SOME IMPORTANT SNAP MATCHLOCK GUNS

by Guy M. Wilson

INTRODUCTION

In July 1986 the Royal Armouries acquired three plain snap matchlock guns, which appeared to date from the middle of the sixteenth century. [1] They had previously been sold in a London saleroom, but nothing was or is known of their earlier history. [2] Matchlock guns of such an early date are not common, but the fact that these appeared to be military guns made with snap matchlocks at a time when this form of lock was apparently in decline made them seem especially important acquisitions. [3] Most intriguing of all, however, was their similarity to the remains of guns found on board King Henry VIII's warship *Mary Rose,* which sank in 1545. There is good reason to believe that all this group are examples of the military matchlocks made in large quantities in the lands of the Venetian republic in the mid sixteenth century, and exported throughout Europe. This article describes and discusses these guns, and offers some preliminary thoughts on their significance to the study of firearms in the sixteenth century.

DESCRIPTION

The Royal Armouries' Matchlocks

Both from their size and from documentary evidence given below it is certain that the three matchlock guns acquired by the Royal Armouries should be referred to as harquebuses or hackbuts and the term harquebus will be used throughout this paper. [4]

The three harquebuses are very similar but not identical, one of them being of distinctly superior quality. All would have had snap matchlocks made of iron, but that on one of the plainer harquebuses was missing when the guns were acquired and has since been replaced by a modern reproduction made in the Royal Armouries workshops. The two surviving original locks are very similar. Both have thin, flat lockplates, curving down at the rear to follow the line of the stock, to which they are attached by two wood screws, one at the front and one at the rear, both of which enter from the face of the lockplates. The ends of the serpentines are bifurcated as match-holders, operated by a ring-headed screw at the neck of each, and cut-out and chiselled in the form of dogs' heads. On both, the serpentines are held away from the pan, against the action of an internal main spring of "U" form which presses down on the tumbler, by a horizontally-acting sear which protrudes through a hole in the lockplate and bears on the heel. Directly beneath the sear hole, a rectangular-headed pin has been rivetted through the plate to act as a stop for the serpentine.

Both serpentines are attached to their tumbler by a short pin rivetted at both ends. The differences between the two locks are only very slight. The lock of the better quality harquebus (Royal Armouries, Inventory Number X11.5315) has a lockplate which tapers gradually at front and rear to a point. The lock of the other gun (Royal Armouries, Inventory Number X11.5313) has a lockplate which does not taper, but which has a raised moulding just to the rear of the front edge. The serpentine of this gun is also decorated with two diagonal billet mouldings which are lacking on the other lock. The cut-out for the missing lock of the third harquebus (Royal Armouries, Inventory Number X11.5314) indicates that this too would have had a lockplate which did not taper to a point at front or back.

When acquired, the stocks of all these harquebuses were considerably wormed, and they have now been carefully restored by Arthur Davies, who recently retired as Chief Conservation Officer of the Royal Armouries. All three stocks are very similar, with once again the major differences being between the two plainer guns and the more elaborate one. All the stocks are slab-sided, each side having a recessed line cut at the border which gives the impression of raised mouldings between the sides. All the stocks have a pronounced down-curve at the small, from which springs a straight butt, angled down from the longitudinal axis of the barrel, the butt of

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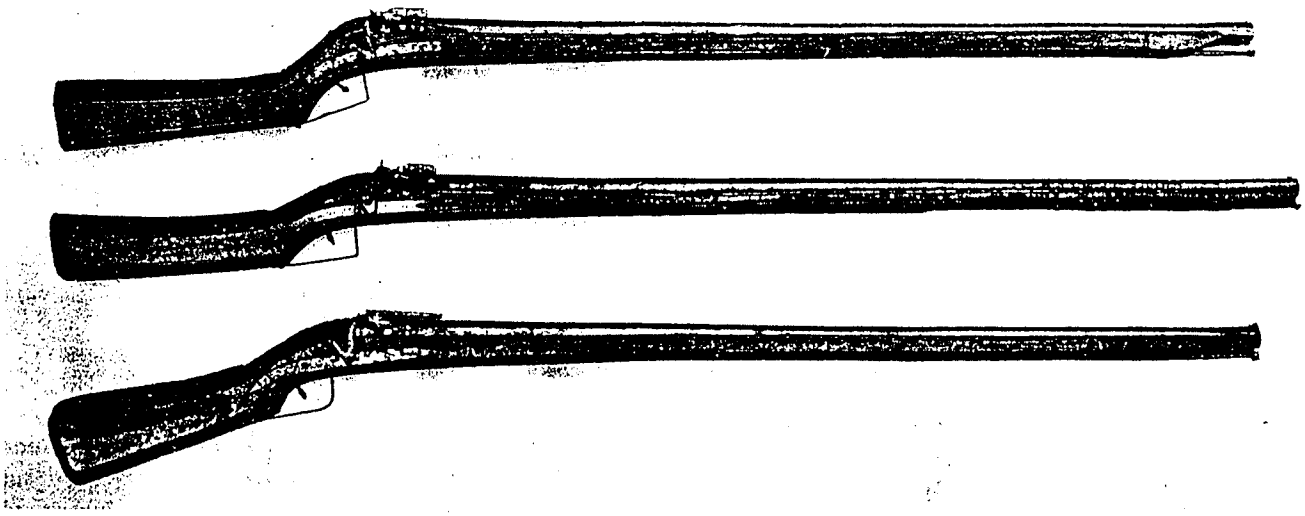


Plate 1. The three snap matchlock harquebuses in the Royal Armouries. Top to bottom: X11.5313, X11.5314, X11.5315.

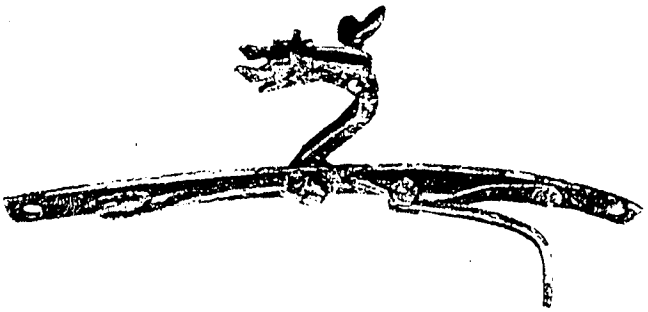


Plate 2. The detached lock of the Royal Armouries' harquebus, X11.5313, showing the mainspring, tumbler and horizontal sear inside the lock.

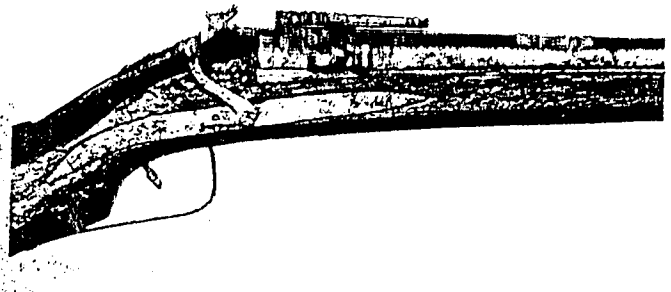


Plate 3. Details of the lock and breech of the Royal Armouries harquebus X11.5315.

X11.5315 being considerably more angled than that of the other two. The butts all have eight irregular sides, those of X11.5315 alone being not flat but slightly concave. Towards the muzzle the underside of X11.5314 is considerably worn away, perhaps from use.

A rammer channel has been drilled in the fore-end of each stock which has then had a groove cut from beneath into the channel to allow for shrinkage and expansion and to facilitate the removal of a jammed rammer. Both sides of this groove have plain raised mouldings ensuite with the rest of the stock. At the muzzle of each harquebus, the fore-end has been crudely cut back, again apparently to facilitate the removal of the rammer. This appears to be a later modification and may suggest that all three harquebuses have seen use together. All three have straight steel triggers, two with acorn finials, the other (X11.5313) with a conoidal button finial.

The trigger-guard of X11.5314 was missing when it was acquired, and is now fitted with a replacement. The other two harquebuses have similar trigger guards of "L" form. The shorter vertical arms of these guards pin into the underside of the stock ahead of the trigger; the longer arms both taper and then expand into a leaf-shaped finial which is screwed to the stock. Both surviving trigger-guards are decorated: that of X11.5313 with three diagonal incised lines flanked by dots; and that of X11.5315 with feathered edges. The rammer of the better quality harquebus survives, complete with its steel tip. This tip is attached to the rammer by a long socket, and consists of a flat button head, which together with its shank is bifurcated, slightly off-centre, perhaps simply as a spring to facilitate entering and engaging the barrel as a scraper, or perhaps to hold a cleaning cloth. Pointing forward from the centre of the head is a tongue of metal, similar to the tip of a screwdriver, to act as a reamer. Fragments of the wooden rammers from the other two harquebuses also survive.

The three harquebuses have barrels nearly 40 inches long with calibres varying between .44 and .47 inch. [5] All the barrels are of irregular octagonal section, with alternately wide and narrow flats; all have slightly belled muzzles, and all are attached to the stock by pins passing through two lugs, a screw rising vertically from the rear of the rammer channel, and a screw at the end of the tang.

The breeches of all the barrels are relieved by

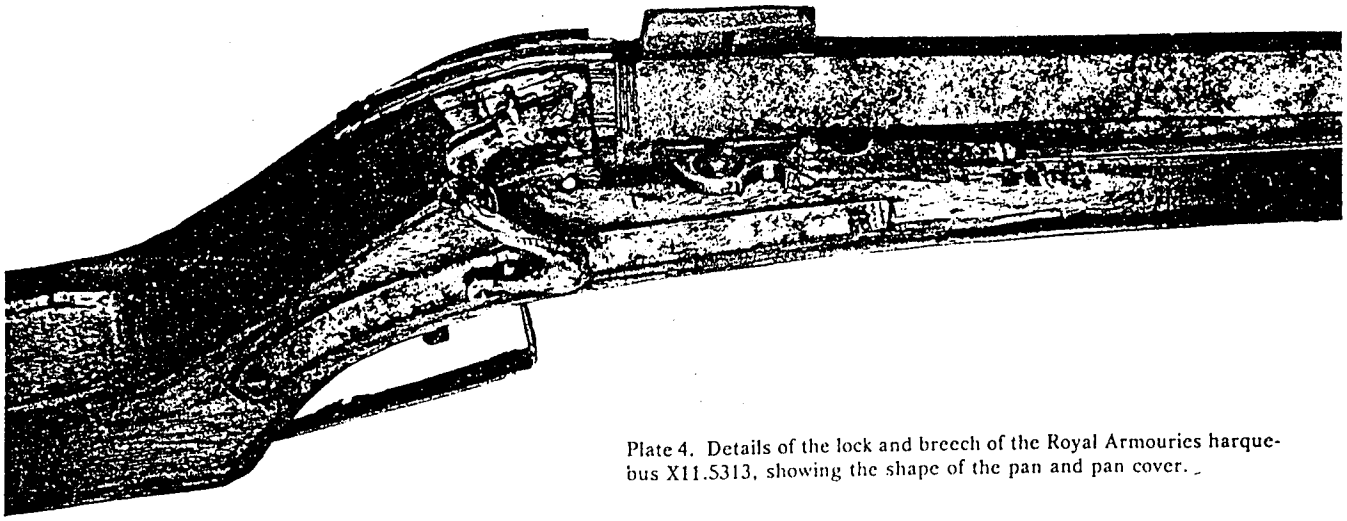


Plate 4. Details of the lock and breech of the Royal Armouries harquebus X11.5313, showing the shape of the pan and pan cover.

mouldings, those of the better quality harquebus X11.5315 being more complex than on the other two. Immediately in front of the moulding on this barrel, the side-flats are stamped with overlaid dots and circles. All three barrels are equipped with peep sights. The two plainer guns have plain peep sights, each with a gabled top. Midway along their length the sides of both are pierced with vertically tapering slots, perhaps intended to take an adjustable plate drilled with a peep hole or cut with a sighting notch. The peep sight of the other harquebus is tubular and tapers from back to front. The rear is round in section and chiselled with foliate scrolls and mouldings: then it becomes octagonal to the round, moulded, and trumpet-shaped mouth. This harquebus has a blade foresight, cut with a waisted profile rising to a peak at the front. The two plainer guns have block foresights, tapering slightly towards the top. All the barrels are marked: that of X11.5313 is stamped on the underside *LO* within a pearled circle; that of X11.5314 is stamped at the breech on the flat to the right of the top flat *BA*; and that of the better quality X11.5315 bears a number of inset brass marks. On the top flat of X11.5315, some way forward of the peep sight, is a recessed brass mark in the form of a shield bearing the letters *GARDO*. Ahead and to the rear of this mark are stamped crude trefoils. Just to the rear of this mark on the adjoining side flats are inlaid brass marks, each bearing a representation of St. Barbara surrounded by incised line borders, and ending at front and back with crude trefoils. Attached to the right side-flat of each barrel beneath the peep sight is a thick plate recessed toward the rear as the pan, and pierced vertically at the front by a pin attaching the pivoting pan-cover. The plate is cut decoratively in plan to a shape resembling the body of a waisted stringed musical instrument. The pan cover has an extended operating lever at the end opposite the pivot. All

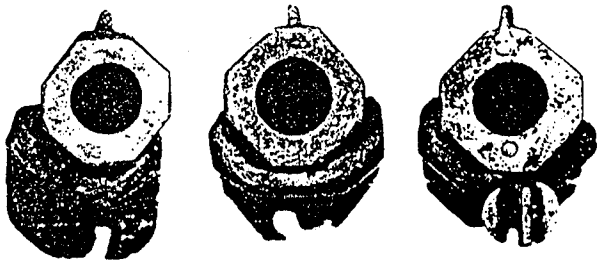


Plate 5. Details of the muzzles of the three snap matchlock harquebuses in the Royal Armouries. Left to right: X11.5313, X11.5314, X11.5315.

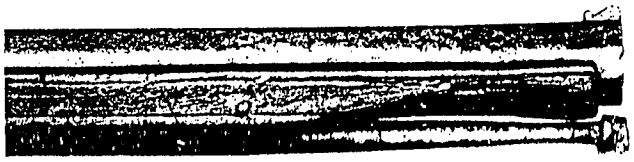


Plate 6. Details of the muzzle of the Royal Armouries' harquebus X11.5315, showing the form of the foresight and of the head of the rammer.

but the front portion of the pan cover of X11.5313 is missing, and the operating lever of X11.5315 is bifurcated, probably as a result of the lamination of the rusting metal.

The Mary Rose Matchlocks

Among the many items brought up in 1981 and 1982 during the excavation of King Henry VIII's warship *Mary Rose* which sank in Portsmouth Harbour on 19th July 1545, were the fragments of the stocks of a number of handguns.[6] They range from small fragments of rammers to complete butts or fore-ends. They do not all conform to one pattern, and indeed they include what is

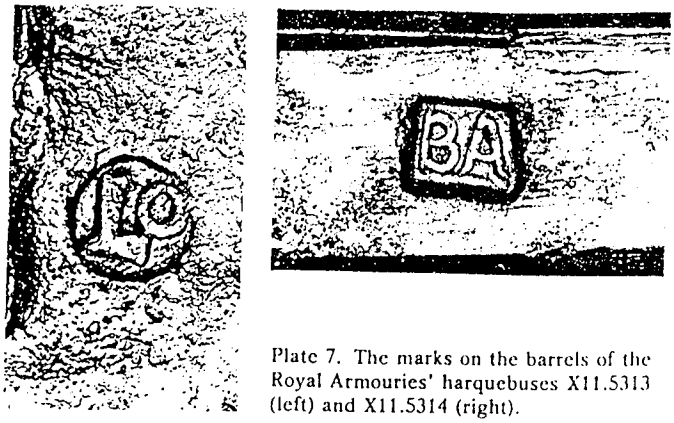


Plate 7. The marks on the barrels of the Royal Armouries' harquebuses X11.5313 (left) and X11.5314 (right).

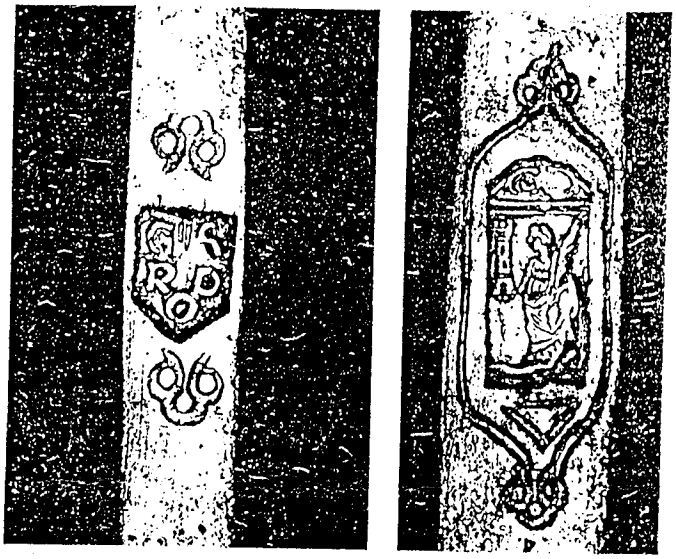


Plate 8. The marks on the barrel of the Royal Armouries harquebus X11.5315.

apparently the earliest-known example of a fishtail butt, but the majority do have sufficient characteristics in common to tentatively suggest the likelihood of a common origin. [7] Like the matchlock harquebuses in the Royal Armouries they have slab sided stocks and butts, some with down-curved smalls, and some with concave surfaces to the small and butt.

No fragment of a lock survives, but on three of the stock pieces can be seen the cut-outs for the lock, two for curved lockplates, one for a straight lockplate. [8] In size and form they are very similar to the cut-outs on the Royal Armouries' harquebuses and it seems reasonable to suppose that the *Mary Rose* guns were equipped with the same type of snap lock. At least two of the fore-ends from the *Mary Rose* have closed rammer channels drilled along their length, but two others have the same type of open channel that is found on the harquebuses in the Royal Armouries. [9] The dimensions of the guns from the *Mary Rose* also seem to relate closely to those of the harquebuses in the Royal Armouries and are generally smaller than one would have expected for military guns of the period. What little information can be gleaned from the evidence remaining in concretion about the barrels of the *Mary Rose* guns suggests that they were of approximately the same calibre as the harquebuses in the Royal Armouries.

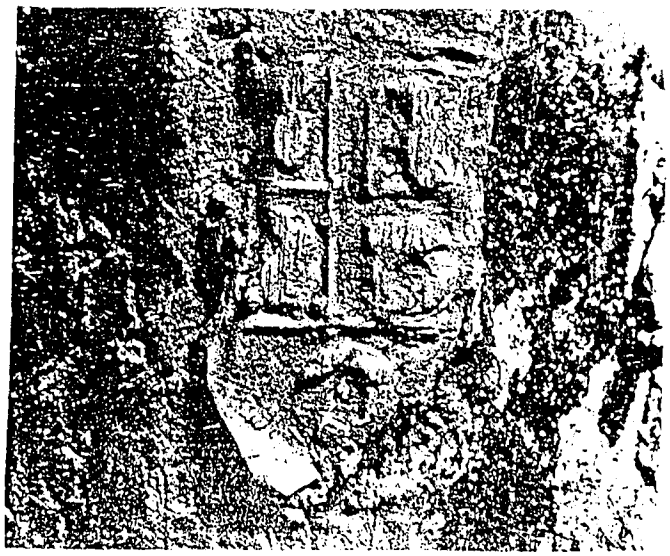


Plate 9. The mark on the barrel of the harquebus from the *Mary Rose*, No. MR81A2679.

One of the stock pieces from the *Mary Rose* still retains the rusted remains of a barrel, which confirms the evidence from concretion about the calibre of the barrels and which also shows clearly that they were of the same irregular octagonal section as the barrels of the snap matchlocks in the Royal Armouries. Most significant of all, what remains of this barrel includes a deformed brass mark, which is almost certainly identical to the *GARDO* mark found on the best of the harquebuses in the Royal Armouries. [10]

DISCUSSION

There can be little doubt that the three harquebuses recently acquired for the Royal Armouries were made in the same place at the same time, and the similarities between them and the remains of the matchlock guns found on the *Mary Rose* suggest that most if not all of the latter are of the same family. The weight of evidence suggests that they are of Italian origin. The slab-sided butt with down-curved small which is a characteristic feature of this group is also to be found on a hand gun illustrated in a fresco of the Crucifixion executed by the Piedmontese artist Gaudenzio Ferrari (about 1471/81-1556) apparently in about 1517 for the Capella della Crocefissione at Varallo, Sacro Monte. [11] Lionello Boccia has drawn attention to similar stocks illustrated by Leonardo da Vinci in his *Codex Atlanticus*, but to confound any suggestion that they are exclusively of Italian origin, he has also noted similar stocks shown in the *Zeugbücher* of the Emperor Maximilian. [12] He has also, however, produced evidence which suggests that this type of stock remained popular in Italy for a very long time. Among the firearms gathered together by the Counts Albicini, and now kept in the Instituti Culturali e Artistici of the city of

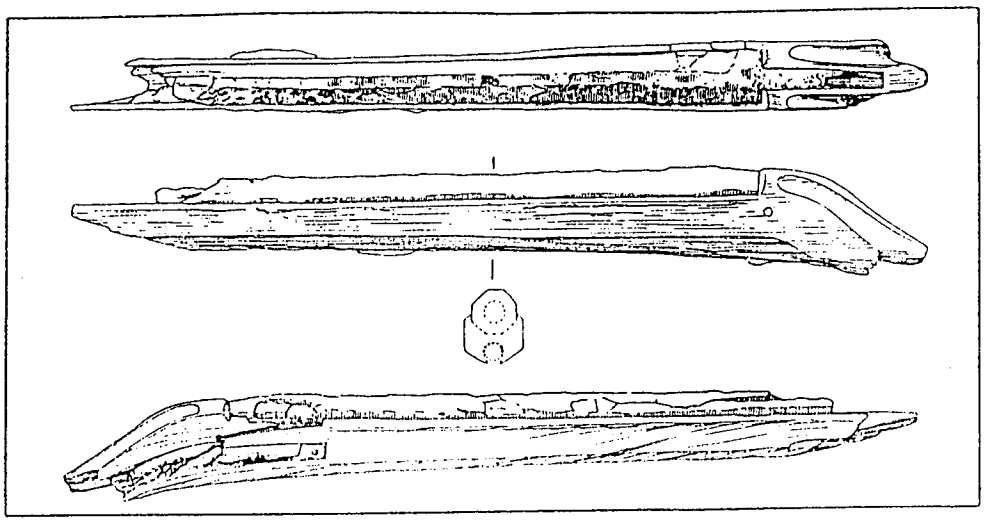
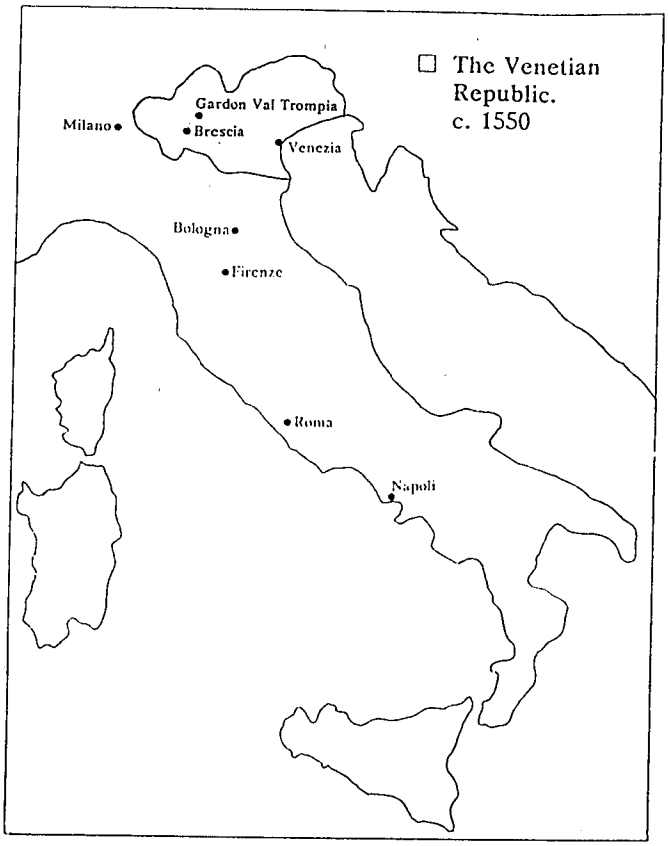


Plate 10. Drawing of the remains of the harquebus No. MR81 A2679 from the *Mary Rose*.

Forli, is a heavy musket with a wheellock of German form, and a stock very similar to those on the group of harquebuses just discussed. The Forli gun even has the characteristic "L" shaped trigger-guard found on the Royal Armouries harquebuses. The Forli musket is, however, something of a problem piece, and it should be used cautiously as evidence. Boccia believes that it must have been made, or at least assembled, in Lombardy, possibly in Milan, at the end of the sixteenth or the beginning of the seventeenth century. He is uncertain whether the lock was made in Northern Italy in the German style or whether it was imported. He has also expressed some doubts about the genuineness of the stock, but has suggested that "if it has been rebuilt, it must have been copied from an original worm-eaten or worn one: its shape is too characteristic to have been invented in a period of scarce iconographic information . . ." [13]

The pan and pan covers on the snap matchlock harquebuses in the Royal Armouries are very similar to those on a three-barrelled revolving matchlock pistol preserved with other remnants of the Doge's armoury in the Palazzo Ducale, Venice. [14] It has been suggested that this and another similar revolving gun in the Civico Museo delle Luigi Marzola, Brescia, were made in Brescia. [15] Another three-barrelled matchlock revolving gun which must belong to the same group has recently been brought to my attention. It is in the Musée de l'Armée in Paris, and has the same distinctive pan and pan covers as the similar pistol in Venice. It also has a slab-sided shoulder butt similar to those of the harquebuses in the Royal Armouries, with the trigger set in the down-curve of the front of the butt. Unlike the Royal Armouries' guns, however, the down-curve of the front of the butt is not mirrored by a pronounced down-curve on the top of the small. [16] This general style of pan and pan cover seems to have remained popular in Italy for many years, and appears on a number of military long guns in Italian collections, many of which date from the last quarter of the sixteenth century. [17] Finally, the distinctive type of pan and cover is found on a highly decorated matchlock gun in the Kunsthistorisches Museum, Vienna. This has a snap lock, apparently of the same form as those of the harquebuses in the Royal Armouries, with a curved lockplate decorated in gold on a blue background with arabesques and vine leaves. The octagonal barrel is similarly decorated, and the stock is covered with black velvet studded with silver rosettes. It has been accepted by most scholars for a considerable time that this gun was made in Italy, and John Hayward noted the similarity between the vine leaf scrolls on the lock and barrel and other Milanese damescening of the mid sixteenth century. [18] Hayward suggested that the gun could not date from earlier than the 1530s, but others have considered it to be a much later piece, perhaps dating from as late as the 1580s. [19] The gun's similarities to the harquebuses in the Royal Armouries and those found on the *Mary Rose*, together with the decorative evidence discussed by Hayward make it most likely that the gun was made between about 1530 and 1550.

On the barrel of one of the harquebuses in the Royal Armouries is stamped the initials *LO* within a pearled circle. Similar or identical marks appear on three distinctively Italian guns. One is a short wheellock harquebus dating from the last quarter of the sixteenth century in the Musée de l'Armée, Paris, which has a hook butt of the type which Boccia has recently suggested should be referred to as Lombardic. [20] Another is a matchlock harquebus which Boccia believes may have been made in Milan and which dates between 1570 and 1590. [21] It is in the Museo Poldi Pezzoli, Milan, and is one of those military guns referred to above with pan and pan cover generally comparable to those on the harquebuses in the Royal Armouries. [22] The third is a detached barrel in the Museo Nazionale de Artiglieria, Turin, which is of the type known in Italy as a *cane da pistone*, a short tapering barrel with a flared muzzle. [23] It is 28.85 inches long, of octagonal section, with a calibre of .69 inch and has a peep sight similar to those on the two plainer of the



harquebuses in the Royal Armouries. A fourth piece bearing the same mark is also in the care of the Musée de l'Armée, Paris, but forms part of the Brunon collection displayed in the Chateau de l'Empéri, Salon de Provence. It is a matchlock gun, apparently of early seventeenth century date, though as no actual examination of the gun has been possible this dating must remain only tentative. At the breech is a raised mark bearing the letters *BENO ET AM*. [24] It is curious that identical or very similar marks appear on guns which date from the 1540's to perhaps the 1620's and this suggests strongly that the mark is not that of an individual maker. What it might be, I shall discuss later.

First, I shall consider the significance of the brass *GARDO* mark which appears both on the barrel of the best of the three harquebuses in the Royal Armouries, and on the rusted remains of a harquebus barrel recovered from the warship *Mary Rose*. This mark is otherwise unrecorded, but there can be little doubt that it refers to the town of Gardone in the Trompia Valley, some 11 miles from the city of Brescia, which itself is approximately 50 miles east of Milan.

From 1426 until 1797, this area of Lombardy formed part of the Venetian Republic. It was an important centre for the mining and smelting of iron ore throughout the Middle Ages, and became especially famous for the production of guns. [25] Brescia itself specialised in making locks, stocks and mounts, and assembling parts into finished guns. The craftsmen of the town of Gardone, on the other hand, specialised in the making of barrels, and the town was given a legal monopoly of barrel making by the Venetian Republic after 1542. Vast quantities of barrels were made in Gardone, up to 300 each day, it was reported in 1572. Most of these barrels went to Brescia for stocking, but some to Milan and other gun-making centres. [26] Thus it is hardly surprising to find what is apparently an abbreviation of the town's name on the barrels of guns, indeed it is perhaps more curious that it does not appear more often than it does. Apart from the marks on the barrel from the *Mary Rose* and on the harquebus in the Royal Armouries, the name of Gardone is found on the rifled barrel of a small harquebus made in about 1610 by Juan Salado and which apparently belonged to King Philip IV of Spain as a boy. [27] The abbreviation of the town's name to *GARDO* also appears on the mark of the mid sixteenth century Gardonese maker Venturi or Venturini. [28] This helps to confirm that the *GARDO* marks on the harquebus barrel in the Royal Armouries and on that from the *Mary Rose* refer to the town of Gardone. However, as the mark is so uncommon and barrels made in Gardone must be so common, it is perhaps more likely that it is the mark of a particular maker or factory than that it is the town mark. Similarly, Nolfo de Carpegna has suggested that the *LO* mark described above may be the mark of one of the Gardonese forges or *fogatelli* where iron plates were wrought into barrels. [29]

The scale of production in Brescia and Gardone was quite extraordinary. In 1562 the historian Paolo Paruta sent a description of the Trompia Valley to the Venetian Senate in which he stated that "every year the said Valley produces XXV thousand guns that are fetched off by merchants into foreign lands." [30] In 1537 the Venetian Senate prohibited the export of arms and armour without licence from the Republic and the surviving records of the grants of these licences, although incomplete, show that Brescian firearms were being exported to all corners of Italy and Europe. Between 1537 and 1544, exports of guns were approved to the Republic of Ragusa, the Kingdom of Naples, the Papal State, the Duke of Florence, the Republic of Sienna, the Marquis of Vasto, the Duke of Alba, the Duke of Ferrara, the Republic of Genoa, the Knights of Malta, Emperor Charles V, the King of France, and last but not least to King Henry VIII of England. [31]

Between 1544 and 1545, in preparation for war with France, King Henry VIII acquired very large numbers of harquebuses from Italy. Although not always specified in the records, it is likely that most if not all of these came from Brescia. On June 14th 1544 the Doge and Senate of Venice informed the Governor of Brescia that they had agreed, at the request of the King of England's ambassador, to allow the export from the city and territory of Brescia to England of 1,500 harquebuses of various sorts. [32] It may be that the harquebuses carried on the

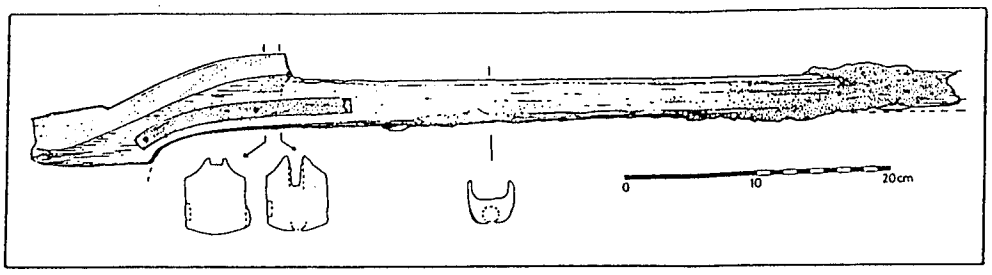


Plate 11. Drawing of the stock of a harquebus from the *Mary Rose*, No. MR82A4502.

Mary Rose when she sank just a year later had formed part of this shipment of guns. Certainly the capacity of the Trompia Valley to produce large quantities of guns must have been of great interest to the English King in his rush to re-arm, especially as it was difficult for him to find adequate numbers of guns elsewhere. On 29th August 1544, for instance, the King's agent in Antwerp reported that whereas the King wanted to buy 2,000 hackbuts, "there are not 200 to be gotten in this town, whereof part are with fire locks, and some of them shoot with matches, not having the fire lock, very slender gear, not meet to be sent to his Majesty." [33] Early in 1545, King Henry was seeking to acquire even larger numbers of Italian guns for his armies from the Milanese merchant Christopher Carcano. From the surviving evidence it is not possible to be precise about the numbers concerned, but it seems that King Henry was looking to buy anything up to 9,000 harquebuses. [34] It is reasonably certain that he received at least 4,200 of them by August 1545, but numbers of others were seized during their passage through Germany and the Netherlands, and the Emperor and the authorities in the Netherlands became increasingly difficult as the year progressed about issuing licences or passports for the movement of the guns. [35] At first sight their reluctance seems strange, but it was probably due to the fact that the Emperor had agreed to the guns being transported secretly "that the French might not know it," packed as barrels of sugar. [36] A year later, in April 1546, King Henry's agents were still trying to obtain the release of some of the guns seized en route to England in 1545. [37] It is possible because of these delays that the "discharge for the custom of 7,516 hackbuts" bought from Christopher Carcano, dating from August 1546 may in fact refer to the guns ordered by Henry in 1545, and thus may accurately reflect the number eventually received in England. [38]

There can be little doubt that the fragments of harquebuses found on the *Mary Rose* are the remains of guns made in the Trompia Valley and exported from Italy to England in 1544 or early 1545. It is possible, however, bearing in mind that Carcano was a Milanese merchant, that only the barrels were made in Gardone and were then sent to Milan to be stocked. There can also be no doubt that the three snap matchlock harquebuses recently acquired by the Royal Armouries were also made, in part at least, in the Trompia Valley in the 1540s, but there is no way of telling whether they were exported to England for use by the troops of Henry VIII, whether they were exported from Brescia along with the many thousands of other guns which must have travelled to every corner of Europe, or whether they remained in Brescia, whose governors were always being encouraged by the government of Venice when they exported arms to take "due care that the city and territory remain well provided." [39]

A number of intriguing questions concerning this group of snap matchlocks remain which cannot yet be adequately answered. The *BA* mark on the barrel of the Royal Armouries harquebus X11.5314 has not so far been recorded, as far as I am aware, on any other gun, and it remains an enigma. Like the *LO* mark on X11.5313 it is most probably the mark of a particular forge, but it could also be the mark of an individual maker, and it has even been suggested that it could be an abbreviation for the City of Brescia. [40] The unusual form of the head of the rammer of X11.5315 also poses interesting questions. It looks capable of reaming and scraping the barrel of a gun. Between 1608 and 1610 a manuscript volume entitled *Il Catastico Bresciano*, was compiled which describes the geography and industry of the Brescian area. It contains much information on the gun industry of Brescia and Gardone, and lists all the parts of guns produced. These include *sguradori* (borescrapers), a term which is at least suggestive of the strange rammer head of the harquebuses in the Royal Armouries. [41]

Lionello Boccia has recently raised the difficult question of the terminology of Italian butt styles. [42] Old inventories record many regional styles of stock, but so far few have been identified. Boccia has tentatively suggested that the wheellock gun in Forli, which relates to the harquebuses recently acquired by the Royal Armouries, may have a stock *alla Lombarda*. Nothing more definite can be said at present. It is to be hoped that the publication of material on this interesting group of guns will stimulate further research into this question.

CONCLUSION

There is still much that is unexplained about this interesting group of snap matchlock harquebuses, but a number of important issues have been resolved. Above all it is now possible to state with confidence what sort of firearm Henry VIII was buying from the Venetian Republic in the 1540s. As there is no reason to believe that either the harquebuses from the *Mary Rose*, or those in the

Royal Armouries were atypical of the great quantities of military guns and gun parts produced in Brescia, Gardone, and the Trompia Valley in the mid sixteenth century, it seems reasonable to suggest that many of the thousands of military guns exported from this region throughout Europe at this time were similar to the examples discussed and described above. If this is so, students of firearms and sixteenth century military history will need to revise their ideas about the declining importance of the snap matchlock for military purposes at this time. It may be that until the middle of the century the snap matchlock remained at least as important for military purposes as the scar or tricker lock, which later came to replace it almost entirely. This in turn may help to explain the origin of the group of early seventeenth century snap matchlock guns from the Holstein-Gottorp Armoury, which in the form of their stocks, sights, and pans, bear a considerable resemblance to the much earlier harquebuses in the Royal Armouries. [43]

Similarly, the export of considerable numbers of this distinctive type of Italian military gun may help to explain why the Japanese, who first came into contact with European firearms in the 1540's, should adopt a snap matchlock system and use the pans and pan covers similar in shape to those on the harquebuses recently acquired for the Royal Armouries. [44] If this seems too fanciful, it should be remembered that there is evidence that by the end of the sixteenth century the Japanese were using barrels made in Gardone. [45] Whether this is the case or not, the discovery of this now unusual but once very common type of military gun, which was made in the Trompia Valley in Lombardy and exported throughout Europe in the mid sixteenth century, will necessitate some reassessment of our views on the development, procurement and use of military firearms of that time.

NOTES

1. Royal Armouries, Inventory Numbers X11.5313-5.
2. Sold at auction by Christies, South Kensington, 23 May 1986, lots 58, 59, 60 (part only).
3. For the decline of the snap matchlock see: C. Blair, *European and American Arms*, London, 1962, p. 42.
4. For a brief introduction to the terminology of guns in the sixteenth century see: H. L. Blackmore, *Guns and Rifles of the World*, London, 1960, pp. 11-12.
5. The precise dimensions of the barrel are:

X11.5313	Length	38.500 in.	Calibre	.459 in.
X11.5314		39.687 in.		.470 in.
X11.5315		38.375 in.		.440 in.

6. For permission to publish details, drawings and photographs of the *Mary Rose* guns I am indebted to Dr. Margaret Rule and the Mary Rose Trust. It is with the greatest of pleasure that I acknowledge here the help and encouragement I have received in this and other researches from Dr. Rule and all her staff, but especially from Alexzandra Hildred.
7. For the fish-tail butt, see: Mary Rose Trust, Inventory Number MR 81 A 1842.
8. Mary Rose Trust, Inventory Numbers MR 81 A2679, MR A4502, and MR 81 A2405 respectively.
9. Mary Rose Trust, Inventory Numbers MR 81 A2405, MR 81 5811, MR 81 A2679, MR 82 A4502 respectively.
10. Mary Rose Trust, Inventory Number MR 81 A2679.
11. See: Vercelli, *Mostra de Gaudenzio Ferrari*, Museo Borgogna, 1956, Tav 44. I am most grateful to Mr. A.V.B. Norman for drawing my attention to this evidence.
12. L. G. Boccia, "Archibusi a Forli," *Diana Armi*, October, 1986, p. 24.
13. *Ibid.*
14. Palazzo Ducale, Venice, Inventory Number N.30.
15. For a full discussion of these revolving guns, and a set of similar barrels in the Ashmolean Museum see: G. M. Wilson "Barrel of a Three-Barrelled Revolving Gun," in A. MacGregor (ed.) *Tradescant Rarities*; Oxford, 1983, pp. 197-9.
16. Musée de l'Armée, Paris, Inventory Number M402. I am most grateful to Jean-Pierre Reverseau, for drawing this gun to my attention.
17. For instance: Museo Poldi Pezzoli, Milan (Inventory Number 1853), Castello Visconteo di San Angelo Lodigiano (Inventory Numbers 326-329, ex Uboldo Collection), Museo Nazionale di Artiglieria, Turin (Inventory Numbers M1-4); Armeria Reale, Turin (Inventory Numbers M2-6). I am most grateful to Lionello Boccia for drawing my attention to these pieces.
18. J. F. Hayward, *The Art of the Gunmaker*, London, 1962, Vol. I, p. 34.
19. See, for instance: A. Gaibi, *Armi de Fuoco Italiane*, Milan, 1978, pl. 12.
20. Musée de l'Armée, Paris, Inventory Number M.PO 784. I am most grateful to Jean-Pierre Reverseau for drawing this gun to my attention. See also: Boccia, *op. cit.*, p. 23.
21. Private communication, L. G. Boccia to G. M. Wilson, 9 September 1986.
22. D. Colliura, *Cataloghi del Museo Poldi Pezzoli; 2. Armi e Armature*, Milan, 1980, No. 876, p. 153.
23. Museo Nazionale di Artiglieria, Turin, Inventory Number 2691-M18. I am most grateful to Georgio Dondi for providing details of this barrel.
24. Musée de l'Armée, Paris, Inventory Number Br 1980. I am most grateful to Jean-Pierre Reverseau for drawing this gun to my attention.
25. For details of early gun production in Brescia and Gardone see: M. Morin, R. Held, *Beretta, The World's Oldest Industrial Dynasty*, Chiasso, 1980, pp. 16-27.
26. *Ibid.*, pp. 11, 52.
27. Real Armeria Madrid, Inventory Number K27, See: J.D. Lavin, *A History of Spanish Firearms*, London, 1965, p. 64, pl. 17.
28. I am most grateful to Dr. Nolfo di Carpegna for drawing this mark to my attention. It will be published shortly in his magnum opus on Brescian Firearms.
29. Private communication, N. di Carpegna to G. M. Wilson, 2 November 1986.
30. Quoted in: Morin, Held, *op. cit.*, p. 20.
31. *Ibid.*, pp. 26-7.
32. R. Brown (ed.) *Calendar of State Papers and Manuscripts, Relating to English Affairs Existing in the Archives, and Collections of Venice, and in Other Libraries of Northern Italy*, Vol. V, 1534-54, London, 1873, No. 308.
33. J. Gairdner, R. H. Brodie (ed.) *Letters and Papers Foreign and Domestic of the Reign of Henry VIII*, Vol. XIV, Part II, London, 1905, No. 156.
34. *Ibid.*, Vol. XX, Part I, London, 1905, No. 587.
35. *Ibid.* Vol. XX, Part I, London, 1905, Nos. 587, 606, 632, 647, 701; Part II, London, 1907, No. 90.
36. *Ibid.*, Vol. XX, Part II, London, 1907, No. 90.
37. *Ibid.* Vol. XXI, Part I, London, 1908, No. 593.
38. *Ibid.* Vol. XXI, Part II, London, 1908, No. 1536/64.
39. R. Brown, *op. cit.*, No. 308.
40. Private communication, J. D. Lavin to H. L. Blackmore quoting as an example a Brescian pistol by Carlo Ghislo, in the Instituto da Valencia de Don Juan, Madrid, on which Brescia is abbreviated to *BA* on the lock inscription.
41. Morin, Held, *op. cit.*, p. 31.
42. L. G. Boccia, *op. cit.*, pp. 21-3.
43. See: A. Hoff, "Late Firearms With Snap Matchlock," *Four Studies on the History of Arms*, Copenhagen, 1963 (Tojhusmuseets Skrifter 7), pp. 9-29.
44. See: H.L. Blackmore, *op. cit.*, pp. 16-17.
45. See: Morin, Held, *op. cit.*, p. 37.