

# ROYAL NAVAL LONGARMS 1700-1870

## Part Three

by D. W. Bailey

### Part III: The Introduction of the Percussion System, 1820-1841

SOMETIME BETWEEN June 10th (when the order was issued) and June 20th, 1820, (when the report was made) a Committee of Colonels and Field Officers was convened at Woolwich to examine and test a percussion musket submitted by Joseph Egg.

"The Lock of which is constructed on the percussion principle, with great simplicity; and the charge is inflamed by the percussion of the hammer on a copper cap primed with detonating powder which is placed on a conical tube, communicating with the charge. At the request of Mr. Egg the following Trial was made:

Two Hundred rounds of common blank Musquet Cartridges were fired in one hour and 28 minutes, including intervals of 16 minutes for occasionally cooling the Barrel. Out of this number of rounds, thirteen only missed fire, seven of which appeared to be owing to a defect in the priming. One from the Cap being put on too loosely — Two from a cause not known — Three from a small particle of Copper being driven into the Tube. Twenty-three rounds were fired with varnished caps, which were previously soaked in Water."

This was the first trial of the copper percussion cap by a British military board, and, indeed, one of the earliest percussion trials by any military authority in Europe. Between August 11th and 14th another Committee met and tried the Joseph Manton 1818-patent tubelock mechanism. With regard to Joseph Egg's copper cap, the Committee found.

"1st. That the ignition from the priming appears to be stronger, quicker and more certain than what is produced by any other mode.

2nd. That the whole of the Flash being carried into the Charge, it is consequently much less liable to miss fire than a flint and common priming, and the vent being placed vertical, cannot injure the next man.

3rd. That it does not require so much cleaning as a flint Lock, produces a saving both in Powder and Flints and is completely Waterproof."

An encouraging finding, but unfortunately there were larger factors involved, as there always are when considering the adoption of a new system for military use. When the Committee came to sum up entire concept of the percussion ignition system, on August 14th, 1820, they found that "they do not consider the invention as applicable to the muskets of soldiers, for the following reasons.

"1st. From the comparative trials with a musket having the common lock, and with the same flint, there was no material difference in the time of firing one hundred rounds.

2nd. It would on the contrary probably add to the difficulty of loading, as the soldier would have two things to look for, instead of one, at a pinch requiring the greatest presence of mind his flint is primed beforehand or at a moment of deliberation and his cartridge then contains all that is required. The minute size of the tube would also render its application inconvenient when the fingers of the soldier were benumbed with cold.

3rd. The introduction of these detonating tubes would involve the difficulty of a new species of store, which it may be found could not be made in the Field nor procured any where abroad; that is liable to serious accident from a severe blow or Percussion; and that would be highly dangerous when kept in quantity.

4th. Nothing is known as to the duration of these tubes or how far they would keep good when exposed to sea air and damp.

5th. And finally, it would be a strong objection to the use of these tubes that a Lock would be introduced different from that of all other nations and to which a Flint cannot be applied; so that we should be deprived of the Power of making use of the Resources of other nations and even of our own ammunition if the stock of the detonating tubes should fail."

The use of the term "tubes" comes from the fact that the report relates specifically to Manton's tube-lock, but the comments are fully as valid for the cap-lock. Point 4, while relating here to transportation of troops overseas, is also entirely relevant to naval usage.

Try as one may, it is extremely difficult to fault the arguments put forward by the Committee, especially in view of the fact that they appear from their earlier report on the Egg cap to be fully aware of its advantages as an ignition system. As with so many improvements when seen in retrospect, the problems of the time largely vitiated their importance as an improvement.

By the end of another decade the situation was changing; extensive experiments carried out by the Hannoverian government in 1828-29, and the actual adoption of the percussion cap by Switzerland in 1826 for military purposes, as well as the tentative experiments being carried out on the percussion system in Prussia, Bavaria, Saxony, several other lesser German states, France and Spain, all suggested that Britain should again take up the question in order not to be the last country to adopt

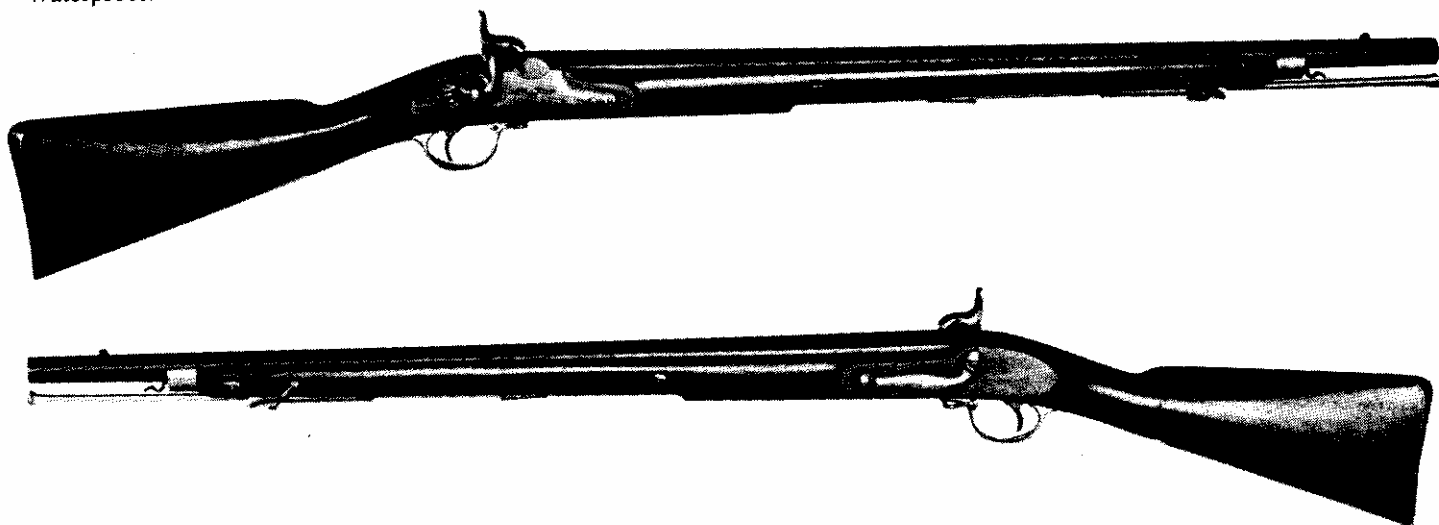


Plate 16. The first production Sea Service Musket of which 2,000 were ordered in November, 1836. The 30½-inch barrel is made from a shortened New Land Pattern flint barrel with the nipple-seat brazed on. The barrel is secured by two flat sides or keys, and the bayonet stud is formed at the top into a small blade foresight. The ramrod is of India Pattern, as is the fore-end cap, and the trigger guard, sideplate and ramrod pipes are New Land Pattern. The buttplate tang is the same design as found on the P/38 Musket, with a long parallel sided section with a pinched-in terminal. Courtesy of H. T. Edwards.

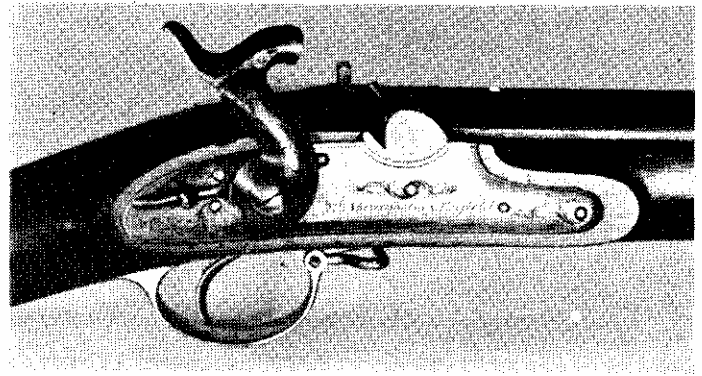
the system if it proved feasible. During the ensuing decade there had also been considerable improvement in the composition of, and manufacture of copper caps which rendered them a far safer, more consistent, and less corrosive form of ignition than the design offered in 1820.

It was, as with so many other progressive developments made during the next twenty years, George Lovell who came forward to offer a line of approach when the Woolwich Committee once again called for information on the percussion system in 1830. In his position as Storekeeper of the Royal Small Arms Factory at Enfield, Lovell's concern with firearms design and ignition was purely private at this time, but he did not hesitate to offer his written opinions on the several mechanisms then in use on sporting arms; and, having no other voice to harken to, the Committee paid heed. By September, 1831, the investigations had proceeded to the point where the Master General of the Ordnance ordered the conversion of 30 muskets to percussion for trials. Lovell, although approving of a number of tube-lock devices, had by this time opted for the copper cap, and his first recognized pattern musket was fired with the copper caps made by Frederick Joyce. Prior to his submission of this entirely new-construction design in November, 1831, Lovell had produced a method of converting flintlock muskets to percussion at a cost of five shillings per gun. On November 29th, 1831, the Board of Ordnance gave Lovell an order for 200 muskets and 100 pistols to be converted on his system, and to be issued for trial by the Navy. Thus, the first officially made and issued percussion military arms of the British service were of naval origin.

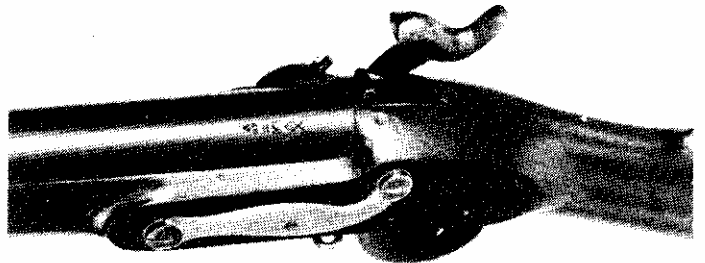
To date, none of these first percussion Sea Service Muskets or Pistols have been positively identified. The muskets were made from India Pattern Muskets whose barrels were cut-down to a length of twenty-four inches, the fore-ends being suitably shortened to allow fitting of the standard socket bayonet. In all likelihood they were sold out of Store when succeeded by later models, and disappeared abroad amongst the welter of ship's muskets and trade guns which enjoyed worldwide circulation during the last half of the 19th Century. Being old arms once converted they would be virtually indistinguishable from the ship's musket class of arms except for their unusually short barrel length. It does seem likely, however, in the face of other conversions designed by Lovell during this period, that the design will closely resemble that of the later Pattern 1839 arms, with the nipple-seat designed to fill the wide cavity in the upper edge of the lockplate created by cutting away the pan. The hammer may have been rounded, or flat with a bevelled edge, and was almost certainly thinner and straighter in the body or shank than the later types. One further possible aid to identifying these first percussion Sea Service Muskets *may* lie in the proofmarks: they were first proved at the Tower, and found unsatisfactory, after which they were returned to Enfield and re-proved under Lovell's supervision. It is possible that in addition to the old Georgian proofmarks of the flint barrels, there *may* be the IVR mark of the reign of William IV and/or the distinctive Enfield proofmarks.

By late 1834 the Board of Ordnance had decided in favour of the percussion principle for military service, and the copper cap was tentatively chosen for further trials, the arms being issued to various Guard units during mid-1836, and other army units stationed in Canada, Chatham, Dublin and Gibraltar, and to the Royal Marines. In June, 1836, the Royal Navy adopted the design embodying conversion of flint pattern parts, and placed an order for 2,000 of this type in November of the same year. Once again the Navy led the way in percussion service arms, since the Board were still not wholly convinced and convened yet another special Committee to consider the available systems.

No example of this first "production" percussion Sea Service Musket was recognised until recently, when a Canadian collector wrote to me asking for identification of the arm shown in Plates 16, 17 and 18. Having considered the specifications and design of the musket, and the available documentary evidence, and discussed the matter with Howard Blackmore, it was agreed that there is little else that this musket can be, except the 1836 Sea Service Musket. A further example has since appeared in the United States, and we would naturally be glad to learn of any others. Examination of the photographs and their captions will indicate the distinguishing features of this musket; notice particularly the array of proofmarks in Plate 18, where the original Georgian mark is clear, accompanied by the IVR mark of the reign of William IV., and the Enfield crossed sceptres with the



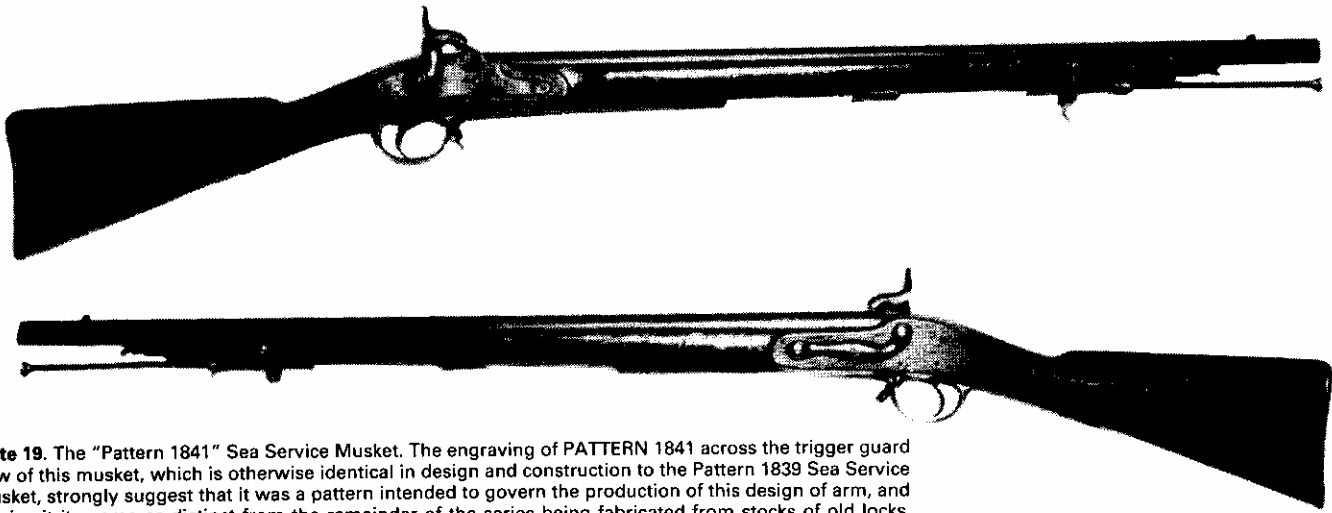
**Plate 17.** The lock of the 1836 Sea Service Musket. The slightly rounded surface is engraved and colour case-hardened and is engraved with the standard early form of Royal Manufactory Enfield marking. It seems likely that this example may have been intended for presentation to Admiralty or Ordnance officials. The Lovell safety bolt, also used on the Sea Service Pistol and the Victoria Carbine, was typical of Lovell arms of this period, and locks the hammer in the down position to prevent loss of the cap. The backsight is inletted and brazed to the barrel tang. Note the early form of the nipple seat, the small size of the nipple, and the form of the outline of the lock surround. Courtesy of H. T. Edwards.



**Plate 18.** The breech of the 1836 Sea Service Musket. Note the design of the backsight and its location — typical for the P/39 series, the New Land Pattern sideplate, the outline of the sideplate flat on the stock, and the cutaway on the nose of the hammer. The original Georgian Crowned GR proofmark is visible along with the William IV IVR mark and the contemporary Enfield version of the Crowned crossed sceptres. Courtesy of H. T. Edwards.

later type of "straight-sided" Crown then in use. Notice also in Plates 17 and 18, the small size of the nipple cone, and the rather elegant finely formed contours of the hammer. The use of Lovell's safety catch which locks the hammer in the lowered position is characteristic of all arms designed by him for other than infantry use *ca.* 1836, and it was still to be found when the Sea Service Pistol was adopted by the Admiralty two years later. In this probationary period of the new ignition system Lovell was making every effort to produce the highest quality arms and the finish of this musket, even though using an old barrel and lockplate, is of the fine quality associated with Enfield weapons made during Lovell's tenure. The engraving on lockplate and hammer, while an unusually elaborate addition, is not out of place when the date and context are considered; it is present on both known examples and it will be interesting to see whether other specimens — if and when located — also have their locks engraved in this manner.

By early 1837 the Navy had some 4,000 percussion muskets on hand, while the Army was still hesitating. At the time of writing it is not clear how many of these 4,000 were actually on board ships and shore stations, but it may be useful to note that the Navy itself had experienced a continual if gradual growth following the drastic cutbacks after 1815. The Navy List for 1836 shows a total of 556 vessels including brigs, sloops, yachts and 24 packet boats, in addition to 42 revenue cutters. Of these, there were 68 ships carrying 75 guns and over, and sixty "74s". It will be clear from these figures that the percussion muskets on hand would have been insufficient to re-equip the entire fleet, though whether the disparity was due to lack of funds or lingering doubts is not clear.



**Plate 19.** The "Pattern 1841" Sea Service Musket. The engraving of PATTERN 1841 across the trigger guard bow of this musket, which is otherwise identical in design and construction to the Pattern 1839 Sea Service musket, strongly suggest that it was a pattern intended to govern the production of this design of arm, and to give it its name as distinct from the remainder of the series being fabricated from stocks of old locks, barrels and furniture. RSAF Pattern Room Collection, photo by Paul Forrester.

There can be no doubt, however, that until the mass production of the Pattern 1839 arms was well under way, the mainstay of the Royal Navy's arms chests continued to be the flintlock weapons discussed in part II.

On October 11th, 1841, pursuant to a request from the Board of Ordnance, George Lovell forwarded a report which included a "Statement of the numbers of Percussion Arms of all kinds that have been ordered to be set up from the first; shewing those actually delivered into Store and the Numbers in course of manufacture at the present time." Since this table has never before appeared in print, and since it represents an official statement of the types and numbers of percussion arms made during the earliest period of their manufacture in Great Britain, it is given here in full:

<i>"Description of Percussion Arms</i>	<i>Total Numbers Ordered</i>	<i>Numbers Del'd into Store</i>	<i>Numbers now in progress</i>
<b>Muskets:</b>			
Lovells Patt Back-action Locks for Guards	5,800	2,920	2,880
India patt Flint alt'd for Trial	330	330	
Land Patt Flint alt'd for Guards in Canada	800	800	
AIP Barrels &c set up new for the Line	47,000	26,555	20,445
AIP Barrels &c set up new for Sea Service	10,400	6,406	3,994
Serjeants Plain Barrels for the Line	3,300	654	2,646
Serjeants Rifled for Guards	250	250	
<b>Carbines:</b>			
Victoria for cavalry of all kinds	6,700	4,582	2,118
Double Barrel'd Serjeants	83	83	
Double Barrel'd Cape Corps	545	509	36
Double Barrel'd Constabulary	278	278	
Constabulary &c single Barrels	4,002	1,875	2,127
<b>Rifles:</b>			
Lovells imp'd Brunswick inf'y	5,423	3,661	1,762
Heavy for trial in the Navy	100	100	
Short for Indian presents altered	275	275	
<b>Pistols:</b>			
Coast Guard Carbine Bore	2,500	2,500	
Sea Service Pistol Bore	8,214	4,947	3,267
Guns ornamented for Indian Presents	240	240	

N.B. This Return does not include Percussion arms of various kinds made for experimentation or for Presentation.

(signed) Geo Lovell  
Inspector of Small Arms

The above Table is perhaps most valuable in that it shows the number of arms which had been completed by October 11th, 1841, and which were most probably in Store at the Tower and therefore destroyed by the Great Fire which swept the Small Arms Store only 19 days after this Return was made, on October 30th, 1841. Some of these arms would have been elsewhere, but it seems likely that the majority were destroyed. There is a pencilled query after the 800 Land Pattern Muskets for the Guards in Canada: "are they in Store or delivered" which may indicate these arms escaped the fire. The total figure of numbers delivered into Store is 56,965 and the estimated number of small arms destroyed by the fire is 280,000, suggesting that the large majority were flint-lock arms. Of the muskets made for the Sea Service, the figure of 6,406 delivered into store probably does not include the 200 muskets ordered for trials in November, 1831, but would almost certainly have included the 2,000 ordered in 1836. It is known that a fair percentage of the Heavy Navy Rifles were already in issue and survived.

#### The "Pattern 1841" Problem

In the Pattern Room Collection at the Royal Small Arms Factory, Enfield Lock, is a Sea Service Musket which presents students and collectors with a problem in definition. Although all arms made with parts originally intended for the construction of flintlock weapons were early termed by the Ordnance officials "Pattern/39" to distinguish them from Lovell's new construction designs, yet the musket shown in Plate 19 is clearly and boldly engraved across the trigger guard bow, PATTERN 1841. In design and construction it conforms exactly to what we know as the Pattern 1839 Sea Service Musket, the only difference being that the lockplate (which is clearly a conversion of a drilled flint



**Plate 20.** A percussion Sea Service Musket basically of P/39 (P/41) design, but fabricated from converted India Pattern lock, stock, barrel and furniture (recast). Carrying correct Ordnance marks on all major parts, this may well have been intended as a stop-gap weapon immediately after the fire at the Tower in October, 1841. There is no bayonet spring. The arrangement of the sling swivels is unusual, and the upper one is a later civilian replacement in the original position. The sideplate is standard India Pattern, but both trigger guard and buttplate have been re-cast into a simpler outline and the guard is not drilled for a sling swivel. The outline of lock and sideplate flats is for the older flintlock plate design with a pointed terminal at the rear, suggesting that the stock has been altered from a rough-stocked state rather than from the blank, which is supported by the narrow and thin dimensions of the butt. National Army Museum collection, by courtesy of The Director.