENTIMENT OF RESPECT & DUTY IN THE NAMES OF THE CAPTORS: ROBT. ROLLO GILLESPIE COLL. COM. ON JAVA and below the coat of arms, TAKEN BY STORM ON THE BATTERIES WITHIN THE LINES OF CORNELIS ON THE ISLAND OF JAVA 26TH OF AUGUST 1811. The gun has dolphins.



L 10 ft 1 in (307.3 cm): 10 ft 10 in (330.2 cm) Cal 4.7 in (12 cm)

No. 9 was taken together with Nos. 11 and 235 (*q.v.*) when the Island of Java was captured in 1811 by a force commanded by Major-General Sir Samuel Auchmuty, Colonel R. R. Gillespie being in command of the advance. The lines of Cornelis were the defensive positions at Meester Cornelis, a suburb to the south of Batavia. Five years later the island was restored to the Dutch. No. 9 is virtually a pair to No. 11 and there is a similar gun in the Rotunda Museum, Woolwich, No. 11. 162. Adrian Crans was a member of a large family of gunfounders who worked at The Hague, Amsterdam and Enkhuizen in the first half of the eighteenth century. The patriarch and father of Adrian was Jan



L 2 ft 2 in (66 cm): 2 ft 5.5 in (74.9 cm) Cal 1.3 in (3.3 cm) Wt (where given) XIX. 24— 1 qtr 21 lb (22.2 kg); XIX. 26— 1 qtr 23 lb (23 kg); XIX. 27— 1 qtr 20 lb (21.8 kg)

These model cannon first appear in the *Duplicates or Inventories for Sale of the Goods and Personal Estate of the late King Charles 1st.* which were made according to the Act of Parliament passed 4 July 1649 and amended 17 July 1651. They were then in the armoury of St. James's Palace and were included in lot No. 28, which consisted of a number of military models, valued in all at £40, as '15 peeces of brass ordinance, each one about 22 ynches long being mounted on their carrages' (L.R. 2/124, f. 67). They were not apparently sold but were lodged in the Tower as items of curiosity, for the 1665 Inventory (App. I) includes fourteen 'small brs peeces of inch bore'. When the 1683 Inventory (App. I) was taken the number had been reduced to ten and they were then mounted 'in ye Trayne house on Ship carr.' The 1750 *Guide* described them as:

'A small Train of ten Pieces of pretty little Cannon, neatly mounted on proper Carriages, being a Present from the Foundary of London to King Charles I when a Child, to practice the Art of Gunnery with.'

During the 1841 fire all the original carriages appear to have been destroyed and XIX. 28 was badly damaged.

CARRIAGES

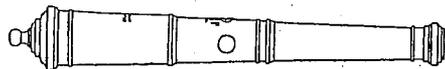
With the exception of XIX. 28 which was apparently not considered worth mounting, each gun is mounted on a mid 19th-century wooden truck carriage probably made to replace the original ship-type carriage destroyed in the 1841 fire. There are only two wheels, the rear being supported on blocks. The cheeks or sides of the carriage are ornamented with the badge of the Prince of Wales and the initials C.P. (*Carolus Princeps*) applied in relief.

41 Five Small Bronze Guns, and Carriages (Pl. 74)

XIX. 29-33

English, dated 1639; carriages later

These five guns are slightly smaller than the preceding series and the mouldings are lighter and more graceful. On each gun the second reinforce bears the badge of the Prince of Wales and C.P., the first reinforce being inscribed with the maker and date THOMAS PIT MADE THIS PEECE 1639 and with the weight numerals. The touch hole is bushed with steel, except for XIX. 31 where the bush has been blown out. No. XIX. 33 lacks the badge and initials and is slightly smaller in the bore.



L 2 ft (61 cm): 2 ft 2.5 in (67.3 cm) Cal 1.1 in (2.8 cm) Wts XIX. 29— 1 qtr 11 lb (17.7 kg); XIX. 30— 1 qtr 9 lb (16.8 kg); XIX. 31— 1 qtr 10 lb (17.2 kg); XIX. 32— 1 qtr 12 lb (18.1 kg); XIX. 33— 1 qtr 12 lb (18.1 kg)

Thomas Pit or Pitt was the son of Henry Pitt, cf. No. 35. He died in 1645 and in his will is described as 'of the Tower of London Gunfounder' (P.C.C. Rivers 130). A mortar by Thomas Pitt is at Blair Castle, the property of the Duke of Atholl.

CARRIAGES

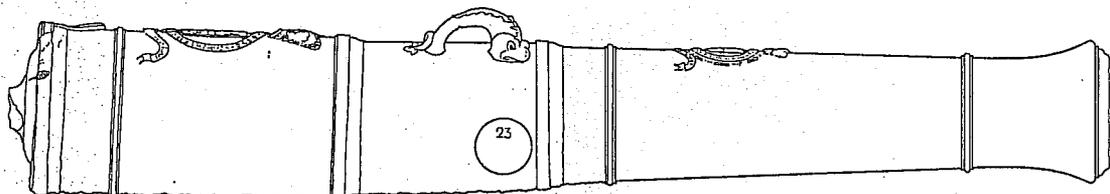
Similar to those of the preceding series.

52 Bronze Gun, 24 pdr (Pls. 50-51)

XIX. 42

English (Woolwich), 1743 (?)

Similar to No. 51 in all respects except that probably due to damage suffered in the 1841 fire the inscription on the base ring, almost certainly A. SCHALCH FRCIT, is nearly illegible. Three deep slots in the base ring show where the iron crown which secured the core when the gun was cast has been destroyed by the action of sea water. The cascabel is damaged and the button is missing. The number 23 is incised on the right trunnion.



L 9 ft 6 in (289.6 cm) Cal 6 in (15.2 cm)

This gun appears in the 1841 *Guide* (p. 40) as: '28. A brass 24-pdr. Gun, recovered from the wreck of the *Royal George* by Mr. Deane's apparatus. It is still in tolerably good condition.' The complete disappearance of the iron parts is due to long submersion in the sea; sea water when in contact with a copper alloy and iron sets up an electrolytic action which attacks and destroys the iron. Cf. Nos. 51, 54, 172.

CARRIAGE

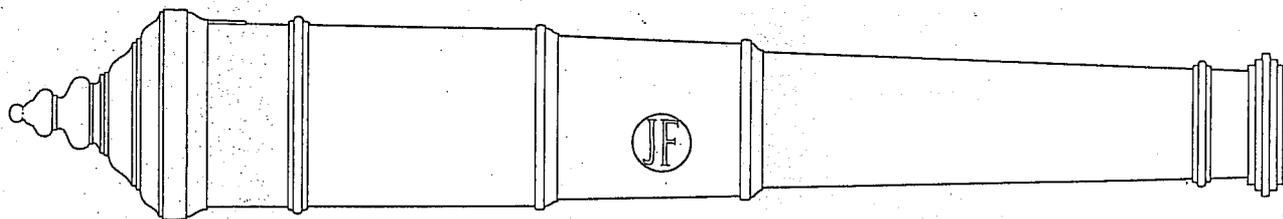
When the gun was raised much of its original carriage was preserved with it. A drawing of the gun on its carriage appears in Charles Knight's *London* (London 1842), II, 253 (see *Introd.* p. 27). This carriage was destroyed in the 1841 fire and a replacement soon deteriorated. A naval truck carriage of later date was provided in 1908 from old stock in the Royal Naval Ordnance Depot, Woolwich (Works 14/179). This was completely destroyed by a terrorist bomb on 17 July 1974.

53 Two Iron Guns, 24 pdrs (Pl. 80)

XIX. 20, 21

English, 1747

Exactly alike and quite plain except for bold stepped mouldings at the muzzles and the usual astragal and ogee mouldings at muzzle, breech and the start of the two reinforces. The prominent cascabels have long baluster-shaped buttons ending in small round knobs; that on XIX. 20 has been broken off and replaced. The right trunnion of each gun bears in relief the initials JF of the founder John Fuller. The first reinforce of both guns is incised with the weight, that of XIX. 20 with 32-2-24 and that of XIX. 21 with 33-0-2.



L 10 ft (304.8 cm): 11 ft 4 in (345.4 cm) Cal 6.1 in (15.5 cm) Wt XIX. 20—32 cwt 2 qtr 24 lb (1662 kg):
XIX. 21—33 cwt 2 lb (1677 kg)

Returned from Ireland in 1849.

The archaic design of these guns with their prominent, pointed cascabels and heavy,

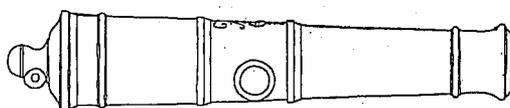
imagined 'it had been left in mistake'. XIX. 44 appears in the 1845 *Guide* (p. 119) and was formerly XIX. 42 in the 1859 *Inventory*. The 1861 *Inventory* of guns in the Royal Arsenal, Woolwich, includes two of the Danish frigate's guns, of which XIX. 45 is probably the one whose weight is given as '7 cwt. 3. 3'. It was transferred to the Central Ordnance Depot, Donnington, in 1957 and from there to the Tower in 1964. The gun numbered 9 of this set is in the collection of Mr. W. Keith Neal.

61 Bronze Gun, 3 pdr, and Carriage (Pls. 50-51)

XIX. 220

English, c. 1790; carriage modern

The gun is short in relation to the calibre, with loops below the cascabel button to secure it to an elevating screw. The second reinforce bears in low relief the initial H surmounted by a crest, *on a ducal coronet a peacock close*, probably for a member of the Harcourt family. The piece bears neither founder's name nor other markings.



L 2 ft 8 in (81.3 cm): 3 ft (91.4 cm) Cal 3 in (7.6 cm)

Probably made for Major General the Hon. William Harcourt, 1743-1830, who succeeded as 3rd Earl Harcourt in 1809 and became Field Marshal and G.C.B. in 1820. He was Governor of the Royal Military College, Great Marlow, 1801-11. The gun was perhaps passed to the Royal Military Academy, Sandhurst, from which it was transferred to the Tower in 1959, together with No. 79. Now on a modern truck carriage.

62 Bronze Howitzer, 10 in, and Carriage

XIX. 299

English (Woolwich), dated 1791; carriage modern

Of cylindrical form with pronounced muzzle and base rings. A wide band at second reinforce supports two naturalistic dolphins. Royal arms are cast in relief on the chase; the letter R under a coronet for Charles, 3rd Duke of Richmond, Master General of the Ordnance, 1782-3 and 1784-95, on the reinforce. The breech ring is incised with the makers' names and date I° & H^y KING FBCEBUNT A° 1791. The left trunnion is cut with the foundry numbers No. 1 20. The cascabel is cast for a loop ring but the lump has not been bored out.

L 3 ft 11 in (119.4 cm): 4 ft 7 in (139.7 cm) Cal 10 in (25.4 cm)

On loan to the Royal Arsenal, Woolwich, and placed at the entrance to the old Royal Brass Foundry where it was made. Mounted on a modern wooden bed. John and Henry King were appointed Founders of the Royal Brass Foundry at Woolwich in 1784, and Foreman and Assistant Foreman in 1789, being promoted to Master Founder and Assistant Founder on the revival of these offices in 1797. John King continued in the post until his death in 1813 when he was succeeded by his brother Henry (W.O. 47/116, p. 692; W.O. 47/2560, p. 414; W.O. 47/2630, p. 1143).

63 Bronze Gun, 1 pdr (Pl. 60)

XIX. 176

English, dated 1793

The gun is long and slender and is of the type often called an 'Amusette'. It is engraved with the monogram of George III on the first reinforce and with that of the Master General of the Ordnance, Charles, 3rd Duke of Richmond, on the chase, both framed

L 7ft 4 in

7.5 cm); 7ft 10 in (238.8 cm)

Cal 1.7 in (4.3 cm)

Wt 3 cwt 3 qtr 5 lb (192.8 kg)

Transferred in 1930 from the Rotunda Museum, Woolwich, where it was No. II. 3. Brought from Paris in 1816. The gun figures as No. 1 in the 'Return of Ordnance, Arms, Models and Various Articles proceeding from the Arsenal, the Central Depot, and the Museum of Artillery in Paris, forming a part of the British Share of Stores, captured in that City', which was drawn up on 19 December 1815. It is described as 'An Ancient Brass Gun, dated 1535, the exterior richly ornamented with carved work. Length 7 ft. 4 in., Calibre 1.72 in., Weight 3 cwt: 3 qrs. 5 lbs.' (W.O. 44/616). An unsigned gun of similar proportions also decorated with Gothic architectural features but with two jew's harps in front of the vent was in the Zeughaus, Berlin, No. 6798(?) (1900 *Führer*, p. 178, No. 57). There is no obvious explanation, heraldic or otherwise, for the presence of these musical instruments on the guns, but the German words for a jew's harp, *Maultrommel* (mouth drum) or *Brummeisen* (buzzing iron), may indicate a light-hearted attempt to suggest the noise of these light guns in action. Although the jew's harp can be traced back to at least Saxon times these two guns carry some of the earliest representations of the instrument (see F. C. Elliston Erwood, 'Examples of Jew's Harp found at Shooters Hill and elsewhere', *Archaeologia Cantiana*, Vol. 56 (1944), 34-7).

Bronze Saker

Flemish, dated 1555

See ADDENDUM, No. 359.

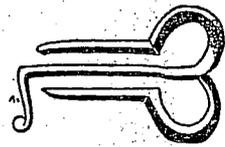
XIX. 304

130 Bronze Gun, 24 pdr (Pls. 28-29)

Probably Flemish, dated 1607; carriage, English, 1827

XIX. 77

The piece is of exceptional length and finely ornamented in relief. The first reinforce bears three shields-of-arms; of the Order of St. John of Jerusalem, of Grand Master Alof de Wignacourt, and probably of Veri of Majorca with the arms of the Order *in chief*. Below, an oval cartouche is engraved with the inscription *EX PERPETVO CENSU SVPER MODICAE COMITATV FVDATO A FRE RAYMODO DE VERI MAIORICAR BAIVLIVO ANNO 1590 FACTA ANNO 1607 TÈPORE MAGNI CÔSERVATORIS FRE MICHAELI DE LENTOM ET COSEGNATA A FRE RAYMVNDO DE BERGA MAGNO CÔSERVATORE*. The inscription may be translated 'Provided out of the permanent charge on the county of Modica instituted by Brother Raymond de Veri of Majorca, Bailiff, in the year 1590; made in the year 1607 in the time of the Grand Conservator Brother Michael de Lentom (Lentorn) and registered by Brother Raymond de Berga, Grand Conservator'. On the second reinforce is a figure of St. Michael overthrowing Satan, and the chase girdle is banded with cherubs' heads and foliage. There is a prominent moulding at the muzzle, the space between this and the muzzle astragal being ornamented with cupids gathering grapes. The vent field is banded with



Baroness
Printer
1917



Wesley
London
1917

103

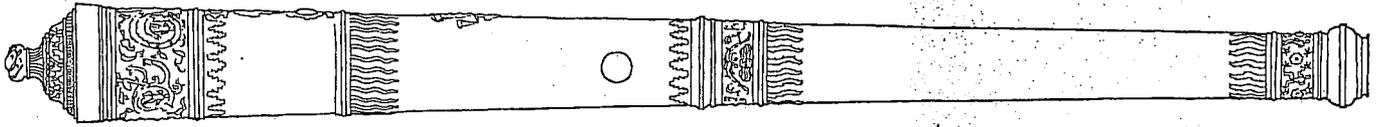
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166

London
Printer

a design of large floral scrolls enclosing similar grape-harvesting cupids with birds and animals below. Tongues of flame project from the second reinforce ring and from the chase and muzzle astragals. The cascabel is ornamented with acanthus foliage. The base ring is incised with the number 63, with the weight 115-2-0 above and the number 32 below, both the weight and the second number being later additions. The vent was originally fitted with a hinged cover, which seems to have been deliberately removed.



L 19 ft 1 in (581.7 cm): 20 ft 1 in (612.1 cm) Cal 6 in (15.2 cm) Wt 115 cwt 2 qtr (5867.4 kg)

This gun was brought to England from Malta some time after 1800. In 1826, after lying for some years near the door of the Storekeeper's Office in the Royal Arsenal, Woolwich, it was mounted on a cast-iron carriage designed by the Royal Carriage Department, Woolwich, and made by the firm of John Hall of Dartford, Kent. It then stood within the main gate of the Royal Arsenal until it was transferred to the Tower in 1962.

Alof de Wignacourt whose arms appear on Nos. 130 and 131 was born in 1547, a member of an ancient and distinguished family of Picardy. He became a Chevalier of the Langue of France and served as Grand Master of the Order of St. John from 1601 until his death in 1622. One of his non-military achievements was the building of an aqueduct to bring water to Valetta, Malta. His portrait in armour, painted by Caravaggio in 1608, is in the Musée du Louvre, Paris.

CARRIAGE

Of cast iron.

Wt 3 ton 13 cwt (3708.4 kg).

The decoration of the carriage was described in 1827 as follows:

'In the formation of the Carriage care has been taken to adhere strictly to the Classical History of that Island. On one of its Brackets is therefore exhibited the Shipwreck of the Roman Galley from which St. Paul escaped in a Bay of the Island (and has thus taken his name) who is shewn in the act of Casting off the Viper into the Fire which had adhered to his hand with the terror and amazement of the Natives upon this proof of his Heavenly invulnerability. The opposite Bracket contains the Arms of Malta with its Motto "Citta Vittoriosa" in addition to which are the arms of the Knights "uplifted Swords" and their Motto "pour le Foy". The lower panels are covered with Banners on which were intended to be placed the Names of Two of its celebrated Grand Masters. The Spokes of the Truck are formed of the Maltese Cross and Sword. The Bed (being generally figuratively expressed) is formed of the Dog, peculiar to the Island [called by] the Name [of] Bichou and mentioned as such in Roman History.'

(W.O. 44/519)

Although the bulk of the carriage is of cast iron, the wheel bosses are of bronze gilt and the panel on the cheek depicting St. Paul's shipwreck is of pewter. Near the latter is stamped the signature C. JAMES, presumably the name of the designer. He may be the artist of that name who exhibited a portrait in wax at the Royal Academy in 1792. A bronze plaque at the end of the trail reads: CONSTRUCTED ROYAL CARRIAGE DEPARTMENT FIELD MARSHAL THE DUKE OF WELLINGTON MASTER GENERAL MDCCCXXVII.

131 Bronze Culverin, 16 pdr (Pls. 34, 55)

XIX. 78

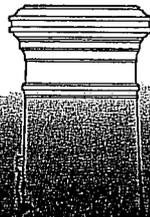
Probably Flemish, c. 1610

The piece is of exceptional length and finely ornamented in relief. The first reinforce bears two shields-of-arms, of the Order of St. John of Jerusalem and of Alof de Wignacourt, Grand Master of the Order 1601-22. Above the shields, on the second reinforce

...the wreck of
...of Jesus at the
... Jesus Museum

XIX. 91

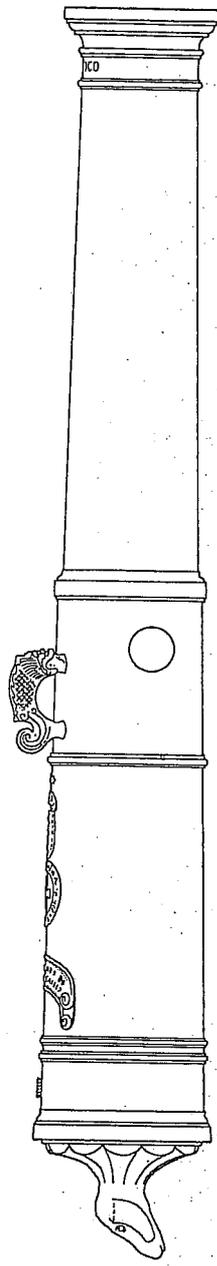
...on the chase and
... The chase
... the Virgin holds a
... the inscription D.A.
... is the name
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... and south of
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... which
... member was
... Pedro Dias
... was named a
... made bells.
... Tavares dated
... gun foundry
... Pedro Dias.

gal, is a scroll bearing the name of the founder and the date M. EL TAVARES
BOCARRO AFES. A. 1627. The gun has dolphins and the cascabel button is formed as
the head of a hound. The number xxx is incised on the face of the muzzle.



L 10 ft 2 in (309.9 cm); 11 ft 2 in (340.4 cm) Cal 8.7 in (22 cm) Wt 71 cwt 12 lb (3612.4 kg)

Captured together with No. 181 in the Bocca Tigris Forts on the Chu-kiang or Canton
River by the forces under the command of Commodore Sir J. J. Gordon Bremer in
February 1841. Brought from China in 1842, together with Nos. 36 (q.v.), 181, 191 (?),
and placed in the Tower (W.O. 44/524). The gun fired a stone shot weighing about 30 lb.

The gun founding industry in Macao was established in 1623 by Dom Francisco de
Mascarenhas, the first Captain General of the colony. In order to teach the Chinese crafts-
men the art, Portuguese experts were sent from Goa under the charge of Manuel
Tavares Bocarro (cf. No. 179). Like his father he also produced bells and one dated 1633
is in the church of St. Lawrence, Macao. He remained to be promoted Captain General
himself from 1657 to 1664 and to see Macao become the most important gunfounding
centre in the Far East. In 1641 200 cannon were sent to Lisbon as a present for King
John IV. Few examples survive of the many splendid pieces produced by the Chinese
gun founders. Nos. 180, 181 are good examples which, although they are of European
form and character, have certain small features clearly indicating their Chinese origin.

181 Bronze Cannon Perrier (Pl. 55)

XIX. 93

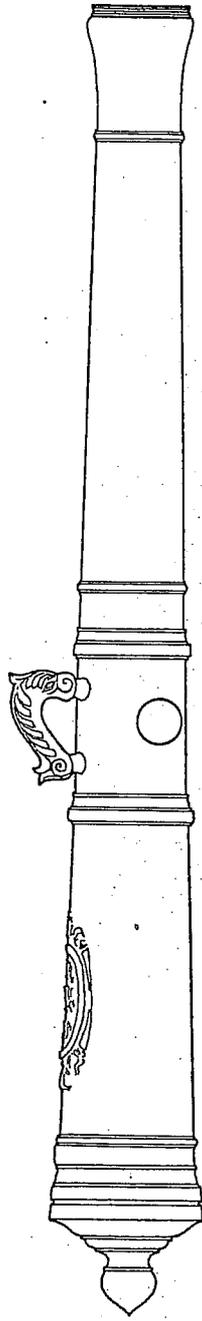
Portuguese (Macao), dated 1627

The gun is similar in general design to No. 180 and of the same provenance. It is by
the same founder but is considerably larger and different in detail. The muzzle mouldings
are heavier; the name of the gun engraved in front of the muzzle astragal is S. LOVRECO
(St. Lawrence); the arms of Portugal on the chase include supporters in the form of
angels, one holding above the head a cross, the other a disk-like object possibly intended
for a monstrance. The muzzle is incised xxxxx. Other features and inscriptions,
including the date, are similar to those of No. 180.

L 11 ft 2 in (340.4 cm); 12 ft 2 in (370.8 cm) Cal 10.5 in (26.7 cm)

There are two similar guns to Nos. 180, 181 in the Rotunda Museum, Woolwich,
No. II. 144, named St. Anthony and captured with the Tower guns, and No. 145 named

...below the centre line. The first reinforce bears in relief a large cartouche with a shielded frame enclosing the inscription in Arabic: 'Sultan Ranarajachmet Najmed-Deen of the country of Palembang the Abode of Peace, 1183 (A.D. 1769).' The cascabel is incised with the weight in the English manner, 73-1-11, probably added after the capture of the gun.



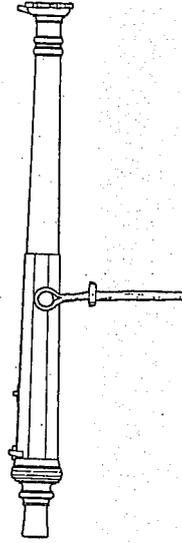
L. 14 ft (426.7 cm); 15 ft (457.2 cm) Cal 7.2 in (18.3 cm) Wt 73 cwt 1 qtr 11 lb (3726 kg)

Captured in Java in 1811 (1859 *Inventory*, No. XIX. 94). See note to No. 9. The Kingdom of Palembang formed the greater part of the southern half of the Island of Sumatra.

236 Small Bronze Lantaka

Malaysian, 18th or early 19th century

The gun has an iron pivot fitted to the trunnions. There are mouldings at breech and muzzle, the end moulding on the latter being of pointed octagonal form. Immediately behind the muzzle moulding is a V-shaped fore sight; the back sight is in the form of a rounded knob on the reinforce. The touch hole is raised in a square block and has had a hinged cover, now missing. The cascabel button is hollow, forming a socket for a wooden tiller.



L. 2 ft 10 in (86.4 cm); 3 ft 2.4 in (97.5 cm) Cal 1.1 in (2.8 cm) Wt 1 qtr 17 lb (20.4 kg)

Probably derived from the swivel guns mounted on Portuguese and Spanish ships of the 16th century, the lantaka is the traditional form of Malaysian cannon with a prominent muzzle ring and the cascabel button formed as a cylindrical socket for a tiller. Often elaborately decorated they are nearly always mounted on swivels and range in length from one to eight feet. The larger lantakas were used on ships and for guarding stockades, the smaller ones were for ceremonial salutes and sometimes acted as currency. Cf. No. 237.

...second reinforce
...third reinforce in
...Dwarawati

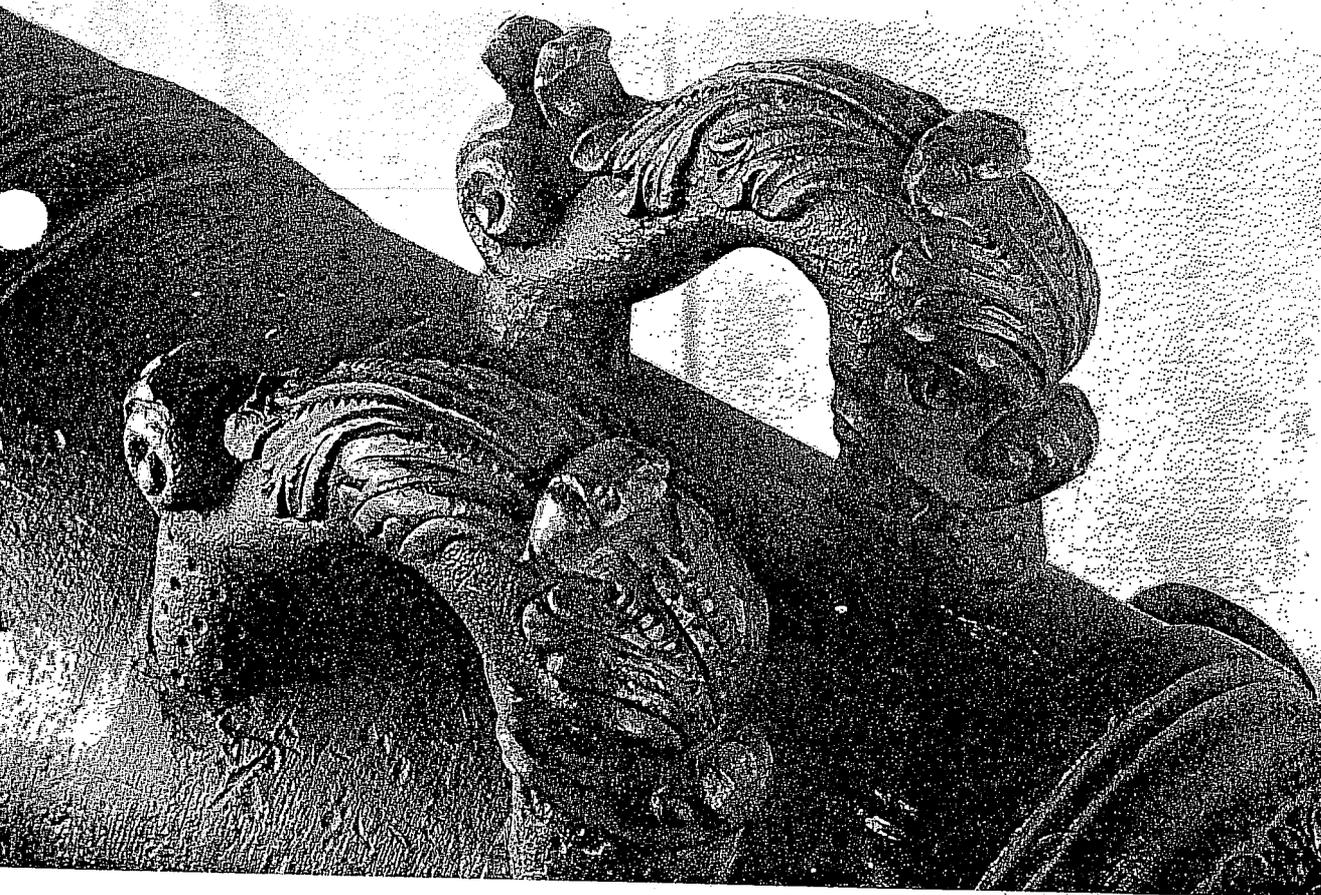
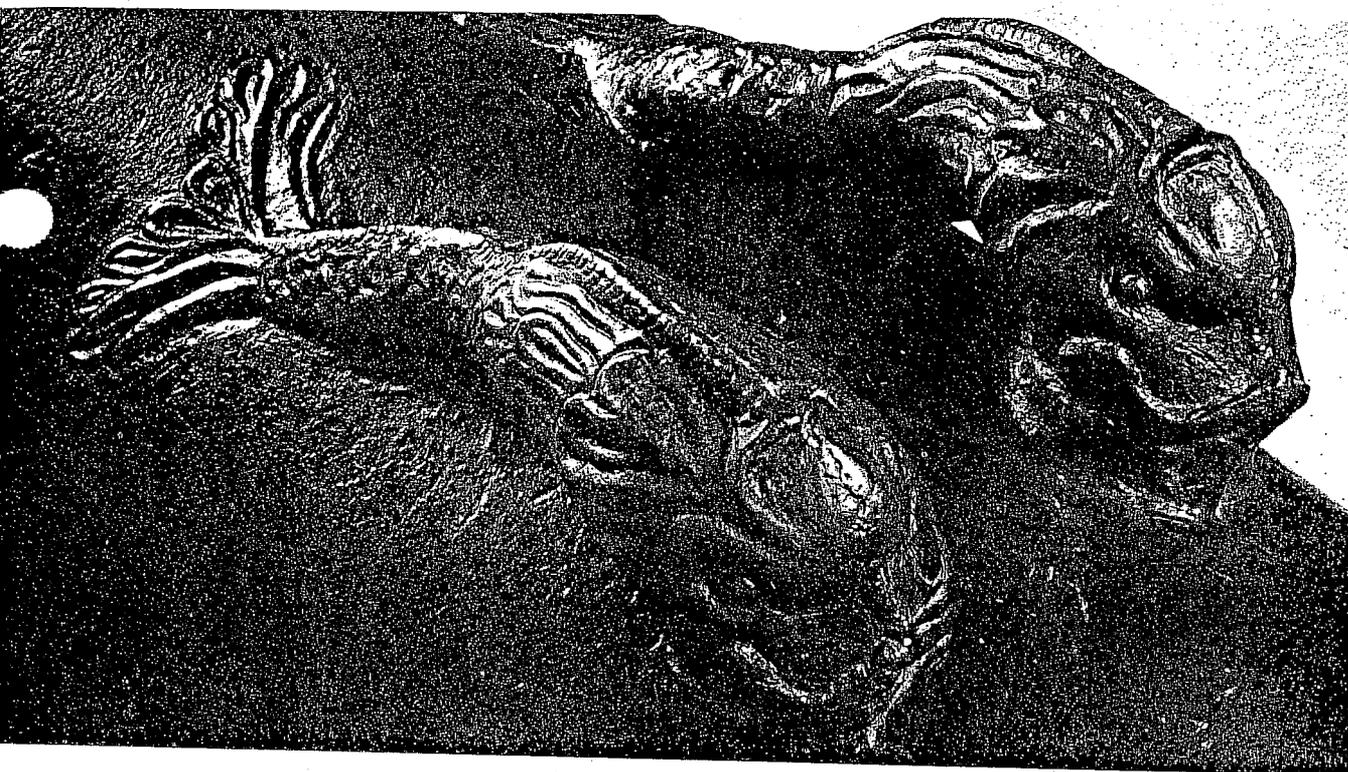


...presented by the
...weight 24 cwt.
...Hospital Works

...and engraved
...the east of the
...appears to have
...by Burmese
...No. 270). The

XIX. 239

...removable
...178-239. It is
...ornament in
...cresting



PLATES 34 and 35

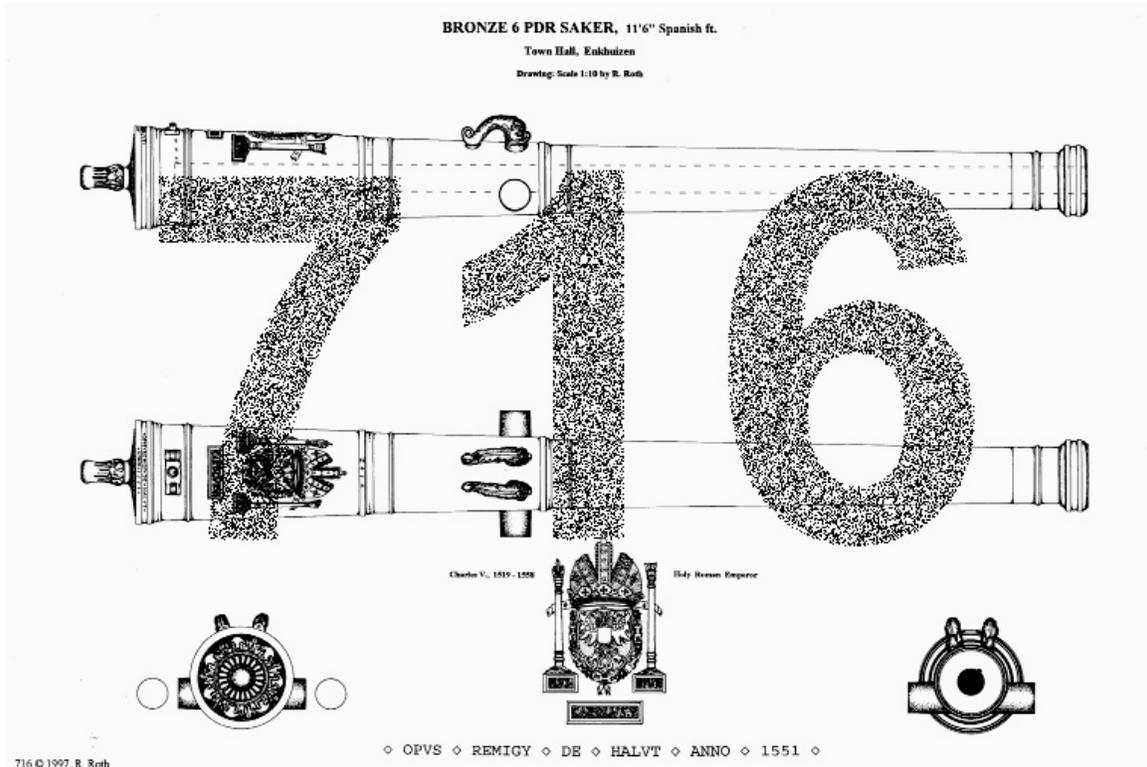
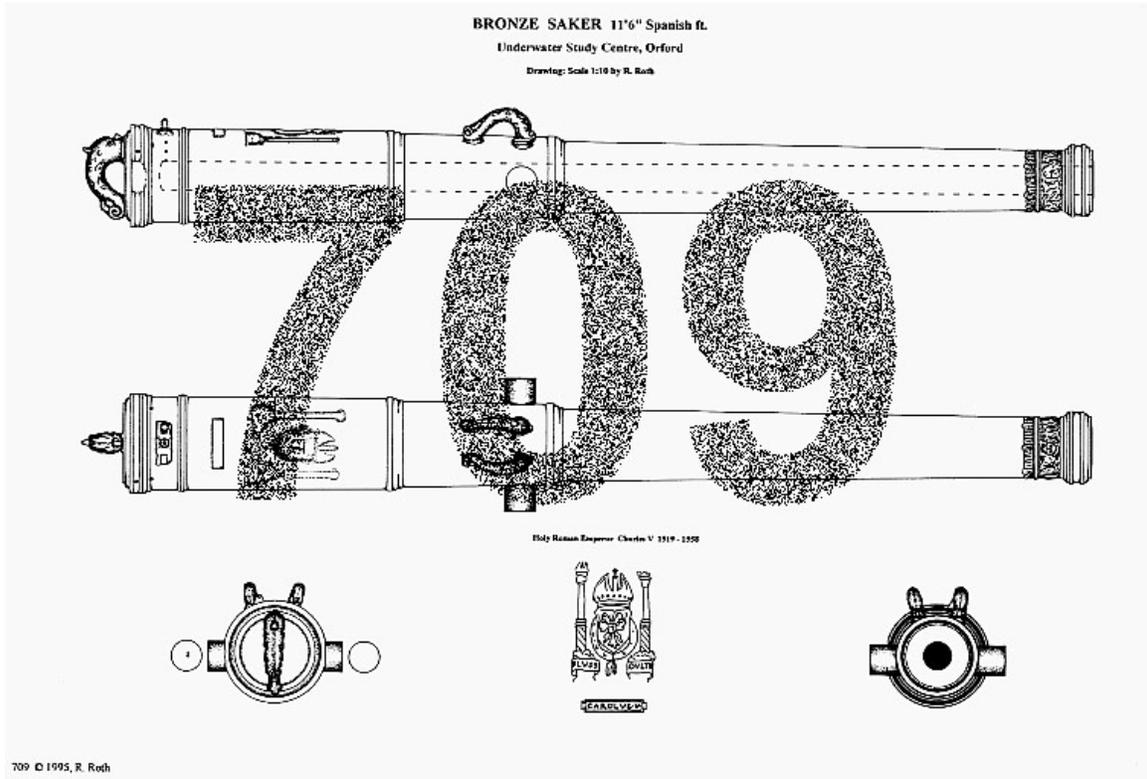
Dolphins of various forms.

above: top 131 Flemish culverin, c. 1610; below 7 Dutch gun, dated 1676.

below: top 10 Dutch gun, dated 1636; middle 182 Russian licorne, dated 1789; below 2 Danish gun, dated 1795.

Cannon catalogued and drawn by Rudi Roth:

<http://www.cannons.ch/verkaufe.htm>



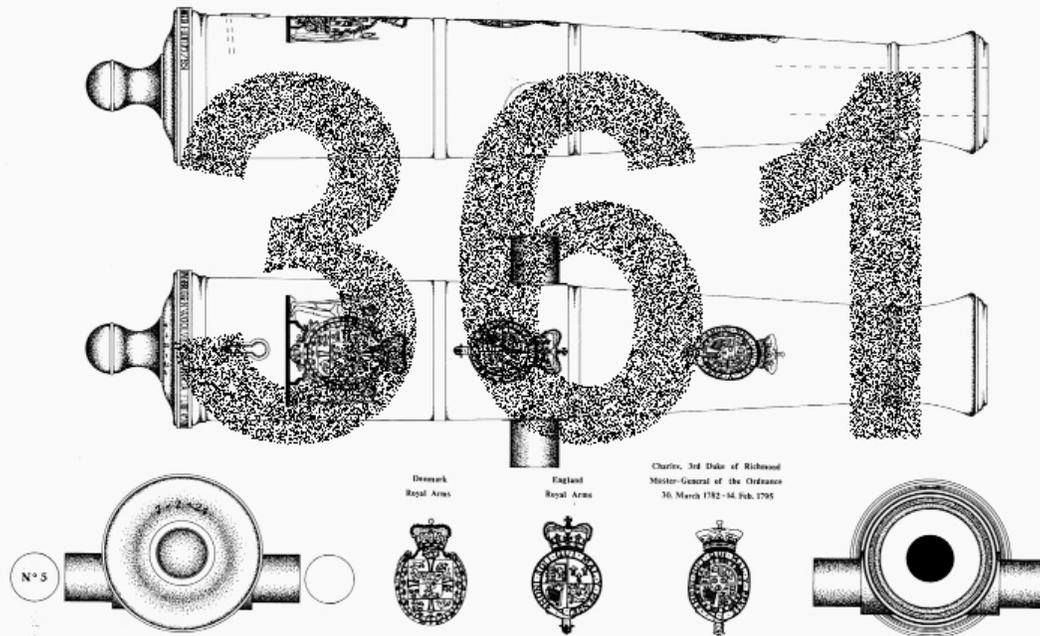
Annex 10.4

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4 POUNDER, NON-STANDARD PATTERN 4 1/2" 7 1/2 cwt

TOWER OF LONDON

Drawing: Scale 1:5 by R. Roth



361 © 1991, Roth

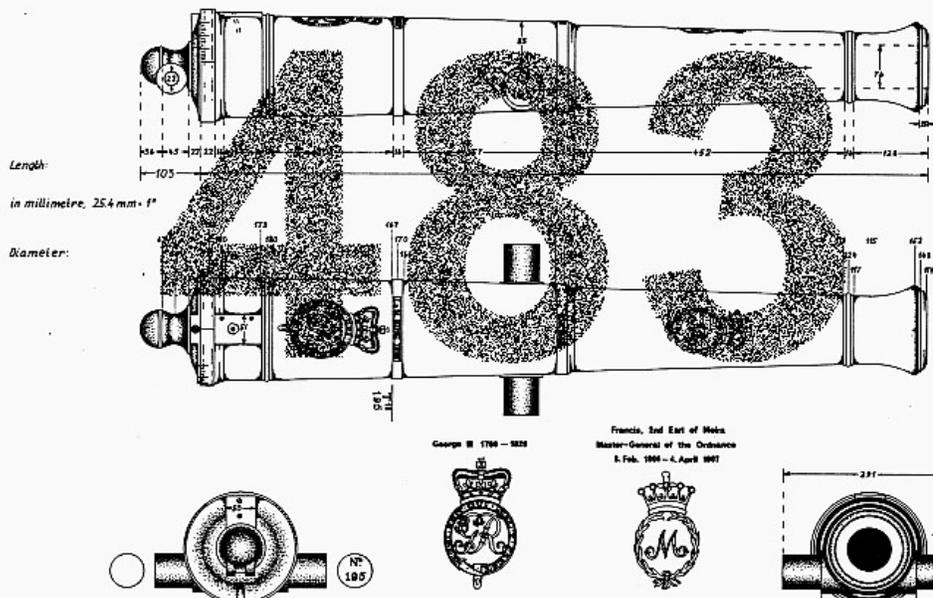
P. VERBRUGGEN WOOLVICI IN ANGLIA FUDIT A° 1785

60
19-44

MEDIUM 3 POUNDER, BLOMEFIELD PATTERN 4 ft. 3 cwt

ROYAL ARSENAL, WOOLWICH

Drawing: Scale 1:5 by R. Roth



483/M © 1990, R. Roth

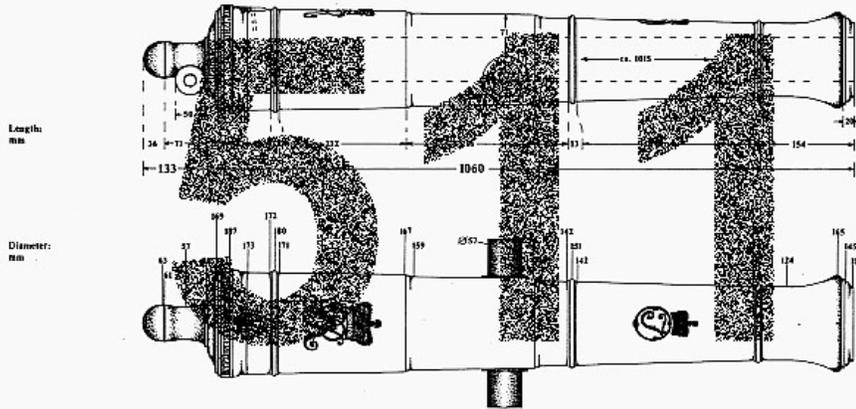
W. & A. KING 1807

78
19-214

LIGHT 3 POUNDER, ARMSTRONG PATTERN 3rd 2 1/2 cwt

OFFICERS MESS, DEEPCUT

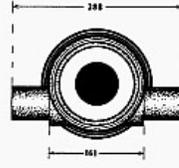
Drawing: Scale 1:5 by R. Roth



Length: mm

Diameter: mm

George III 1760-1820
George, 1st Marquis Townshend
Major-General of the Ordnance 1.Oct. 1772-1.Jan. 1783



511/M © 1991, Roth

L. P. VERBRUGGEN FECERUNT A^o 1780

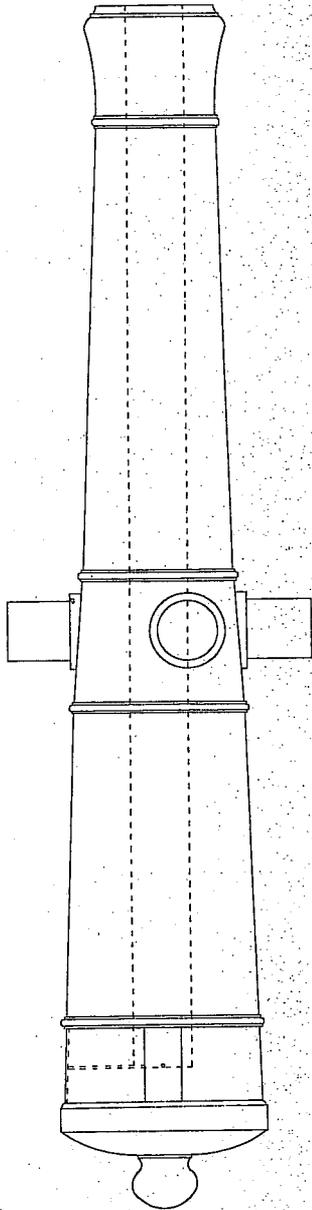
THE HISTORY OF ENGLISH SEA ORDNANCE 1523-1875

Volume I: 1523-1715
The Age of Evolution

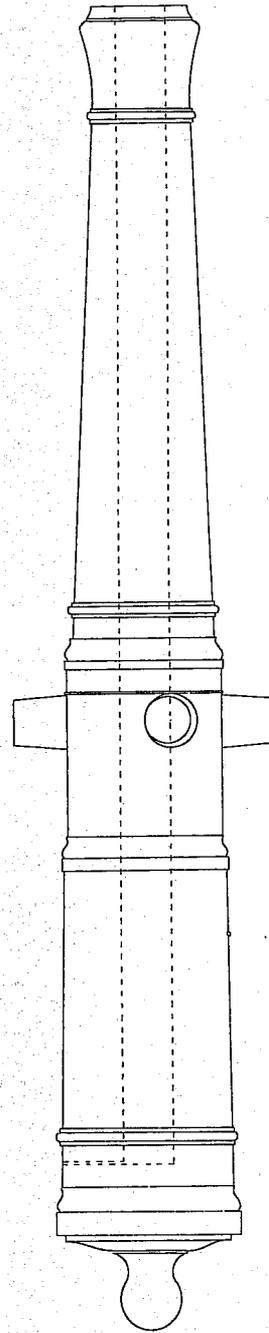
ADRIAN B. CARUANA

1994

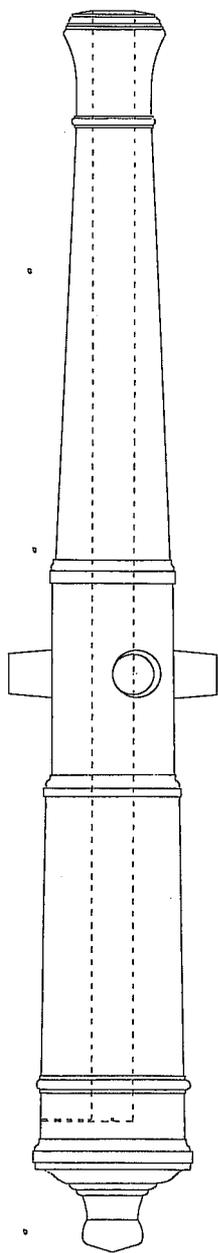
Published by
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Ashley Lodge, Rotherfield, East Sussex TN6 3QX, England



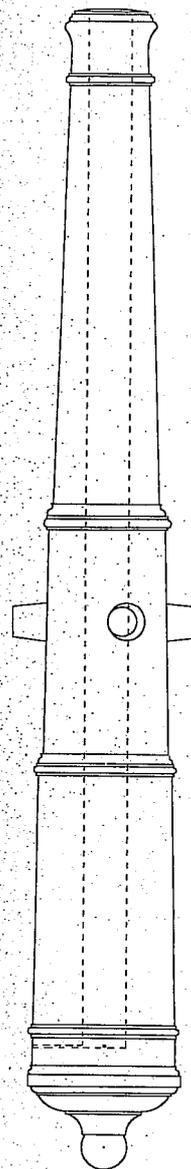
43. Dutch pattern Finnbanker, 12 pdr, 8ft nominal, weight unknown. (*Now in Barbados*)



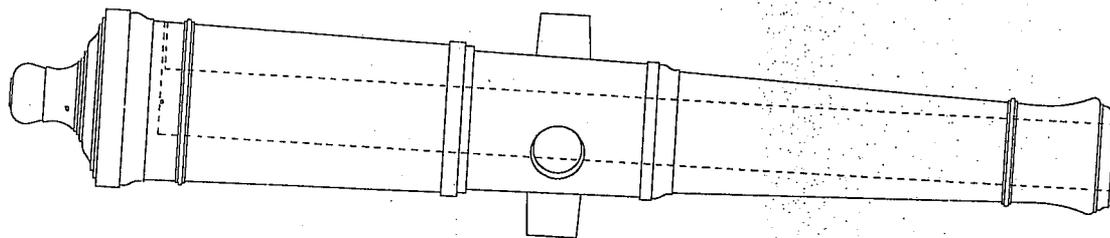
44. Swedish-cast Dutch iron 8 pdr gun, length 8ft 6ins, weight unknown. (*Now in Barbados*)



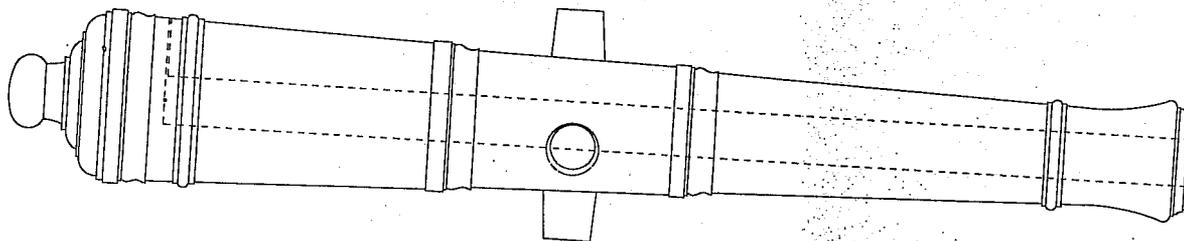
45. Iron saker. 8ft. weight unknown. Cast in the time of the



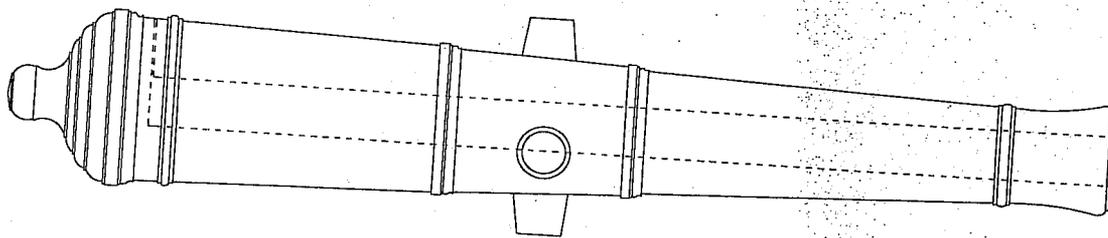
46. Iron saker cast in the time and bearing the badge of the



56. 12 pdr iron gun dating from about 1670. Length 7ft. (*Prideaux Place, Padstow, Cornwall*)



57. Saker, dating from about 1680-90. Length 7ft 6ins. (*Chatham Historic Dockyard*)



58. Demi culverin, length 7ft, weight 16-2-2. Bears the 1696 Survey number 6953. This was one of the guns sold by Lord Ashby in 1691 which formed the last gun

Excavation versus sustainability *in situ*: a conclusion on 25 years of archaeological investigations at Goose Rock, a designated historic wreck-site at the Needles, Isle of Wight, England

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Assurance, a British warship of 44 guns, was lost on the Needles of Wight, UK, in 1753. *Pomone*, a British 5th rate 38-gun frigate of the *Leda* class, followed in 1811. Designated a 'protected wreck' in 1975 this multi-period site was investigated under a UK Government licence. Despite her total disintegration, *Pomone* left artefact scatters attesting to her size, character, resting position and evidence of her cabin plan. This archaeological evidence is compared with two surviving sister ships, and the presumption of incomprehensible 'scrambling' on Muckelroy Class 5 wreck sites is robustly challenged. The licensee reviews the organization and methodology of 25 years of licenced activity on this site and concludes that the UK policy of promoting invasive investigation of historic shipwrecks cannot be readily reconciled with the principles of sustainability which are now embodied in European Agenda 21.

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Key words: protected wreck, sustainability, Isle of Wight, European cultural heritage, Agenda 21, coastal management.

Introduction

For seafarers, the western approach to the historic naval port of Portsmouth is impeded by the Isle of Wight. This island has imposed upon all mariners a choice between an off-shore course in the open waters of the English Channel or a near-shore route which allows craft to approach through the Solent seaway (Fig. 1). The off-shore route takes vessels south of Wight where navigators must stay well clear of the island's dangerous south-western coast as well as the submerged rocks protruding 1.5 km from its eastern tip at Bembridge Ledge.

The inner course offers sheltered waters in the lee of the island but in choosing this route navigators must evade three particular hazards. The first danger lies at the Needles, where a

series of chalk stacks protrude above an ancient wave-cut platform (Fig. 1a). Passing north of these rocks, seafarers must then avoid some treacherous shifting shoals known as the Shingles (Fig. 1b). Once clear of both of these hazards there are powerful and turbulent currents to be overcome in the narrow passage confined by the substantial shingle spit which protrudes from the mainland shore at Hurst (Fig. 1c).

The Needles are today a line of three off-shore stacks projecting westwards from a high chalk promontory. Three hundred years ago they numbered five. Central within the group was the slender 'Needle Rock', sometimes known also as 'Lot's Wife'. This stack fell in 1764. The most westerly upstanding rock is Lighthouse Rock, modified in the mid-19th century to accommodate



Figure 7. Dated bed-plate of a 32-pounder carronade made at the Clyde Ironworks, a feeder to the Carron Company of Falkirk, Scotland. (Photo: Peter Hales)

been armed with 32-pounder carronades. These weapons were first developed during the 1770s by the Carron Company of Falkirk, Scotland, and they were extensively deployed on the fast *Leda*-class frigates of the early 19th century (Elvin, 1985). After their removal and conservation, it was found that the carronades from Goose Rock bore helpful inscriptions, attesting manufacture in the Clyde foundry of Scotland and the Henckell Works at Wandsworth, London (Fig. 7). Inscriptions on the base-plates of the guns read, respectively, '32Pr Clyde 1803 no 1696' and 'H & Co' (Bingeman, 1979). The dated ordnance piece from the Clyde works offered a *terminus post quem* for the arming or re-arming of the ship. The dates of 1802 for the pulley wheels and 1803 for the carronade accorded very well with evidence acquired from copper-sheathing from the ship's hull. Fragments of detached copper sheets were found to be liberally marked with the English broad-arrow while some also bore the initials 'MR' signifying manufacture at the Mines Royal Company of Neath, South Wales. These were suffixed with the numerals '28' or '32' denoting the weight in ounces per square foot for standard



Figure 8. *Pomone*'s stamped 32 oz copper sheathing dated 'Dec[ember] 1804'. (Photo: Peter Hales)

sheets. Sheets of 32 oz quality would usually be used for the bow area while 28 oz sheets would be applied to the ship's sides (Knight, 1973). Particularly revealing was the date-stamp '▼ C DEC 1804' (Fig. 8); this provided a very strong suggestion that Chatham shipwrights had fitted or approved the sheets during or shortly after the close of the year 1804 (Bingeman, 1979).

The coin evidence

While the guns and the copper sheathing hinted at a date for the construction or commissioning of the *Goose Rock* ship, without documentary evidence there remained to be resolved the date of the ship's loss. When the Spanish–American coins were examined by Dr Edward Besly of the British Museum a few coins of later date came to light (Appendix 1). These intimated that the wrecking had occurred no earlier than 1809. The evidence rested on an 8-real piece of that year, struck in Mexico City, together with two other Spanish–American coins of this denomination, struck in the Mexico and Lima mints during 1808. A further coin of this type post-dated 1772 and another had been struck in 1797. The presence of Maltese and Sicilian coins suggested that the ship may have been voyaging in the Mediterranean, a location where the circulation of Spanish–American silver dollars or 'specie' was common. Given that the youngest Mexican dollar would need the better part of a year to travel from its mint to the