

## TUDOR BRONZE GUNS OF THE CHANNEL ISLANDS

by

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*In the period from the 1520s to the 1570s, the defensive capabilities of the principal Channel Islands (Jersey, Guernsey, Sark & Alderney) were augmented by 'state of the art' cast bronze guns, mostly if not all manufactured by London founders and supplied by the Royal Armouries at the Tower of London. These guns included Culverins, Sakers, Falcons, Falconets and Robinets, of which three complete weapons and one fragment survive. All are of small calibre: representing two Falcons and two Falconets. Such small guns have often been overlooked by academics in favour of larger, more impressive weapons, so this paper is therefore presented to fill a significant gap in the literature.*

### Introduction

Beside the main road at the foot of Beaumont Hill in the Parish of St Peter, Jersey, stands a diminutive thatched shelter on four stone pillars. Beneath it stands a long, slender field gun on a replica carriage. For long obscured by a thick coat of black paint, it is perhaps surprising to learn that it represents an important aspect of Tudor monarchs' political policy towards the defence of the English realm.

For this is no ordinary gun: the black paint conceals a long-barrelled Falcon of cast bronze, dated 1551; an engraved inscription apparently recording its manufacture by John Owen for the Parish of St Peter in Jersey. Its history has long been known to island historians, but its plinth-mounted existence and lack of easy parking in the vicinity means that it receives few visitors, although it is a well-known landmark.

Upon arriving in the island in 2010, the author decided to investigate this and all other surviving examples of 16th century guns in the Channel Islands, as part of Islands'-related research, encouraged by his employer: the Société Jersiaise.

### Notes on Terminology

All references to terminology used here are those used at the time, particularly in later 16th century treatises on gunnery (see bibliography). It will also be noted that the word 'cannon', common to current vernacular terminology, is not used, being technically incorrect. The singular verb 'gun' and plural 'guns' are used, being the correct ones – 'cannon' being a specific size of gun, much as 'ships' and 'barrels' are incorrectly used nowadays to generally describe their particular subjects. 'Calibre' is taken to be the approximate internal diameter of the barrel; gun length often being measured in calibres.

*Gun nomenclature:*

Saker = Bore diameter - 3.5in to 4in; Bore length - 8ft to 10ft;

Gun weight - 1400 to 1800lbs

Falcon = Bore diameter - 2.75in; Bore length - 7ft; Gun weight - 550 to 750lbs

Taken from Bourne 1587 and Norton 1628 (Hildred 2011, 21; 24-25). No calibres given.

*Shot weights:*

Saker = Bore diameter - 3.5in; Shot diameter - 3.25in; Shot weight - 5.25lbs

Minion = Bore diameter - 3.25in; Shot diameter - 3in; Shot weight - 4lbs

Falcon = Bore diameter - 2.75in; Shot diameter - 2.5in; Shot weight - 2.5lbs

Falconet = Bore diameter - 2.25in; Shot diameter - 2in; Shot weight - 1.25lbs

Taken from Anthony Roll 1546 (Caruana 1994, 9).

Where bore and length are standard with reference to a particular gun name, the gun is said to be a 'legitimate' piece; where the bore is larger and the length shorter, it is a 'bastard' piece; while with a smaller bore but a longer length, it is an 'extraordinary' piece. These can be added as either a prefix or a suffix to the existing name, thus: Bastard Falcon or Falcon Bastard. 'Fortification' is a term which refers to the thickness of metal flanking the bore at the breech. In a 'common' piece, the thickness of metal at the breech is the same diameter as the bore; a 'lessened' piece has a thickness of metal at the breech which is less than the bore; while a 'reinforced' piece has a thickness which is greater than the bore. Reinforced pieces generally used a larger charge and would therefore have a greater range. The failure of inexperienced gunners to understand these distinctions when choosing a suitable charge could have disastrous, possibly fatal consequences, as indicated in Figures 3 & 4, and plates 5, 6 & 7. Another potential pitfall was the increase in powder strength in the centuries following the guns' manufacture.

**Previous work**

All the guns have been the subject of previous studies, though none have been in-depth, or have looked at the group as a whole, in their defensive context. Wybert Godfray published a short article on the Jersey (St Peter's or Beaumont) gun in the *Bulletin of the Société Jersiaise* (1947, 333-339), in which he gave basic information on the island militias and other guns in the islands: it is he who gives the earliest known reference to the St Saviour fragment. Charles Ffoulkes (1937, 1969) is an important source for the history of the Owen brothers and their relationships with other founders, including their successors, the Pitts. Adrian Caruana, in his masterly work 'English Sea Ordnance, Vol. 1: 1524-1715' (1994) gives important insights into the development of bronze guns in the Tudor period. The Beaumont and Sark guns are present in this work as line drawings, though one or two details are not quite correct and there is little in the way of written detail concerning them. In 2011, the long-awaited two-volume work on the armaments of the Mary Rose: 'Weapons of Warre' was published by the Mary Rose Trust. Edited (and extensively written) by Alexandra Hildred FSA, this includes important details of all the bronze guns recovered from the wreck (Hildred et al, 2011).

## **CHANNEL ISLANDS DEFENSIVE HISTORY -** with reference to English Political History

The post-medieval defensive history of the Channel Islands was to a certain extent characterised by English and later British foreign policy towards France. The location of the islands, less than 30 miles from the western coast of Normandy's Cotentin Peninsula, made them a prime target for the unwelcome attentions of the French, both in periods of political tension and of all-out war. These periods can be conveniently split into three, covering the period from 1204 to 1660. The Early Modern period after 1660 is only slightly touched on here, although the guns are known to have remained in service into the mid-18th century and one was regularly fired on special occasions even later than that.

### **1: 1204-c.1490**

For more than 200 years after their annexation by Duke Rollo of Normandy circa 973, the Channel Islands seem to have been essentially peaceful. After the Norman invasion of England in 1066, the Duchy of Normandy was ruled jointly with the Kingdom of England. However, in 1204, King Philip II Augustus of France conquered the Duchy of Normandy. The Channel Islands remained in English hands, being part of the King's personal estate, making their control one in which both monarchies would claim rights for several centuries afterwards.

From 1204, the Channel Islands became in effect a 'front line outpost' of England in her wars and intrigues against France. Other than the German occupation in the 1940s, this never produced an outright invasion, though various raids and partial invasions took place at intervals over the succeeding centuries.

This was a period of defence against France, marked by regular raids and invasions, such as those of 1212, 1336, 1338, 1339, 1372-3, 1403, (Balleine et. al. 30, 49, 51), 1406 under Pero Nino, 1454, 1456 (ibid, 52, 57), and the 1460s, when Jersey was occupied by a French force for seven years (Nicolle 1921, 30-36). Construction and development of castles in suitable locations began: In Guernsey, enclosure castles of the 13th to 14th centuries were constructed at the Vale and Le Marais, while Castle Cornet developed as a principal castle for the island on a rocky islet off St Peter Port. In Jersey, Mont Orgueil was the earliest principal castle, developing after 1204 as an enclosure castle with inner and outer wards, encircling a central donjon. Owing to the development of gunnery from the 15th century onwards, it became at risk from land attack and was abandoned as Jersey's principal fortress in the mid-16th century in favour of the more easily defended Elizabeth Castle, newly built on an islet off St Helier and complemented by a smaller fort on a rock off St Aubin to the west, begun half a century earlier. Jersey also had a 14th century enclosure castle at Grosnez, on the north-western tip of the island, but its cliff-top location made it useless as a tactical defence point and it was probably only intended to be a castle of refuge. In Alderney, the former Roman fortlet at the Nunnery seems to have continued in use as a fort protecting the harbour of Longis Bay, though it is not sure what form this took, as the principal surviving masonry appears to be unaltered late fourth century work.

### **2: c.1490-1640**

After the internecine warfare into which England had descended from the 1460s to the 1480s was ended at Bosworth Field in 1485, the first Tudor monarch Henry VII instituted improvements

in defence to a number of coastal ports and weak points. This initially took the form of new castles, designed to mount gunpowder artillery, supported by strategically placed compact stone blockhouses of two or more storeys, also being designed to mount guns. This process began in the principal English ports by the early 1490s; examples of this early period surviving at Dartmouth and Plymouth in Devon, and Portsmouth in Hampshire. There is some evidence for this in Jersey, in the form of St Aubin's Fort, constructed in its primary form c.1500 and appearing on the Cotton manuscript map of c.1540-45 (British Library); defensive walls along the shoreline in various places and a blockhouse at Bouley Bay. Henry also laid the foundations of a standing Navy: several capital ships and many more lesser vessels being laid down during his reign, including the *Mary Rose* which was begun in the year of his death, 1508-1509.

Henry VIII continued his father's defence policies, but considerably developed them, especially in the field of artillery. Over the course of his 38 year reign, he built nearly 30 capital ships and about 60 smaller ones, increased the number and size of artillery forts around English ports and greatly expanded the capability of his land army (Loades, in Marsden (ed.) 2009, 1). His reign constituted a period of active defence and offense, specifically against France, but occasionally against other countries. Over the course of his reign, Henry went to war with France on three separate occasions, in 1512-14, 1523-25, and 1544-45, while he provoked war with Scotland in 1542, having previously been attacked by them in 1513 (Loades in Hildred (ed.) 2011, 1). His break with Rome from 1536 produced much opposition from European Catholic states including France, which increased his attitude towards pre-emptive defence.

From the 1520s onwards, Henry developed a gunfounding industry in England which had not previously existed. Although England had used guns, principally on land, from at least the late 14th century, there seems not to have been any desire to develop this field of artillery beyond a capability to support and complement other forms of warfare. Henry seems to have sent agents to the Arsenal of Venice in 1523, then the centre of European technological excellence in artillery, to attract founders to his cause – and his purse. The first three founders whose services he succeeded in obtaining were the Frenchman Peter Baude (possibly of Calais), the Italian Francesco degli Archana (usually spelt Arcanis) of Cesena and Geronimo di Milan (Caruana 1994, 5). Two Flemish founders: Simon Giles of Mechelen and Hans Poppenruyter of Malines seem to have been attracted at an earlier date, being established in London, possibly at 'Hunsdyche' by 1514 (Hildred 2011, 19). After 1523, English metalworkers were set to learn from these foreign founders, initially at Calais, where Baude is known to have cast guns for Henry and later at Houndsditch, just outside Aldgate in the city of London (ibid, 22). From the 1530s at the earliest, Baude and Arcanis were working in London, while at least one English family dynasty of founders had begun work there by 1529, apparently under Peter Baude at Houndsditch: the brothers John and Robert Owen (Ffoulkes 1937, 47-48).

John Owen was recorded by the historian John Stow in the later 16th century as being the first Englishman to cast culverins and cannon in bronze (Stow 1598, 288). With his brothers Robert and later Thomas, the family seem to have become the King's most favoured founders, as after the death of Baude in about 1546, they were confirmed as Royal Gunfounders, a title they held until Thomas' retirement in 1571 and the closure of the Houndsditch foundry (Ffoulkes 1937, 47). The Pitt and Mayo families also seem to have developed as founders in the same way, although they are less well-represented in documentary evidence until 1571, when the Pitts at least may have succeeded the Owens as Royal Gunfounders, being active in Royal founding commissions

until 1639 (*ibid.*, 48–50). Other founders active by the early 17th century include John Browne and Richard Phillips, both of whom seem by that date to have been casting guns principally of iron in Sussex; the Wealden gunfounding industry having developed from the mid-16th century out of a shortage of bronze for gun manufacture (Hildred 2011, 22).

This policy towards attracting foreign founders and establishing a home gunfounding industry had developed sufficiently by the 1530s for a major rethink of ship-board armaments to be implemented, while land fortifications were developing along new lines to take account of the increased strength and accuracy of the new weapons.

McKee (1979, 23), Rule (1982, 106, 152–3), Loades in Marsden (2009, 10–11), and Marsden (2009, 380–385) described the major redesign work necessary to enable capital ships to mount various types of ordnance, including heavy bronze and wrought iron guns low in their waists: a plan which was not to change in its essence for more than 300 years.

After Henry VIII's death in 1547, though the construction of new castles and forts slowed to a trickle, largely due to the cost to the exchequer, his policies regarding coastal and naval defence were carried forward by his children. This early to mid-16th century investment enabled Henry's daughter Elizabeth to fight off the attempted Spanish invasion of 1588 and subsequent lesser Armadas. In Jersey, the reformed and rearmed trained bands were able to defeat an attempted French invasion via Bouley Bay at Jardin d'Olivet, killing many French, who fled to St Malo with their dead and wounded (Balleine *et. al.* 1981, 79–80). The guns acquired for the by that date would certainly have been present at this action, which may have spurred the islanders to the acquisition of more and better weapons, perhaps explaining the early 1550s date of at least two of them.

The accession of James Stuart in 1603 marked the beginning of a slow decline in Tudor defence policies. As a former Catholic, James was not popular and the attempt on his life in 1605, allegedly by the Catholic opposition, must have distracted him from foreign policy, towards defence against religious dissenters in his own kingdom – a growing problem which was to cost his son Charles his life half a century later. Indeed, the navy contracted after Charles I's succession in 1625 and although gunfounding activity seems not to have ceased entirely, it must be said that the Crown's failure to win the First Civil War of 1640–1646 may have had a lot to do with this lack of investment, to the extent that the Parliamentarians essentially outgunned them, while the English Navy seems not have played a large part in the war.

### **3: 1640s–50s**

The Channel Islands were actively involved in the First English Civil War of 1640–1646, and in the Second Civil War of 1649–1651, when the island was captured by Parliament. Castles & forts in the islands participated to various extents in sieges & battles, notably Castle Cornet, which remained loyal to the King in the first war under its Governor, Peter Osborne. Guernsey supported the Parliamentarians and the Castle was under siege for nearly nine years in the 1640s, although occasionally supplied by ships from Royalist Jersey.

In 1643 a force of English and Jersey Parliamentarian forces besieged Elizabeth Castle in Jersey, which was held by George Carteret, the Royalist Governor of Jersey. The siege was repelled and in 1646 a young Charles II, then Prince of Wales, visited the island and stayed at the castle for two months as a guest and on a further occasion in 1649–50 (Balleine *et. al.* 1981, 112–148; De Gruchy 1956, 367).

In 1651, Parliament sent an expedition to the Channel Islands to recapture Jersey for Parliament. Elizabeth Castle surrendered after a three week siege, being the last significant battle fought in Jersey before the French attacks of 1779 and 1781 (De Gruchy 1956, 367, 368).

This period saw the often legally questionable appropriation of guns from various sources, including the parish field pieces, for ship and castle defence. This was an unsurprising effect of the needs of castles during sieges, or the requirements of the besiegers themselves, and may have produced uncertainties in later years as to precisely where certain weapons ended up.

The collapse of the Commonwealth in 1658 and the restoration of Charles II in 1660 saw the commencement of a long period of stability in the Channel Islands, which ended in the 1740s in the case of Guernsey and the 1750s in Jersey, with the exchange of all the old parish and castle guns for new (or at least up to date) cast iron guns from the Royal Armouries. What little documentary evidence we have for this period suggests that the parish 'companies' or 'trayned bands' were kept up, and their field pieces were kept in working order. Two significant documents survive – Dumaesq's survey of 1685 and the Osborne Papers of 1642, which reported on Jersey's defence capabilities to Charles I's council at the beginning of the English Civil War.

### **Trained Bands, Companies and Civil Defence**

One particular feature of Tudor defence policy, which has received little attention from scholars, was the provision of arms and funding for civil defence, particularly of the Channel Islands and the Isle of Wight. This seems to have taken the form of batches of guns or individual weapons being supplied to civil defence groups (known as 'trayned bands' or 'companies' – only later being referred to as 'militias') over a long period of time, apparently by the Royal Armouries at the Tower of London.

Documentary evidence for this is relatively lacking, but fortunately we know rather more about the civil defence forces they were supplied to, as these had in many cases been in existence already for several hundred years. On 24th July 1203 for example, King John ordered that the Seigneurs of Guernsey were to provide "sufficiency of men and money to defend the Island from the enemy". These were under the command of Seigneur Reginald de Carteret.

The first definitive mention of a civil defence force in the Channel Islands as a whole was not until 1336, when an invasion was attempted by David Bruce, the exiled King of Scotland. In the following year, Edward III commissioned Thomas de Ferres to "levy and train the inhabitants of Guernsey, Jersey, Sark and Alderney, to the use of arms and to array them in millenis, centenis and vingtenis" (thousands, hundreds and twenties). In 1338, the Guernsey part of this new force was put to the test, when a French Admiral by the name of Behuchet landed with an invasion force on the west coast of the island. Men of the St Martin's and Forest parish companies challenged the French at Les Hubits and a battle ensued, ending with victory for the islanders.

Guernsey's civil defence evolved over the next century on a parochial basis, with each parish raising a company of soldiers commanded by a Captain. These companies normally consisted of 100 men aged between 16 and 60. There was one company per parish with the exception of St Peter Port which had four. By 1621 the number of serving men was 1157, in 1656 there were 1418 and by 1680, 1902 men were serving.

Guernsey was staunchly Parliamentary during the English Civil War. The Lieutenant Governor, Sir Peter Osborne, however, was a Royalist and fled to Castle Cornet where he took refuge, holding out with assistance from Jersey. In 1651 the Guernsey companies attacked the

Castle, but were unsuccessful, as Royalist supporters from Jersey had reinforced the Castle garrison. Later that year the siege was lifted when the garrison was paid an indemnity and allowed to leave with full military honours.

By the end of the 17th Century there were 13 companies in Guernsey, totalling 1600 men. The first regiments were formed in 1711 and were named as follows:

1st (Town) Regiment – made up from St Peter Port and St Sampsons

2nd (North) Regiment – made up from Catel and Vale

The 3rd (South) Regiment – made up from St Martin's, St Andrew's, Forest, St Saviour, St Peter in the Wood and Torteval was formed in 1743.

A Troop of Horse was raised in 1735; the intention being that the unit would provide messengers to carry orders and information between the various posts across the Island. The old field pieces were exchanged for new cast iron pieces in 1744 and a re-organisation occurred in 1755, when two companies of artillery were formed. ([www.jerseymilitia.co.uk/guernseyhistory.html](http://www.jerseymilitia.co.uk/guernseyhistory.html)).

In Jersey, the documentary evidence for civil defence is rather thinner, as the medieval records were destroyed in a fire in 1502 (Balleine et. al. 1981, 68). No clear evidence for any defence companies deriving from Edward III's 1337 edict has survived and the earliest date at which any actual defence force is mentioned was 1542, when Parish Committees were set up by an Act of the States "to organise and make provision for the defence of the island". Despite this lack of earlier documentation, far from being a new idea, the 1542 Act almost certainly constituted an initiative to breathe new life into an existing system. It was not stated that this was an order from the King, but in view of Henry's various other defence policies outlined above, it seems highly probable that this was the case.

The new Jersey Committees agreed that each parish should form its own 'Trainband' or 'Company', made up of volunteers from the parish. It is not certain what form these took in the 16th century, but a Muster Roll of St Saviour's parish dated 1617 states that the Company consisted of 3 officers, 2 sergeants, 2 corporals, a clerk and a drummer. Of the 215 men in the ranks, 73 had firearms and 142 had halberds and bills. In addition, 14 gunners and drivers served the two field pieces, which were presided over by an officer titled 'Controller of the Artillery', being himself under the command of the Captain of the Company (Godfray 1947, 335). Jurat Philip Dumaresq's 'Survey of the Island of Jersey' of 1685 noted that "a convenient number of men with horses, also smiths and carpenters" attended the artillery and seem to have been exempt from service in all of the bands, to enable them to serve the artillery effectively. In each parish was a wagon "that with ye said artillery, is maintained out of ye publicq stock or revenue of the parishes" and presumably carried all the gunners' equipment, shot and powder.

Dumaresq gives important details of the origins of the parish companies, stating that the office of Controller of the Artillery was created by Sir Thomas Morgan, after he had modelled the regiments, an event understood to have taken place in 1678 as part of a general review of Jersey's defences (De Gruchy 1956, 367).

Dumaresq goes on to say that the twelve parishes had 24 field pieces among them, which coupled with the 1617 reference to two pieces at St Saviour, suggests that the parishes were intended to have no more than two guns each. He notes that "they were not bought altogether, some having been bought or changed at least within these sixty years, and others about 150 [years], which are the most ancient I can find", implying that some could have dated as early as the mid-



1530s. He states that “they are all of brass except one” and that they included “a dozen Falcons, of about eight hundred weight one with another.....ye rest being small Robinets of between 2 and 3 hundred weight a piece; which by ye smallness of their bores, being but half pounders, would do but little service”. Apparently two or three of these were ‘disabled’, suggesting that overcharging may have destroyed or damaged them (Dumaresq 1685). This is an interesting statement, given the state of the St Saviour Falconet fragment (see below) which appears to have blown up. As an aside, he suggests that some parishes had trouble maintaining their guns – possibly they had no real knowledge or training in their care and maintenance. This may be borne out by some of the damage to the bores of the guns described below which have not exploded but have nevertheless seen heavy, possibly excessive use. By 1730, there were 25 field pieces, ‘kept in the churches and ready for action’ (De Gruchy 1956, 368). The exchange of the old bronze guns for up-to-date iron ones occurred in Jersey in 1757 and in Guernsey in 1744. The history of the trained bands and militias is terminated here, as this marks the end of the Tudor guns’ use for defence, while the later history of the Channel Islands’ defence is covered in more detail by other authors (Balleine & De Gruchy).

### **Castles and Coastal Batteries**

Guns are known to have been provided by the Crown specifically for the castles and other coastal defences of the Channel Islands. Several historical references are known, though no one published work looks at the subject as a whole.

Gunpowder artillery is first recorded at Castle Cornet in 1435–37, when the Carey or Gunners’ Tower was apparently constructed to mount three wrought iron guns, but it was not until the 16th century that specific construction projects were carried out to update the castle for defence with massed and tactically placed guns. While attention is usually drawn towards the work of Paul Ivy in the 1590s, there were two earlier projects; the first in the very early 16th century saw a gun platform created on the Well Tower, covering the East Sally Port. The second dated from 1550, during the governorship of Sir Peter Mewtis (or Mewtas) from 1545–1553, is known to this day as the Mewtis Bulwark. It takes the form of a triangular projection on the south-west side of the Inner Ward with a semi-circular tower on its outer end, which seems to have mounted at least three guns on its weather deck (Barton 2003, 147–149). It is for this project that the surviving bronze Falcon now at Castle Cornet Museum is most likely to have been made, as its inscription probably includes the date 1550 and mentions Sir Peter Mewtas.

We know a great deal about the mid-16th century refortification of Mont Orgueil Castle in Jersey, thanks to two inventories of the castle’s ordnance. The first, dated 1531, lists 19 pieces of ordnance, most of which were wrought iron breech-loading guns, essentially of medieval design and possibly of some age. The second of 1549 immediately post-dates the completion of the refortification works of Henry Cornish and the Duke of Somerset and reflects this, with over 40 guns dispersed to varying parts of the castle, being named. These included eight cast bronze muzzle-loaders and five additional cast guns whose metal was either un-named or was iron. There were still many breech-loading wrought iron pieces which could have been retained from the previous survey, so Platt and Rushton’s claim that the armaments of the castle had been brought up to date by 1549 must be treated with some caution, especially as several of the breechloaders on the list sound as if they were not in a serviceable condition (Platt & Rushton 2013, 44–45).

These pieces of evidence suggest that guns could be and were supplied for specific castle



defence projects, but we know from two late 17th century references that several large guns were placed at strategic places around the coast of Jersey to protect it from attack. Writing in the early 1680s, Jean Poingdestre stated that “in ye most dangerous and suspitious places about ye coast there are great iron peeces placed for defense” (Poingdestre 1682), while in 1685, Dumaresq noted that “Besides [the parish] guns.....there are upon several [sea] roads to hinder the approach of ships, some demi-culverins.....there were formerly seven but four were carried to Elizabeth Castle, two from Le Gronez? St Brelade and two from St Ouen’s Bay opposite La Rocco – one [was] left at Bouley Bay.” (Dumaresq 1685, ed. Nicolle 1921, 24).

Little is known about the post-medieval fixed defences of Alderney, Sark and the smallest of the islands of the archipelago, although a mid-19th century description of Alderney noted the presence of a bronze gun of unknown date at Le Fort – now better known as Essex Castle: “sur une de ces platesformes, il y avoit autrefois un canaon en bronze d’une grandeur extraordinaire.” (Chroniques de Jersey 1858, 298). The bronze guns of Sark, of which six (two culverins, two sakers and two falcons) were supplied by Elizabeth I in 1572 (Cachemaille 1928, 24–25), are well recorded, though the two culverins and two sakers were probably mounted in fixed positions, perhaps protecting landing places, as these would have been heavy guns. The falcons (which may have been mis-identified as the surviving gun on the island is a falconet), could have been used as field pieces – indeed the falconet is first recorded in photographs of the 1850s on a field carriage (Seigneurie Archive, Sark).

## THE SURVIVING GUNS

### **St Peter’s Parish Field Piece - Bastard Falcon with lessened fortification**

#### *Owner & Location:*

Parish of St Peter. Under thatched shelter on plinth at junction of A12 St Helier to St Peter main road and Le Vieux Beaumont, in Beaumont.

#### *Description:*

This very long and slender gun is divided into two fields; there being only one reinforce, as is usual with cast guns which predate c.1560. The reinforce field forms a gently tapering octagon from the pronounced but narrow base ring to the reinforce ring, which is also narrow but projects unusually far from the surface of the barrel. Just back from the reinforce ring there is a narrow astragal ring with fillets, which the facets pass beneath, flaring out to form radiused terminals just behind the reinforce ring. Slender trunnions project from the lower facets of the barrel a little distance behind the astragal ring. The forward field is of circular section, tapering gently down to a pronounced muzzle ring with a second astragal ring a short distance behind. The cascable slopes rapidly in to a formerly elongated button; this has been sawn off, possibly to allow an elevating screw to be fitted. Comparison with other similar Owen guns’ cascables, suggests that a length of perhaps 12cm has been lost.

The barrel has a bore of 7.6cm (3in) diameter and approximately 2.08m (82in) long bore. Its barrel tapers over this length from 11.5cm (4.5in) at the muzzle to 19.3cm (7.5in) across flats at the touch hole. The wall thickness at the breech is 6cm to the flat faces and 2cm just back from the muzzle. This is the longest of the surviving guns, at 1.21m (87in) overall (probably about

1.33m (92in) before its cascable button was sawn off). Godfray quotes a weight of about 7.5cwt (1947, 333), though there is no way of confirming this at present.

The gun is recorded in two sets of drawings at an original scale of 1:2 (Figures 1 & 2), the first of which shows the upper and lower faces, muzzle and cascable elevations, and the inscription; the second showing the two side elevations and several cross-sections. Plates 1 to 4 record details, though these are not definitive, due to the thick paint: some details can only be seen by careful examination with the naked eye. These details include evidence for two periods of hinged vent covers, the first having hinge cheeks cast into the body of the gun on the right-hand facet of its back; the second being a probable iron plate riveted to the surface of the left-hand facet: this may have rattled in use, as its rear edge has worn a step in the barrel metal at this point. The currently visible touch hole does not sit centrally with the first vent cover hinges. In view of the multiple repairs to the touch hole on the Sark Falconet, the first of which was forward of the subsequent ones, it is suggested that the original hole was further forward on the St Peter gun and evidence of its blocking is currently obscured with paint.

A number '21' has been engraved at a later date into the right-hand upper facet of the barrel in the first reinforce. This is discussed in the caption to Plate 3 and is one of several 'aftermarket' textual additions to the guns.

Elevating marks are present at 22.5 degree intervals around the base ring. These would have helped the gunner to calculate the elevation of the barrel while aiming, but as their use is not known before the 18th century, they must also be later additions. A 'U' shaped aiming button at the top of the base ring seems however to be original.

This is the most antiquated-looking piece for its supposed date. The discussion below considers the possibility that it was cast up to fifteen years previous to the date recorded on the inscription: with its partly octagonal barrel, it certainly looks more like some of the Mary Rose guns of the late 1530s to early 1540s, or even Arcanis guns of the 1520s.

### **St Saviour Parish Field Piece (fragment) – possibly a Legitimate Falconet with common or very slightly lessened breech.**

#### *Owner & Location:*

Société Jersiaise (since at least 1947). In collections of Jersey Museum, accession number: JERSM/1985/234, but origin not recorded. Not on display at time of writing.

#### *Description:*

This angular fragment of bronze, with total measurements of 25cm long by 14cm wide and 7.5cm deep, derives from the back or upper face of a Falconet. Its wall thickness measures 44mm at the forward end and 49mm at the rear, with a bore diameter of c.57mm. The outside diameter of the barrel would therefore taper in from 15.5cm to 14.5cm over its surviving length. Internally, the bore is scored on the longitudinal plane, with an undulating surface, presumably caused by the casting process. Impressions of spiral wire binding of the mould core are present: these are about 68mm apart, and the wires were about 2mm diameter. Two lie parallel and one runs counter to the others. The fractured surfaces of the body displays a granular structure containing noticeable gas bubbles, measuring from 1mm to 5mm diameter. Fracture lines and cracks radiating out from

the bore in places are very suggestive of an explosion having caused the gun's dismemberment.

The exterior of the gun is fairly smooth with occasional bumps and pits, apparently caused by casual striking by unknown objects. Approximately half of a shield 58mm wide by c.60mm high, projects 6mm from the surface of the barrel. Below this, a single line of text includes the latter end of a sentence which reads: '.....OVR IERSEI'. This probably read: 'S[ANC]T SAVIOVR IERSEI', it being uncertain whether the 'Sanct/Saint' element would have been contracted to 'St' as was commonly the case. The letters are c.12.5mm high, engraved & chiselled into the metal. If the suggested text was in contracted form, its centreline would have come to the left-hand side of the shield, suggesting that two linked or detached shields were once present. Figure 4 makes a suggested reconstruction of the layout.

### **Sark Field Piece - Bastard Falconet with reinforced breech**

#### *Owner & Location:*

The Seigneur of Sark (since 1572!). In a gun garden immediately north-west of The Seigneurie, Sark, on a replica ship-board carriage of 19th century design, made of oak

from HMS Victory. The gun seems to be the sole survivor of six which were supplied for the defence of the island after it was resettled under Helier de Carteret of Jersey in 1565. The 19th century historian and commentator on Sark, JLV Cachemaille, recorded this event thus: "because of the true fidelity of the Seigneur of St Ouen towards Her Majesty, and because of his diligence concerning the Island of Sark, Her Majesty gave him six fine pieces of artillery, with all their appurtenances and their mountings: also some powder; and two demi-culverins, weighing 29cwt each; two sakers of 16cwt a piece; and two falcons, weighing 9cwt a piece; for each gun fifty iron balls, with 200lbs of powder. All these guns were furnished with all their appurtenances and carriages, perfectly new; taken from the Tower of London, for the defence of Sark. The Seigneur of St Ouen had them all brought to Sark, and placed them where they would best serve the interests, defence, and convenience of the Island." He went on to say that "...he made ramparts on all dangerous parts of the island where a landing might be effected...." (Cachemaille (ed. Hale) 1928, 24-25).

In 1875, the Sark Militia was still in existence, having "from 70 to 80 men, between the ages of sixteen and forty-five; the older men to the age of sixty constitute a reserve". The field guns had been out of use for at least 12 years, training in the use having ceased, although it was noted that "the two brass 6-pounder field-guns with their limbers and ammunition-wagons, harness, &c., still remain in the so-called Arsenal at Sark." (Guernsey Monthly Illustrated Journal, November 1875).

#### *Description:*

This diminutive gun, looking rather like a scaled-down toy, nevertheless represents one of the most unusual of the studied group. The number and complexity of its mouldings and its wholly circular barrel section would suggest the later 16th century, even if a date in the early 1570s was not suggested for the piece.

Its overall length is 142.5cm with a barrel tapering from 15.6cm diameter at the breech to 8cm diameter just behind the muzzle ring. The bore is 128cm long by 44.5cm diameter, with

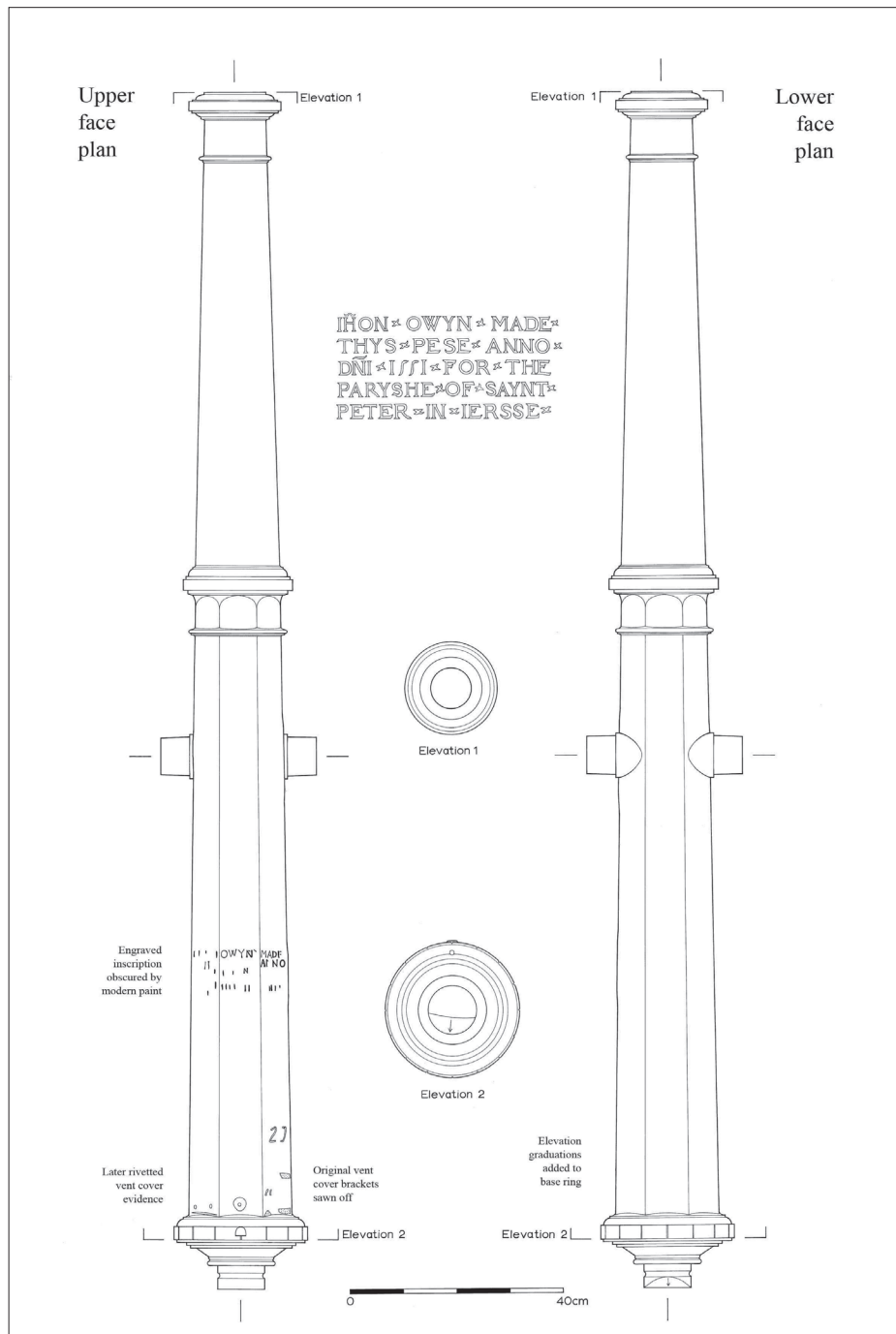


Figure 1 St Peter's Falcon, 1551 (?)

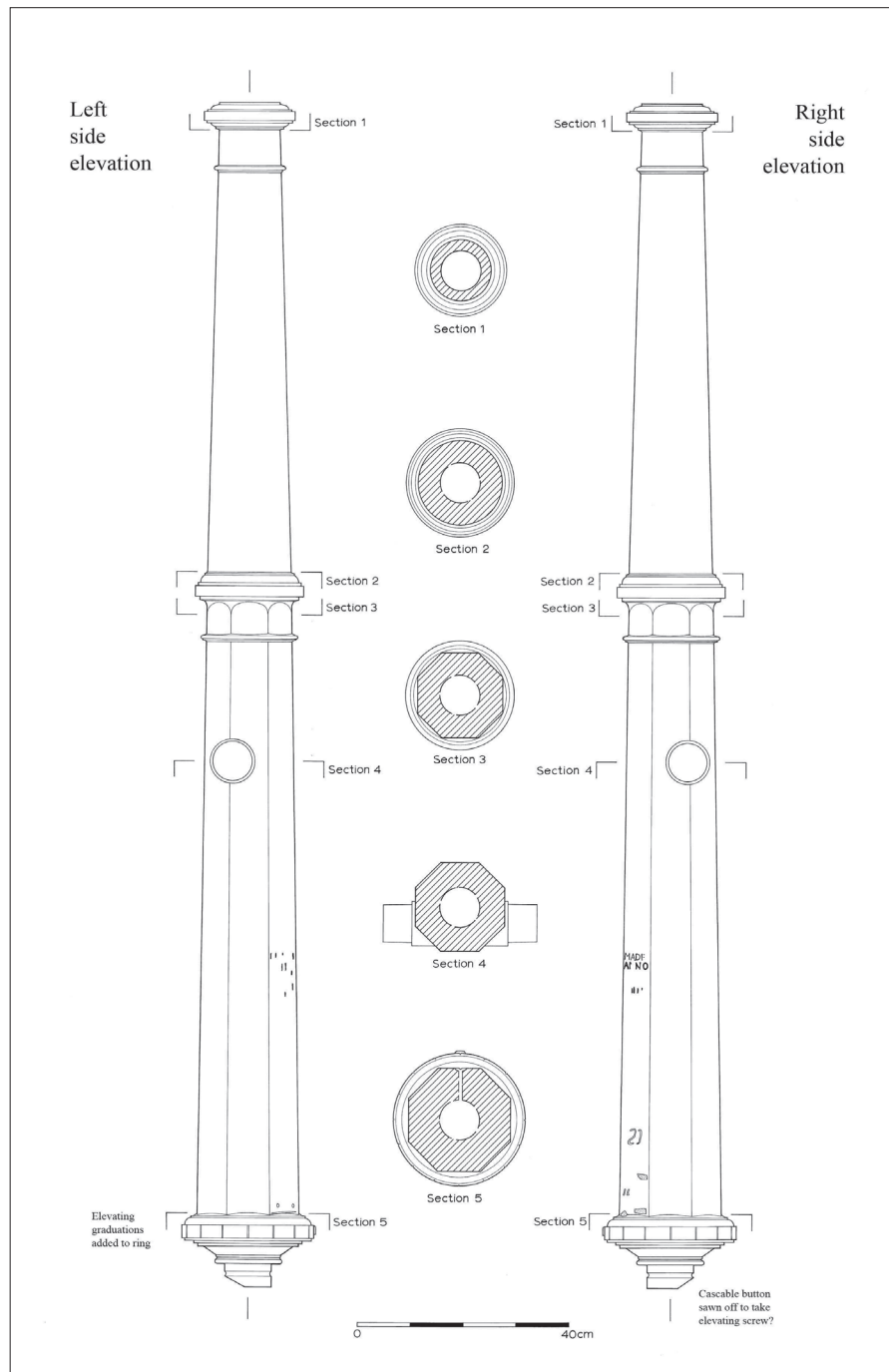
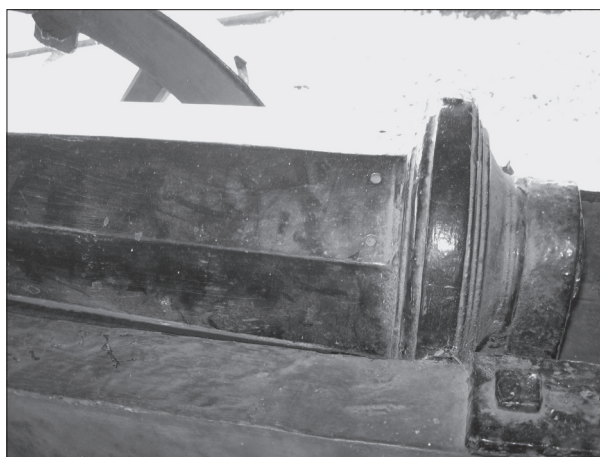


Figure 2 St Peter's Falcon, 1551 (?)





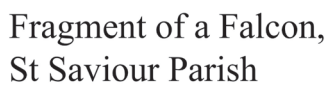
Left: Plate 1 St Peter's Falcon: Looking forward along octagonal part of barrel.

Above: Plate 2 St Peter's Falcon: Left side of base ring, with elevating marks faintly visible and pair of drilled holes for secondary vent cover. Aiming button just visible at top of base ring. Iron strap over sawn off cascable to right is of 20th century date.

Below left: Plate 3 St Peter's Falcon: Engraved number '21' just visible under paint on right flank of barrel in first reinforce. Its graphic style is suggestive of a 17th or early 18th century date and it may relate to a numbering system for the parish guns.

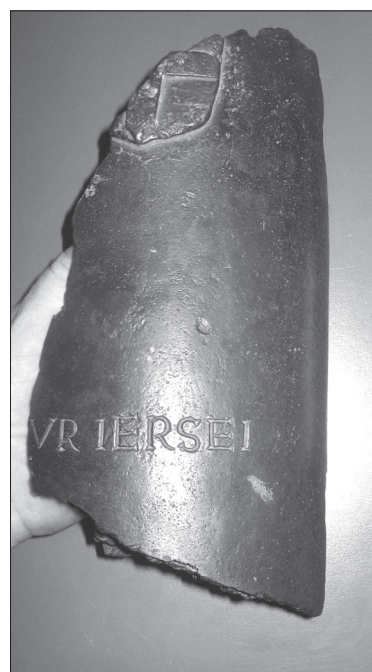
Below right: Plate 4 St Peter's Falcon: Muzzle detail with much larger diameter moulded ring, typical of field guns which did not need to fire through gunports in buildings or ships.





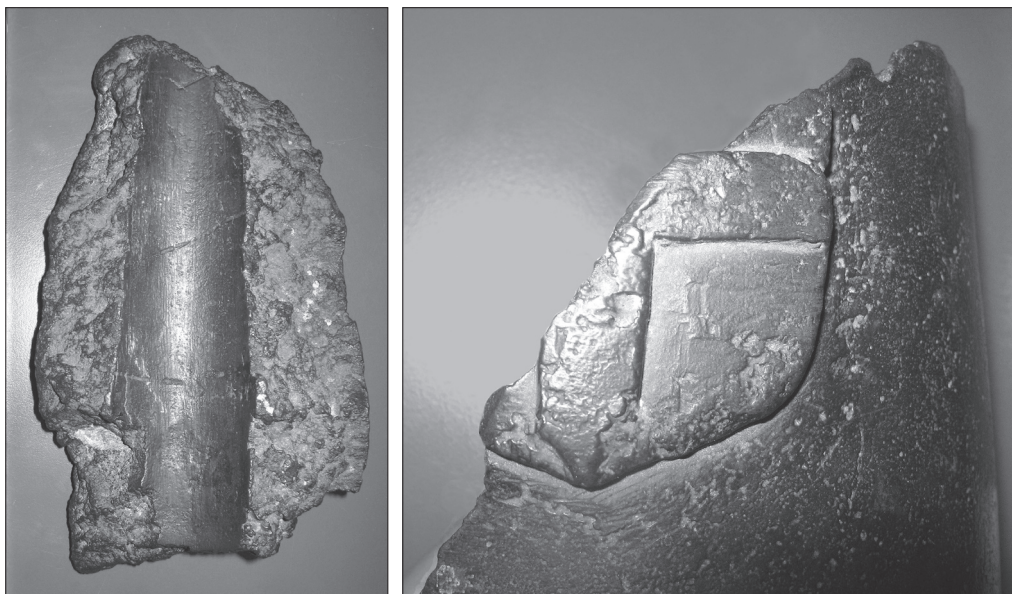
Above: Figure 3  
St Saviour Falconet fragment.  
Elevations and sections.

Right: Plate 5  
St Saviour's Falconet fragment  
Upper face, with fragmentary  
shield and engraved inscription.  
Traces of an 'O' before the 'VR'  
show that the gun was a parish  
piece belonging to St Saviour.



### Possible Reconstruction of Decorative Scheme





Left: Plate 6 St Saviour's Falconet fragment: Inner face, showing granular fracture faces flanking bore. Longitudinal scrapes from repeated firing have partly obscured traces of wire binding on the mould core.

Right: Plate 7 St Saviour's Falconet fragment: Detail of shield, showing hand-scraper marks made during cleaning-up of the rough casting after founding. Scraper and file marks can be seen on most of the guns, particularly around the mouldings on the reinforcing rings, muzzles and cascables.

a wall thickness at the breech of 5.6cm. Severe scoring of the bore and a vertical crack in the right-hand side of the barrel about 50cm back from the muzzle, suggest that oversize or irregular shot have been used in the past, to the gun's detriment. Indeed, viewed from above, the gun barrel appears to bend imperceptibly to the left.

Unusually for the group, evidence for a wrought iron crown or spider (a ring with four radiating legs), with which the core was supported during the casting process, can be seen just behind the vent field astragal ring. The leg terminals are about 4mm diameter; the bronze having spalled away from them in places, notably on the back of the gun. Section 2 on the drawing shows how the spider is set slightly anti-clockwise in the bore when viewed towards the rear – perhaps it slipped during the casting process?

The gun's mouldings are particularly lavish for the size of the piece: the vent field astragal ring being at least as complex as the first reinforce ring, while the base ring and cascable have particularly complicated mouldings, including a pronounced convex moulding just aft of the base ring. This may be significant, as comparisons of other guns have revealed very few such features at the cascable. The conclusion to this paper suggests possible identifications of the founder, based on this feature.

Aiming and elevation vees have been cut into the outer mouldings of the base and muzzle rings, while an aiming vee only is cut in the outer moulding of the vent field astragal. It is not

possible to date these, though they are likely not to be original. Evidence for the gun's long working life is provided by a remarkable sequence of four vent holes, all but the last having been carefully blocked with bronze plugs; two of the pans also being filled flush with the barrel. These are indicated in dotted lines on the drawing.

The gun has no original inscription. The present one, rather haphazardly engraved into the back of the barrel in somewhat angular copperplate script, is in Sark Patois: 'Don de Sa Majeste La Royne Elizabeth au Seigneur de Serq AD 1572'. It was there by 1845 (James 1845, 158), but it is somewhat unlikely that it dates from any earlier than c.1800 on calligraphic grounds.

### **Castle Cornet Battery Gun - Bastard Falcon with lessened breech**

#### *Owner & Location:*

On long-term loan to Guernsey Museums since 1985 from the Ancient and Honourable Artillery Company of Boston, Massachusetts USA, to whom it was given by the Royal Armouries in 1920. Mounted on an accurate replica of a battery carriage, in Castle Cornet Museum, Guernsey.

#### *Description:*

This long, slim gun is the only one of the group which seems to have been intended as a castle battery gun, rather than a field gun, though of course such a lightweight piece could have been moved around the battlements with relative ease – it would not necessarily have stayed in one position. It may have been made for the Mewtis Battery: a modification to the castle of c.1550, attributed to the governorship of Sir Peter Mewtis (1545–1553), as the gun's inscription mentions Mewtis by name and seems to incorporate a date of 1550, though this is disputable (see Discussion below). It shares with the St Saviour fragment the distinction of having a shield on its back – this example is a flamboyant Renaissance parchment-work design with cut and scrolled edges, presenting the three leopards of Normandy 'en passant', which have represented the Channel Islands since 1204.

Its total length is 224cm with a barrel which tapers from 20.9cm diameter at the breech to 12.7cm just behind the muzzle ring. The bore is c.180cm long by 78mm diameter, with a breech thickness of 6.55cm – this is larger than the bore, making it a 'lessened' piece (see Terminology above). The relatively thin wall of the breech has caused problems in the past, distinct bulging of the barrel being evident between the base ring and the forward end of the shield, presumably due to being overcharged at some point. The Owen gun at Brading on the Isle of Wight also has a bulged barrel, believed to have been caused by using a large turf as a wad when firing a blank charge, coupled with the use of stronger powder. This was an ideal way to wreck an early gun with a slender and therefore weaker chase. From the later 16th century onwards, guns had thicker chases, to counteract this problem.

Further damage can be seen around the muzzle, where distortion and cracking suggest that an overcharge may have partially detached it from the barrel. The alternative possibility that it has been struck at some point cannot be ruled out. The muzzles of shipboard guns were redesigned to a tapered form by the 1560s, in order to prevent damage to the upper lips of gunports by the recoil of weapons with prominent muzzle rings (Caruana 1994, 30–32). Conversely, such mishaps probably did not do the gun much good either, so it is possible that this gun has at some point fired through a port – though possibly within Castle Cornet, rather than on board a ship.

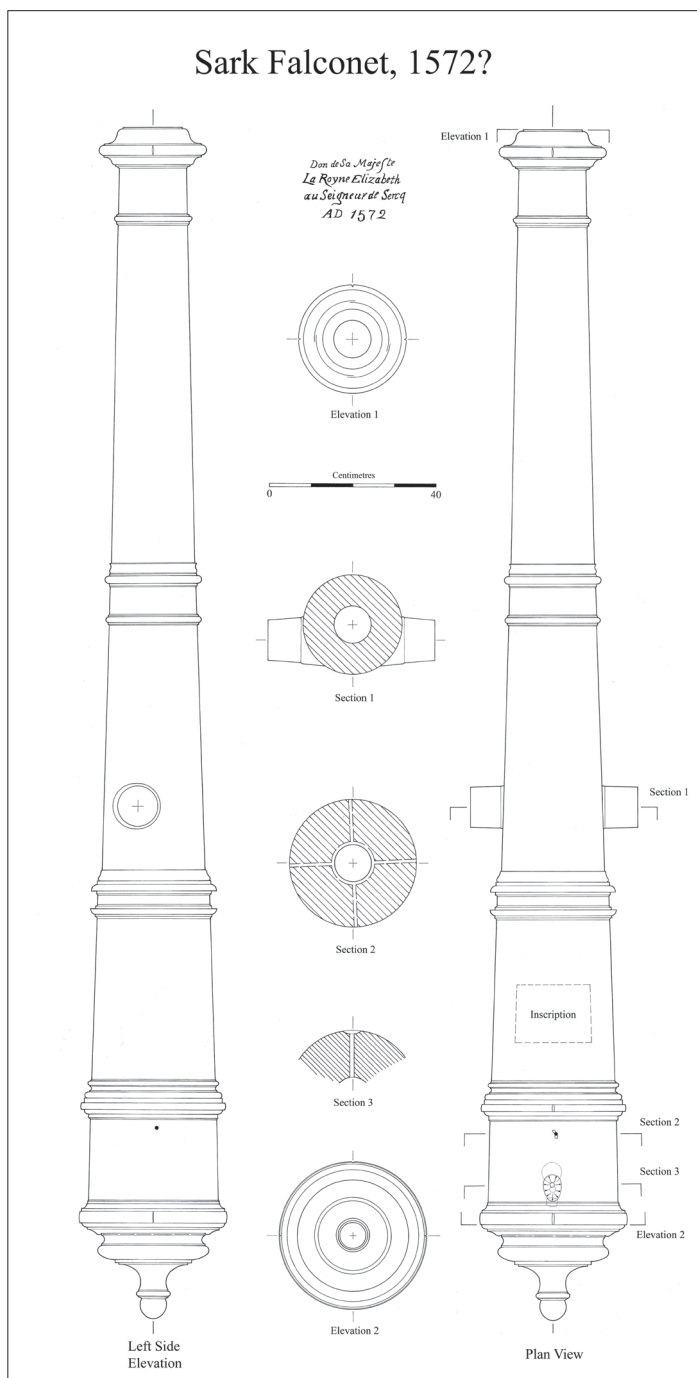
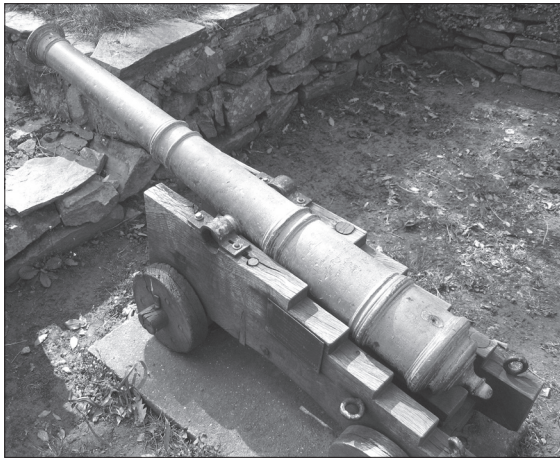


Figure 5 Sark Falconet, 1572: Left side elevation, upper face plan, end elevations, sections and inscription.



Above: Plate 8 Sark Falconet: General view of left elevation, on mid-20th century carriage of oak from HMS Victory. The unusual number of reinforces show this to be a post-1560 design, but its diminutive size makes it look almost like a toy gun.



Right: Plate 9 Sark Falconet: View down barrel from muzzle, showing aiming vee at top of muzzle ring.

Below right: Plate 10 Sark Falconet: View of first reinforce, with three periods of touch holes fronting base ring. Note distinctive convex moulding on cascabel which may identify this as a very late Owen product. The slight dark stain behind the first reinforcing ring is the terminal of the wrought iron spider which supported the mould core during casting.



Below left: Plate 11 Sark Falconet: Muzzle detail, with Renaissance style ogee mouldings. Note scoring in barrel and faint concentric file marks behind astragal ring on left.





### **Manufacturing notes**

With the exception of the St Peter gun in Jersey, which is obscured by a thick coat of black gloss paint, the guns display a number of surface details associated with their manufacture and subsequent use. Some of these details are noted in the gun descriptions above, but it is worth mentioning specific features here, as they are often omitted from other learned papers and books on the subject. Descriptions of the precise methods of manufacture are given in Foulkes (1937) and Hildred (2011) so are not discussed in detail here. Noteworthy however is the visible presence of a wrought iron spider or crown in the breech of the Sark gun. These devices, designed to hold the core of the mould straight and parallel with the outer surface of the barrel during the casting process, are present in all muzzle-loading guns, but are not always visible. In this particular case, the ends of the arms terminated no more than 2mm from the outer surface of the barrel, so have been exposed either due to the metal not covering them fully during the casting process, or by the bronze subsequently flaking away.

In the 16th century, casting was usually carried out with the muzzle uppermost. This enabled the most dense and perfectly cast metal to settle in the place where it was most desired – ie: the vicinity of the breech. Unfortunately, the upper levels of any casting of this period tended to contain bubbles to a greater or lesser extent: a problem which could be partially avoided by having a relatively tall funnel above the muzzle, whose resultant projecting sprue could be cut off after casting. Even this was not a totally reliable way of avoiding a honeycomb effect around the muzzle and such problems can be seen on one or two of the guns in this study, notably the Castle Cornet weapon. Such honeycombing could cause failures on firing, which in extreme cases might result in the muzzle and parts of the forward end of the barrel being blown off during firing. Demi-Cannon 81A3000 from the Mary Rose seems to have suffered thus: a not insignificant length of the barrel being missing with the broken faces sawn off (Hildred 2011, 59–63). It is remarkable that this seems not to have affected its function in any way!

The finishing of guns once cast is described by Hildred (*ibid*, 114) quoting Biringuccio (1540) and includes the practice of striking the surface of the bronze with a hammer to smooth it. Interestingly, examples of the latter technique are not generally visible on the guns studied, while there is extensive evidence of filing and sanding to reduce bumps and blemishes in the castings. Neither Hildred or Biringuccio mention this, despite the clear presence of these techniques on several guns observed by the author in the Mary Rose and Tower of London collections.

The best-preserved of these marks can be seen in the vicinity of the reinforcing rings, where the form of these have been sharpened-up by filing, often reducing the barrel diameter slightly, which can be seen to taper in towards the ring mouldings. Plates 15 & 16 show this effect on the Castle Cornet and Sark guns: the individual tooth marks from the file often being visible. Such marks can be seen on guns by the Owens in the Mary Rose assemblage, suggesting that this was a common technique of this foundry: it is not commonly seen on guns by other founders in the same group. The St Saviour fragment displays evidence of the use of scrapers to sharpen up and to some extent, form the shield detail (Plate 17). This can also be seen in the shield on the Castle Cornet gun (Plate 18). Hildred does not mention how lettering was applied to barrels, though she notes that all other embellishments were typically cast in and tidied up later (Hildred 2011, 112). This seems not to have been the case in the Channel Island guns' inscriptions – all those which can be seen in detail appear to have been engraved into the surface after casting.

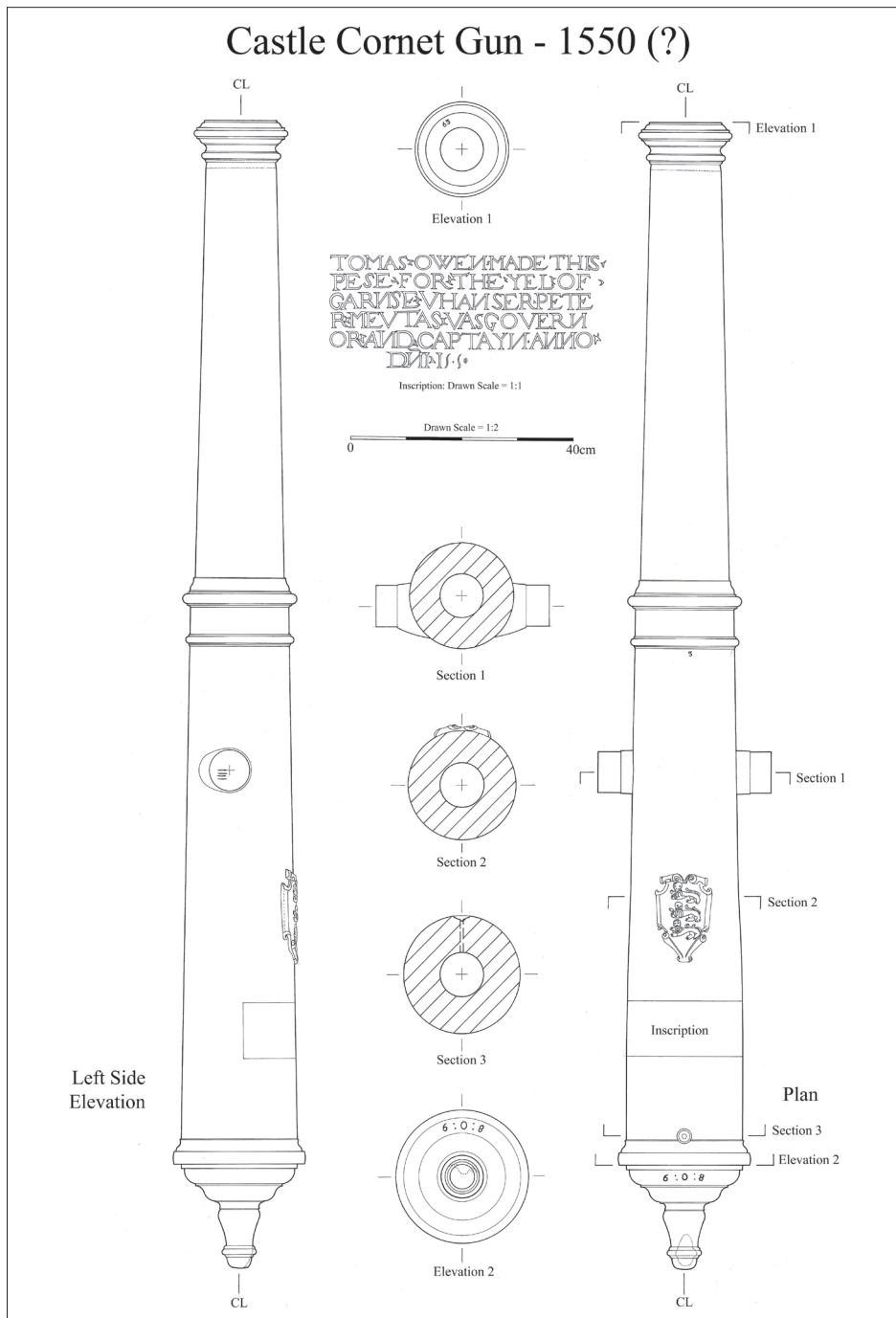
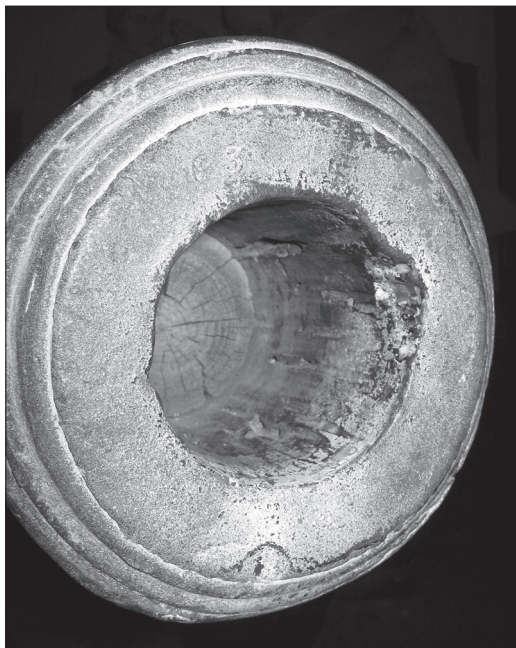


Figure 6: Castle Cornet Falcon, c.1550. Left side elevation, upper face plan, end elevations, sections and inscription.



Above left: Plate 12

Castle Cornet Falcon: General view looking forward, on accurate replica field carriage. Pale appearance is due to corrosion from extended periods outdoors during the 19th and 20th centuries.

Above right: Plate 13

Castle Cornet Falcon: Detail of shield in first reinforce. Basic form cast into barrel, then sharpened and details added by engraving afterwards.

Left: Plate 14

Castle Cornet Falcon: Face of muzzle, with severe internal damage from tightly-fitting shot or possible extended period of firing, causing heating and softening of the metal. A stamped number '3' may be part of a 19th century numbering system at the Tower Armoury.



## Discussion

### Falcons & Falconets in print

Bronze guns of small bore have received little attention from researchers, despite the survival of quite a few of them nationally. The general works quoted in this paper mention them as part of the subject of gunnery as a whole, but no work has studied them on their own. Their absence from the Mary Rose assemblage means that where otherwise they would have been studied in detail, they were only lightly covered.

Hildred (2011, 102) notes that Falcons were listed at the Tower from 1495, and by the 1580s, they were about 7ft (2.1m) in length with standard bores of 2 3/4 inches (70mm) in diameter (ibid, quoting Bourne, 1587). The first written description of their uses dates from 1628 (ibid, quoting Norton, 1628), when they were used as 'flankers' for use in directing crossing fire to sweep a battlefield, or as 'field pieces' in assaults and on the battlefield, where they were often directed at bodies of troops. They generally fired solid shot of iron or stone, but some inventories list lead shot containing iron dice, which would burst on impact with solid targets and may have been designed to spin irregularly in flight (examples described in ibid, 348–358).

No Falcons were found in the Mary Rose, either in the recent excavations or during the 1840s salvage operations, perhaps because they would have been mounted high in the fore and aft castles, where Tudor salvors could easily have reached them. For direct comparisons, we must look at examples from other sources. Fortunately, the Royal Armouries collection at Fort Nelson, Portsmouth, has several such guns, while a few are in other museums and private collections.

Falconets are rare in British collections, although a few are known abroad.

As none were listed in the manifest of the Mary Rose, they were not reviewed by Hildred, but they are referred to in other general publications, eg: Manucy 1949 (1985 reprint), and Caruana (1994, 5, 16, 18–21). None are present in the Royal Armouries collections and the author has only found a reference to one, made by Thomas Owen in 1567 for Sir Walter Mildmay of Apethorpe, Northamptonshire. A good photograph and accurate description was found on the internet, but it is not known to have been measured or drawn and is now in private hands (Wood, 2003).

### General comparisons between Channel Islands guns and others elsewhere

The likely dates of the St Peter and Castle Cornet guns may be open to some discussion. Firstly, the design of the St Peter gun, having a partially octagonal barrel with evidence for a hinged vent cover attached to integral lugs, seems rather too antiquated for the inscribed date on the barrel. Most of the surviving faceted guns date from the latter end of Henry VIII's reign, while by the 1550s, no others are known, apart from the Lisbon gun cast by Thomas Owen in 1570, and the faceting of this took the form of spiralling on the forward part of the barrel. The evidence for a vent cover with cast hinge lugs on the St Peter gun is most interesting, partly because none of the others had covers, but also as it may support an earlier date for its casting. Several of the Mary Rose guns of the 1530s to early 1540s had vent covers and they are conspicuously absent on post-1550s guns in collections elsewhere. Whether the use of a vent cover could imply a specific initial use for the gun seems dubious, as vent-covers were intended to keep water from the powder regardless of the gun's location. They do seem however to have been a feature specifically found on guns for use in potential battle situations, where it may have been desirable to keep a gun loaded and primed, ready for immediate use if necessary.

As for the Castle Cornet gun, its inscription mentions Sir Peter Meutas, as Governor and Captain, but the often-quoted date of 1550 is dubious, as the final zero is very small and has been scratched on later. That said, Peter Meutas (usually spelled Mewtas or Mewtis) was Governor of Guernsey and Captain of Castle Cornet from 1545 to 1553, so the dates would tend to agree. As a triangular bulwark with an upper gun walk and gunports on the lower decks of its outer tower, added to Castle Cornet during this period, is still called the Mewtis Bulwark, it is possible that this gun was one of several made for this defensive structure.

The fact that the lettering on all the guns has been engraved into their backs after casting, as part of the finishing process, may suggest that it was possible for guns to be cast at an earlier date – possibly several years previously – and inscribed subsequently to suit their purchaser's or end-user's needs. It is considered that the apparently unfinished date on the inscription for the Castle Cornet gun may support this theory. Thus, the latter could have been cast in 1550 with no certainty as to when it would be delivered, the final zero only being added – crudely – when the gun was actually sent to Guernsey; possibly even after it had arrived there. As noted above, the design of the St Peter gun seems to suit a date ten or fifteen years earlier than the inscribed date on its back, and it may have had a previous use, or simply was 'in stock' at the Houndsditch foundry or at the Tower in 1551 when it was eventually sent to Jersey.

The St Saviour fragment is difficult to consider, as so little survives. Its bore diameter and section show that it was clearly a Falconet; its dimensions and the probable position of the fragment, about half-way along the first of a probable two reinforces, suggest that it was a 'common' piece in terms of its barrel thickness at the breech.

The circular barrel and lack of a second reinforce behind the trunnions may indicate a date in the 1550s–1560s, although the relative crudeness of the probably twin shields and use of a scraper rather than a file, may argue for a later date, although single rear reinforces were rare after the 1570s. The style of the lettering is different from the other examples too – the letters are smaller and less well-formed, as is common with other later 16th century guns, such as those made by Henry Pitt, successor to the Owens, between 1572 and the early 17th century.

The Sark gun is perhaps the most interesting of the whole group, partly as it is unattributed, but also as it has unusual physical characteristics, such as the abnormally strengthened breech, with two reinforces behind the trunnions. Trollope and Caruana (unpub.) were very interested in this weapon and carried out some useful mathematical calculations on it in the early 1990s, while Charles Trollope recently suggested some further ideas to the author. The following paragraphs are a synthesis of their thinking:

Upon measuring and thinking about the gun's dimensions and design, the conclusion was reached that it was a bit of a 'one off'. It has a proper first reinforce but this is too long for the period, and there is far too much metal in the first reinforce by the standard of the day.

Upon dividing the circumference at the vent (49cm) by the diameter of the bore (4.4cm), the answer should be 10 – it is actually 11.13. The conclusion that we came to was that it was intended to fire a lead shot, weighing about  $\frac{3}{4}$  lb, not a cast iron shot weighing  $\frac{1}{2}$  lb. Were the bore to be of such a diameter to take an iron shot the metal remaining in the first reinforce would be near enough the correct ratio ie. 10. The lead shot, due to its greater weight relative to its size, would need a larger charge. Put this into a smaller bore and there needs to be an increase in the length of the weapon, hence the requirement for a longer first reinforce. This is speculation drawn from the evidence and there is no written proof, but the gun seems abnormally long for

such a small piece and this might be the reason why.

Another possible reason for the length of the first reinforce is the way the gun may have been loaded. The overall length of the first reinforce is 42.2cm from which we have to deduct the metal from the base ring to the (original) vent of 4.88cm, leaving a 37.32cm length of bore in the first reinforce.

The charge for small guns at the time was for powder to equal the weight of the shot. One pound of powder is equal to 32 cubic inches. The area of the bore is 2 Inches and the charge of .75 pounds would have required 24 cubic inches, therefore the charge requires 12 inches, add a wad, the shot and another wad and it all fits nicely into the first reinforce. (measurements have been left in imperial as these are what would have been used by the founders and gunners).

With regard to the age, this is the first gun on today's records to have a proper first reinforce. All those up to and including Queen Mary's reign (1553-1558) were single reinforce, although there is the Carisbrooke gun of 1549 (by Robert & John Owen) which has a band, but no step down in size, where the first reinforce should end.

Sir William Wynter, who was to institute the major reorganisation of the Royal Navy's ordnance, took office in 1568 at the period when iron guns were starting to be cast with a first reinforce. The evidence thus leads towards the Sark gun being cast after 1568. It could be speculated that it was cast in 1569, 1570 or 1572 (no new piece of this calibre appears on the Royal Armouries list for 1571) and as it was presumably among the six weapons delivered to the Seigneur of Sark in 1572, it is unlikely to be after that date.

Regarding a possible founder, the choice would seem to be between Thomas Owen, Henry Pitt, or the Mayo brothers. The Owen brothers are known to have used the cascable design with an indented ring and the only known Mayo gun, a Saker of 1558 (Royal Armouries Collection, Fort Nelson; XIX.328) does not, but that does not mean that they never used this moulding. The best guess on the available information is Thomas Owen, but as the pool of comparable weapons is so small, this may never be known for certain. (I am grateful to Charles Trollope for making these notes available to me).

Due to the lack of an original inscription on the Sark gun, the present author decided to attempt to find a likely maker through comparative studies of the mouldings on other guns, both in the Channel Islands and elsewhere. The unusual number of reinforces for its period and the well-preserved mouldings were taken as a start point and it was decided to look at weapons by known makers, to try to suggest a possible founder. Comparative mouldings on guns in the collections of the Mary Rose Trust, the Royal Armouries at Fort Nelson, Portsmouth and at the Tower of London, were therefore measured and the guns' general forms compared. The full details of these studies are not presented here, as they are intended to be the subject of a future paper in the *Journal of the Ordnance Society*, but the basic findings are discussed.

It was found that in comparing mouldings alone, certain distinctions could be made, such as the discounting of guns made by continental founders, whose mouldings were generally fairly coarse up the mid-16th century, and unnecessarily complicated after that. English guns, particularly those made by the Owen brothers, used generally similar mouldings, including stepped ogees and quarter-ovolos to those found on the Sark gun, but so did later makers, including the Mayo brothers and Henry Pitt.

As Pitt seems to have taken over the post of Royal Gunfounder from Thomas Owen in 1571 (Ffoulkes 1969, 49), it may mean that he also acquired Owen's equipment and moulds. The few

surviving guns by him have similar mouldings and one in the Royal Armouries collection at Fort Nelson, dated 1580 (Blackmore/XIX.224), although shorter, has a similar arrangement of reinforces.

Hildred (2011, 34) has observed that similarities can be seen in the cascable designs of the Owens' guns which mark them out from those of other makers. These features include elongated bobbin-turned terminals and the occasional use of projecting moulded rings, breaking the more usual sequence of mouldings which consistently narrow down from the base ring to the terminal. The two guns from the Mary Rose (81A1423 & 81A3003) by the Frenchman Peter Baude, who seems to have taught the Owens, also use this design, though in a more ornate form, as does one gun by the Italian founder Archangelo Arcano (80A0976).

The most similar example to the profile of the Sark gun's cascable was a bronze demi-cannon found in the Tower collections (Blackmore/XIX.19) which was cast by John and Robert Owen in 1546. This and one of the Mary Rose guns of 1537 (79A1232) also had a parallel-sided section to its terminal, immediately behind the main cascable mouldings, which is very reminiscent of the terminal stub on the St Peter gun's cascable and provided possible terminal designs for the latter.

These comparisons showed that although it was not possible to definitively connect particular founders with specific mouldings, general trends could be observed.

The likelihood that the Sark gun was cast by Thomas Owen or one of his immediate successors (Henry Pitt, or just possibly the Mayo brothers) is quite strongly suggested by these similarities, which tend to agree with Trollope & Caruana's suggestion of a date after c.1568. This in turn supports the idea that the gun, despite not being among the named calibres supplied to the island in 1572, nevertheless represents one of these weapons. This date is sufficiently close to Thomas Owen's resignation of the post of Royal Gunfounder in 1571, to make the claim that the weapon was one of the very last produced by him. The increased number of reinforces may conversely imply that this is not likely to be a weapon produced at the end of Thomas' life, making it more likely to have been made by his successor. This academic argument will doubtless go on.

### **General Discussion & Conclusion**

It is considered that this study has been of some importance in the general field of gun studies, looking at a little-studied calibre of weapon, about which not much is known. The drawings produced are believed to be the most detailed ever to have been undertaken on the Channel Island guns and those of the St Saviour fragment are the first to have been made. They reveal many interesting details of the manufacture and use of the guns from the 16th to the mid-18th century (longer in the case of the Sark Falconet).

From a local perspective, the study supports Dumaesq's 1685 assertion that there was little if any standardisation in the guns acquired at various times for the defence of the islands. He described a 'mixed bag' of weapons, acquired piecemeal over a long time for the defence of individual parishes. The sometimes alarming damage inflicted on these guns during firing, points to a remarkable lack of understanding on the part of the gunners, either of the increased strength of powder in the 17th to 18th century, or to the diameter of shot used. The bulged and cracked barrels, split and distorted muzzles and scored bores, all show a disregard for safety attested by the shattered state of the St Saviour fragment from Jersey, whose gunner, if not other members of the St Saviour militia, was probably severely maimed or more probably killed by this unrecorded explosion.

Study of their inscriptions has revealed the use to which some of the guns were put. Clearly, not all were for parish use, as shown by the reference to Sir Peter Mewtis on the Castle Cornet gun. This may be the only recorded example of a gun supplied specifically to a castle for its defence and the historical records of the construction of a battery by Mewtis at Castle Cornet support the evidence of its barrel inscription.

This appears to be the first time that founders' finishing techniques have been subjected to detailed analysis. The comparison between filing and scraping evidence on most of the guns, with clear scraper marks surviving on the St Saviour gun, is interesting, as it may provide dating evidence from comparison with other guns which bear these features. It would also be interesting to compare guns by other makers – it is now known from the Channel Island and Mary Rose guns that the Owens used files, but this information has not been recorded by other authors so cannot be compared at present.

Future research might include metallurgical analysis, such as has been undertaken on some of the Mary Rose guns. This could provide information on metal sourcing and percentages, while it could help in identifying the two unattributed weapons. It would be desirable to use a miniature camera to explore the interiors of the guns' bores, although some extraction of modern debris and in one case, a wooden bung, would need to take place first. Further documentary work needs to be carried out on Crown and local accounts, in particular to research the positions and functions of battery weapons, while parish records may provide information on the management of the Parish guns. It is hoped that detailed descriptions of the guns from the Channel Islands exchanged for new ones with the Board of Ordnance in 1744 and 1757 might also survive in the Crown archives, or in antiquarian records.

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