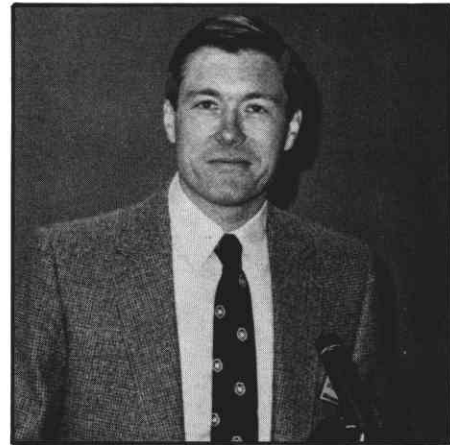


# The London Gunmakers and the Ordnance Office, 1590-1637

Richard W. Stewart

Early in 1581, the Privy Council of Elizabeth I received a petition from a number of English gunmakers asking for a charter of incorporation as a true craft. The request sought to insure, in their own words, "the true making and repairing of calivers, muskets, dags (pistols), and other small guns and pieces." The Earl of Warwick, at that time the Queen's Master of the Ordnance Office, which bought weapons for the government, was proposed as the first governor of the company and even Secretary of State Sir Francis Walsingham was noted as being in favor of the project.<sup>1</sup> Yet the petition was rejected and no company of gunmakers was created until over fifty years had passed. This despite the fact that England was at war from 1581-1603 with Spain and from 1625-29 with Spain and France. It would be logical to assume that, given the great need for firearms by the armies of the Tudor and Stuart monarchs of England, such a company would have been formed early to insure quality arms at a fair price. This did not occur, leaving the historian of firearms at a loss to describe how the industry was organized, supervised or controlled, either within the craft itself or by the government which was the main consumer of its products.

A number of questions come to mind for the period from the start of Elizabeth's war with Spain in 1585 until the formation of the Gunmakers' Company in 1637. What did the gunmakers do about maintaining their craft standards before they became a recognized craft with their own company? Only with a company could they have had specific membership rolls and organized quality control measures. What was the general state of the industry during the long wars of Elizabeth from 1585-1603 and how much did the industry shrink during the peace of James I from 1604 until 1625? Were the gunmakers ready for the renewal of war in 1625 and how many of them were still in business when their charter was finally approved in 1637? How many weapons could they produce using the crude techniques of the time? What was their relationship with the government which generally provided them with their only legitimate market for their weapons? Any answers to these questions, however tentative, will help us understand the nature of a relatively new war industry in the period before mass production, standardized parts or a fully developed governmental bureaucracy. Firearms were changing the face of warfare in early modern Europe and governments were having to change accordingly.



Perhaps the best place to start any investigation of the role of the London gunmakers in early modern England is in the Ordnance Office, which was the principal governmental agency for the procurement, storage, maintenance, and issuance of all types of handguns and other munitions for the English armies of the period. It was a small office, consisting at this time only of seven officers, eight clerks, twelve craftsmen and twenty laborers. The officers kept track of the supplies, the clerks made out the paperwork, the craftsmen made some basic supplies such as gun carriages or ironwork, and the laborers loaded and unloaded the materiel onto carts and ships for transport to the forces in the field. The Ordnance Office was extremely busy during the period of Elizabeth's war with Spain, the last twenty years of her reign, as her armies and navy saw action in Portugal, Spain, France, the Low Countries and Ireland. This was a critical period for England, even after defeating the Spanish Armada in 1588, and her treasury and arms industries were both stretched to their limits as she struggled to attain some measure of self-reliance in the domestic manufacture of war-related supplies.<sup>2</sup>

Within the Ordnance Office was the Office of Small Guns which was responsible for maintaining all the calivers, muskets and handguns purchased by the government. However, the Office only had three people occupying it — one officer and two "furbishers" — so it could only do minor maintenance on the weapons which were almost exclusively made by craftsmen in London. The fact that there was a separate officer in charge of the Office of Small Guns, whereas there was no such office for the management of any other specific weapon in the

Ordnance Office, may indicate that the smaller and more numerous handguns posed a greater administrative challenge than did any other single type of supply.

In addition to the government Office of Small Guns, there was an office which seems to have fallen between the government-run Ordnance Office and the private craftsmen and gunmakers of London. This was the position of Her Majesty's Master Gunmaker. This post was held by one craftsman at a time, who was paid 6d per diem or £9 2s 6d per year.<sup>3</sup> The two known occupants of this office were William Hoappe in the 1590s and Henry Rowland from the 1620s until at least 1637. This salaried retainer was, in essence, the coordinator for the Ordnance Office for the issuance of weapons to the other gunmakers for repair, the distribution of gunpowder to the gunmakers who often proofed their own weapons and the contact point for the various contracts made with the gunmakers. In a sense he was first among equals and an intermediary between the government and the ill-organized craftsmen who made the weapons for the government.<sup>4</sup>

The small weapons and handguns brought into the office varied over time as older types of guns became obsolete and were replaced by newer models. By the 1590s, the old-fashioned harquebus, a crude and heavy gun, was obsolete and those which remained in the store had deteriorated virtually beyond repair. The newer caliver, on the other hand, was a lighter, smaller-bored gun which was still much in use in England and Ireland but passing out of use on the continent. New calivers cost on the average 12s 6d to 13s 4d each in the early 1590s, and had declined in price to 11s by the end of the reign of Elizabeth. The price remained relatively stable until the Civil War. This decline in price and subsequent stabilization was due in part to the larger quantities purchased by the government during the war years, since the caliver was ideal for the small unit skirmishes typical of the conflict in Ireland.

The Elizabethan government was increasingly tied down by the O'Neill rebellion in Ireland from 1598 to 1602, and it was forced to expend enormous sums to suppress it.<sup>5</sup> This massive expense had the side benefit of forcing the government to buy weapons in bulk and with such steady employment the number of gunmakers increased over the years of war. In order to compete for the lucrative government contracts, the gunmakers were forced to lower their prices. Doubtless it helped the government that there were few other legitimate outlets for their products. As virtually the only consumer, the government could set its own price.

The calivers produced by the gunmakers generally came equipped with a flask which held the powder for the main-charge, a touch-box for the finer "serpentine"

powder for the priming pan and a bullet mold so that the soldier could cast his own bullets. In many cases this last item was essential since each gunmaker made the bore a slightly different size due to the imperfection of their manufacturing equipment. Often a bullet cast in a standard size would not fit a weapon and the soldier, out of prudence, generally cast his own shot out of the lead issued to him. A small amount of pre-cast shot was made by the office's plumber each year. However, it was not until 1628 that we have any proof that he tested the shot for size by rolling the musket balls onto a large board with holes drilled in it the size of the musket bore. The larger balls would not roll through and were discarded.<sup>6</sup> Presumably the ones which were too small could be dealt with in the field by putting in extra wadding. Accuracy was doubtless sacrificed, but that was a rare commodity on any of the battlefields of early modern Europe.

The caliver makers also did any major repairs on the weapons since, as we have seen, the Office of Small Guns was only large enough to do routine maintenance. Even the weapons in the worst condition could generally be restocked and repaired at the bargain price of five shillings or less. This was a great savings and the Ordnance Office issued thousands of weapons to the caliver makers for repair in the 1590s.<sup>7</sup> Only after all these old weapons had been repaired and issued did the thrifty government contract for new weapons from the gunmakers. However, by the end of the war in 1604, the caliver was virtually obsolete and the government had turned increasingly to the musket.

The musket had a heavier bore than the caliver and required slightly different ancillary equipment. The musket was either 5 feet in length, costing 21s in 1596, or 4½ feet in length costing an average of 20s each.<sup>8</sup> The length of the musket gradually was reduced, until by the start of the Civil War, it had been standardized at 4 feet in length.<sup>9</sup> Furnished muskets included a bandolier of a dozen or so wooden or leather "bottles" (cartouches) containing one pre-measured main-charge of powder, which was worn over the shoulder of the musketeer. Paper cartridges, with powder, bullet and wadding in one package did not come into widespread use until the Thirty Years War when Gustavus Adolphus's Swedish troops were fighting in Germany. Bandoliers were generally sub-contracted out by the gunmakers to a girdler, that craft being virtually a monopoly of the Wright family of London. The office also dealt directly with the girdlers for their replacement bandoliers. Other "furnished" equipment for the musket generally included, like the caliver, a touch-box for fine powder and a bullet mold. However, unlike the caliver, the musket also needed a rest, which was generally provided separately by the pikemakers or carpenters. The rest, a metal tipped

wooden stick with a "U" shaped top, was considered necessary for holding up the long, heavy weapon while firing it. Its use was common through the 1620s, although by the start of the Civil War, concomitant with the decrease in length and weight of the musket, the rest was abandoned in England as it had been during the Thirty Years War on the Continent.<sup>10</sup> Often the variance in prices for muskets in the same year depended less on the gunmaker providing it than upon how many extra furnishings were thrown in with each piece. By 1602 the price for a furnished musket had fallen on the average to 16s each, but occasional deals were made for large quantities at short notice for which the government apparently paid a premium. In 1599, for example, Sir George Carew was issued a warrant for £2,000 to buy 2,000 muskets to replenish the stores.<sup>11</sup> That price of 20s per musket was somewhat unusual by 1599, however, and the average price continued to be between 16s and 18s 6d each up to the renewal of the war with Spain in 1625. Between 1624 and 1625, over 1,600 muskets and 1,344 calivers were purchased for the stores at a cost of £2,500 obtained from the parliamentary subsidy of 1624.<sup>12</sup>

Both the muskets and calivers which were provided to the office were commonly matchlocks which required the infantryman to carry burning lengths of nitre-soaked rope ("match") on his person when going into battle. This match was attached to the cock of the musket when firing. The soldier would open his priming pan full of touchpowder and pull the "tricker" or trigger to push the match into the pan. Earlier muskets and calivers were also made with "sear-locks" rather than "tricker-locks" but the difference between their actions was minimal. There were also a few wheellocks purchased for the stores but these were ceremonial weapons and not meant for general issue to the troops. They were expensive devices with many moving parts. The spring of the wheellock was wound with a device like a key and when the trigger was pulled, the spring moved a wheel with flint on it which rubbed against a piece of metal, causing a spark in the pan.

The more commonly purchased of the weapons of the firelock family, was the "snaphaunce" or snaphanse lock. This was an early type of flintlock which had fewer parts than the wheellock and needed no key to wind it. Common by the Civil War, they began to be purchased by the Ordnance Office at least as early as 1601.<sup>13</sup> The matchlock was by far the more common weapon until the Civil War when the snaphaunce lock, more reliable and faster to fire, began to gain wider acceptance.<sup>14</sup>

The muskets and calivers required by the Ordnance Office did not require any very extensive facility to manufacture them. Virtually any craftsman with a forge could build a crude firearm to conform to the lax government

standards of the time. Also, since there was no Gunmakers Company until 1637, the building of such weapons was not restricted to any body of craftsmen.<sup>15</sup> Many of those who provided weapons to the Ordnance Office listed their actual trade as blacksmith, armorer, merchant, master gunner of a ship and even, in one case, a grocer! With such a loose and ill-defined membership, the craft was not subject to much in the way of internal regulation or standards. Virtually the only method of checking on the gunmakers' work was by proofing each weapon before it was received into the office. This job technically belonged to the Proofmaster of the Ordnance, who was responsible for testing each weapon before the government would accept it into the Ordnance Office. However, the gunmakers themselves often were issued gunpowder to proof their own weapons and certify that they were well-made: not unlike putting the fox to guard the henhouse. It took approximately two ounces of gunpowder to proof each weapon. Since muskets normally used only one ounce of powder per shot, probably two rounds were fired from each gun to see if it would burst or crack. Surprisingly, most Proofmasters seem to have lived to a ripe old age, indicating either careful crafting of weapons by the gunmakers or else that the Proofmasters further delegated their responsibilities to someone else.

The problem of quality control remained a governmental rather than a craft responsibility, since there were no internal provisions for maintaining high craft standards until the formation of the Gunmakers Company in 1637. In the charter itself was the statement, that "divers Blacksmiths and others inexpert in the art Gunmaking have taken upon them(selves) to make try and prove Guns after their unskilfull way" which was a major reason for granting the charter. There were, however, at least two attempts before 1637 to force someone to be responsible for the proofing of weapons other than the government. In 1572, a bill had been discussed in Parliament entitled "For the true making of Calyvers, Muskets, Hand-Guns and Dags and other small Ordnance."<sup>16</sup> The bill proposed that all weapons be tested by the Armorers Company and marked with a special stamp as a proof mark. The proponents of the bill wanted to control the influx of foreign ("falsely made") weapons into England and insure high quality weapons for her Majesty. However, the bill was killed since most members feared that it would establish a new monopoly which would raise prices and restrict the ability to manufacture weapons to a handful of London craftsmen.<sup>17</sup> If such a law had been enacted it almost certainly would have diminished supplies of such weapons.

The failure of Parliament to establish some regulatory mechanism over the manufacture of firearms in 1572 led the Privy Council to attempt to force the city of

London to accept the responsibility for such quality control. In July, 1600, a letter from the Privy Council to Mr. Wilbraham, Master of Requests and Sir John Peyton, Lieutenant of the Tower, referred to the problem of quality control. The council had had brought to its attention a dispute between the Blacksmiths' Company and the Armorers Company over the "serch of muskettes, gones, armor and other warrlyke weapons". This dispute had prevented any effective quality control at all:

whereby soch counties of the realme as do make great provicion of armor and weapon for publicke service were often tymes greatly deceived in those provicions they made, her Majesty's service dysappointed and the souldier many tymes grevouslie hurt and endangered by the breakinge of their peeces.<sup>18</sup>

The lack of effective quality control provisions affected the military readiness of the entire kingdom even more than the Ordnance Office, since local militia or private arms procurers probably did not have any specialized proofing system like that of the central office. The Lord Mayor was requested to look into this problem and find out why the Warden of the Blacksmiths Company refused to perform the service as a previous act of the council had required. Unfortunately, little seems to have been done.

The problem was far from settled, and a series of bills in Parliament in the 1620s tried to establish some kingdom-wide standard for weapons quality and even for a certain measure of standardization of the types and bores of weapons manufactures. The arms bill of 1621, entitled "An Act for making the arms of this Kingdom more serviceable in Time to come", attempted to standardize the length of all firearms, abolish older and "unserviceable" types of weapons and establish a set bore size. The bore for each musket was to be carefully sized so that a ball of the "eleven" size (eleven to the lb. or slightly under 1.5 ounces each) would fit whereas the lighter "bastard" muskets and petronels were to have bores for the "fourteen" bullet and "seventeen" bullet respectively.<sup>19</sup> When the objection was made that the bill would require the scrapping of virtually every weapon in the armories of the county militia, Sir Edward Cecil, later the commander of the disastrous attack on Cadiz in 1625, stated that the bill would merely require that "all that bye new (were) to bye of such bores."<sup>20</sup> However, the fear of expense and of monopoly again prompted the Commons to reject the creation of standards for weapons production. Neither the Parliament nor the Privy Council had the will or the enforcement means at hand to supervise the production or quality of firearms. The craft itself finally had to turn to internal regulation.

Due to the lack of any national standards for weapons or effective supervision or craft discipline, gunmakers could be found all over the country making

weapons of widely varied quality and existing as members of a number of other crafts. For example, there was a fairly well developed small arms industry in Bristol and Wales. In 1593, William Grosvenor of Bellaport, Salop, offered to provide 1,000 muskets and 1,000 calivers yearly into the stores in London and save Her Majesty some £15 for every 100 muskets ordered and £3 6s 6d for every 100 calivers. In addition, he offered to supply the forces in Ireland with whatever they needed in the way of small arms and armor. The goods would be delivered at Westchester and thus save the transport costs and he would be able to continue to employ his workmen who were already supplying the surrounding counties with arms.<sup>21</sup> This offer does not seem to have been taken up; perhaps the London gunmakers' lobby was growing more powerful in restricting competition.

The true center for the production of handguns was in London and it was here that most of the gunmakers lived and worked.<sup>22</sup> Their forges and workshops were set up in the districts near the Tower: the Minories, Southwark, Holborn, East Smithfield, Tower Wharf, Towerhill, and St. Katherine's. It is difficult to say how many gunmakers there were at any one time, since the numbers fluctuated depending upon demand. In 1594, for example, one finds only 3 individuals manufacturing weapons for the Ordnance stores: Philip Dier and William Hoppe, musket makers, and Gosson Harrison, blacksmith. They were mainly involved in repair of weapons and the manufacture of flasks and touchboxes, since of the 335 muskets or calivers purchased that year, fully 320 were not made by London gunsmiths at all but rather were purchased from Randall Symes (or Symmes), an arms merchant.<sup>23</sup> However, by 1596, a busy year due to an ambitious expedition to attack Cadiz in Spain, there were at least 38 gunmakers, blacksmiths or armorers providing small guns or repairs to those guns to the Ordnance office. Each of them received a small proportion of the business of the office, since only 1000 new muskets or calivers were made during the year and 500 set out for repair.<sup>24</sup> By far the busiest of the war years for the gunmakers was 1599, the year in which the Earl of Essex launched a lavishly supplied expedition to Ireland. In that year over forty gunsmiths manufactured almost 4000 calivers and muskets for the stores at a cost of around £3,000 to the government.<sup>25</sup> However, this was the peak of Elizabethan gun production. With the coming of peace, the number of gunmakers quickly declined as all the basic war industries lost their markets.

The end of the war with Spain in 1603, shortly after the death of Elizabeth I and the accession of her cousin, James I, caused an almost immediate cessation of government weapons purchases. By 1605 there were only eleven known gunmakers still providing weapons to the

office and a mere five such craftsmen left by 1607.<sup>26</sup> The number of gunmakers for 1605 may not be entirely accurate since the office bought so few weapons that year that they only needed to approach a few craftsmen. In addition, the disappearance of a name from the Ordnance Office records does not mean that the craftsman went out of business: the Ordnance Office bought very few new supplies after 1604. However, a report that only five were still carrying on the trade just two years later indicates that this may not be an unreasonable figure.

With the decline of their markets, what happened to the gunmakers? It is likely that they merely returned to their former occupations as blacksmiths, armorers, ironmongers or merchants. After all, they were only gunmakers by inclination and were often formally wedded to another craft. The market was not strong enough then or for the next few years to justify the establishment of a separate craft or to insure a living wage for anyone engaged solely in the manufacture of arms. The gunmakers had to return to making nails, horseshoes and other iron products in order to survive the "musket recession". It was not until the 1620s that the country began to prepare again for war, which would rescue the gunmakers, this time permanently, from the doldrums of peacetime production levels.

England became involved in Continental politics, which generally meant war, in 1620, when James' rash son-in-law, Frederick the Elector Palatine, was driven out of his country by the powerful forces of the Holy Roman Empire. James increased government spending on arms, albeit reluctantly, and gradually the Ordnance Office and the war industries began to expand again. Despite the fact that the trade of gunmaking had almost vanished in the period before 1620, it was to expand again with amazing rapidity.

The lack of skilled gunmakers before the 1620s, although doubtless disturbing to those on the council who advocated military preparedness, was not as serious as the decline in the other basic war industries which had also fallen upon hard times after 1603. This point is borne out by the fact that when the office needed to make larger purchases of small guns again in 1620, they were able to distribute the order to only twelve gunmakers. By the following year, there were at least twenty-six craftsmen (an increase of over one hundred percent) involved in the manufacture of handguns for the government of which only five were the same men as were in the trade in 1605.<sup>27</sup> The number of gunmakers continued to expand during the build-up to war, reaching thirty-one by 1625. The number continued to expand under the pressures of war.

In a sense this rapid expansion should not be surprising. It took many months, almost years, to create a

new forge with the skilled workmen to build great ordnance or to manufacture gunpowder, but much less time to retrain enough blacksmiths to build small arms. In addition, small arms can be made relatively quickly and stores can be replenished with a minimum of advance warning even if foreign markets for such weapons were not approached. With a large market for their guns, the craft expanded accordingly.

With the end of the wars in 1629, the craft of gunmaking was permanently established in London. The number of gunmakers did not decrease in the peaceful years of the 1630s, unlike the earlier period of peace from 1603-1625 which saw the trade almost vanish. King Charles I's interest in creating a "Perfect Militia" revitalized the militia forces of the kingdom and thus increased the domestic market for handguns even while there were no foreign expeditions for which it was necessary to provide arms. In addition, the government in the war years had established the procedures for the mass central purchasing of all the weapons and equipment needed for the armies. This was a marked departure from past years which had seen the counties bear most of the initial burden for providing weapons and armor for the men who were "drafted" for foreign service. The cost to the government was substantial, but the side benefits of centralized purchase procedures and standardized weapons provided a steady flow of orders for the London gunmakers. The central stores were in London: who better to turn to than the London craftsmen? The city established a dominance of the trade in those years which was to last for decades. By the time of the formation of the Gunmakers' Company in 1637, there were 63 Freeman of London involved in the manufacture of muskets, along with 62 non-citizens of London.<sup>28</sup> The craft had grown from five gunmakers in 1607 to 105 just thirty years later, an increase of two thousand percent. The craft of gunmaking had come of age.

It is not difficult to speculate upon the reasons behind the formation of the Worshipful Company of Gunmakers in 1637. The gunmakers wished to have all advantages of an established craft which could own property, establish standards for membership, restrict production and fix prices like all the other older guilds in London. On the other hand, the arrangement benefited the government because it provided the security of a guaranteed and expandable production base for weapons of a standard type and quality. It was, in theory, a perfect symbiotic relationship where each side benefited from the existence of the other. Such monopolies were not always harmful. Standards could be maintained, weapons proofed systematically, proof marks established for better accountability, apprenticeship rules created and enforcement powers vested in a recognized organization.

All the problems which were so troublesome in the years since the first manufacture of firearms in England were addressed and, with a little encouragement from the central government, perhaps even solved. The market for weapons was stabilized so that it was always large enough to maintain the Company of Gunmakers without the craft dying out as it almost had in 1607. Armies began to need

more firearms as the proportion of muskets to pikes increased due to the "Military Revolution" on the Continent and, a mere five years later, to the Civil War in England between King and Parliament. The growth of a new, more technologically dependent craft in England had changed the face of war forever; the London gunmakers controlled that craft for generations to come.

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## NOTES

<sup>1</sup>Public Record Office (PRO), *Calendar of State Papers, Domestic, Elizabeth I, 1581-90*, p. 8. Hereafter referred to as *CSPD Eliz. I*. February, 1581. Gunmakers petition to the privy council.

<sup>2</sup>During an earlier war scare in 1560, Elizabeth had been forced to send agents to the continent to purchase over £139,000 of munitions which England could not produce for herself, which included several thousand "calivers", an early form of light matchlock. PRO, Exchequer 351/26. Declared Accounts of Sir Thomas Gresham.

<sup>3</sup>PRO, State Papers, Domestic, Elizabethan (hereafter SP 12) /221/13. (1588?) Book of Crown Offices. Probably dated in the early Jacobean period.

<sup>4</sup>PRO, War Office (WO) 49/19; WO 55/1626; Hoappe is also referred to in this last document as the Proofmaster for Small Ordnance. WO 55/451; WO 55/1629 f. 61.

<sup>5</sup>The war against O'Neill in Ireland was estimated in 1604 as having cost nearly two million pounds. *Historical Manuscripts Commission Report (HMC), Salisbury Papers*, XV, pp. 2-3. Of this amount, probably £200,000 had been spent on weapons, munitions and transport of supplies to Ireland.

<sup>6</sup>British Library (BL), Harleian Manuscript 429, f. 45.

<sup>7</sup>Many of the calivers sent to Ireland at the start of the O'Neill rebellion were some of those which had been procured in 1560 by Sir Thomas Gresham, almost 45 years earlier. WO 49/20; E 351/26. The metal of the barrels must have been weakened with age by this time, but there seem to have been no complaints from the field about exploding weapons. A shipment of 113 calivers which were returned from Ireland in 1602 as defective were returned because of their "crooked stockes" rather than for any weakness in their metal parts. WO 49/28. 22 March 1602. They were returned by Richard Birche of the Ordnance Office in Ireland, referred to as the chief conductor of ordnance and munition sent to Kinsale. It is not known if these calivers were part of the batch of weapons purchased by Gresham.

<sup>8</sup>WO 49/20 p. 20. Agreement between the gunmakers and the privy council for 213 muskets of 5' and 256 muskets of 4½' totalling £479 13s. Sixteen gunmakers listed producing between 71 and 9 muskets each. 26 Feb 1596.

<sup>9</sup>C.H. Firth, *Cromwell's Army*, (London: Methuen, 1902), p. 80.

<sup>10</sup>*Ibid.* pp. 79-80.

<sup>11</sup>*CSPD Eliz I. 1598-1601*, p. 278. 6 Aug 1599. Warrant.

<sup>12</sup>WO 49/54, 55. An estimate for 3,102 muskets in 1628 was £3,260, or 21s each, but this included 3,000 bandoliers which normally cost 4s each so the muskets only cost around 17s each. BL Harl., 429, f. 49 3 September 1629.

<sup>13</sup>WO 49/26. Ordnance indentures. 1601.

<sup>14</sup>Firth, *Cromwell's Army*, pp. 88-89. The matchlock was still used in the English army as late as William III's wars in Ireland in the 1690s, but by 1700 variations of the firelock entirely superseded it.

<sup>15</sup>See "The Charter of the Company of Gunmakers, London", *Journal of the Society of Army Historical Research* Vol VI, (1927): 79-92.

<sup>16</sup>*Journals of the House of Lords*, Vol. I, p. 718.

<sup>17</sup>T.E. Hartley, ed. *Parliaments of Elizabeth I: 1558-1581* (Wilmington, Delaware: M. Glazier, 1981), pp. 377, 385-86; *Journals of the House of Commons*, Vol. I. p. 96.

<sup>18</sup>*APC 1599-1600*, p. 541. 29 July 1600.

<sup>19</sup>Wallace Notestein, Francis H. Relf and Hartley Simpson, eds. *Commons Debates 1621. 7 vols.* (New Haven: Yale University Press, 1935) 2:106, 3:219-21.

<sup>20</sup>*Ibid.*

<sup>21</sup>See *HMC Salisbury*, IV, p. 459. (1593) Offer to supply ordnance by William Grosvenor. There is no evidence that this particular offer was accepted, but men going to Ireland were often provided with equipment and arms manufactured in or near Chester and Bristol so if this offer was not accepted, another similar one probably was.

<sup>22</sup>Walter M. Stern, "Gunmaking in Seventeenth-Century London" *Journal of the Arms and Armour Society*, Vol I, No. 5 (1954): 55-100.

<sup>23</sup>WO 49/18.

<sup>24</sup>WO 49/20. For a fairly complete list of suppliers of small arms to the office, see the attached list.

<sup>25</sup>WO 49/24. One of the gunmakers listed was Jane Staunton, "widow" who was probably carrying out her husband's trade since women were generally not admitted as members of any accepted craft. Isabel Hopkins, probably the widow of blacksmith Martin Hopkins, was also involved in the repair of weapons. In the 1620s, two other women are listed as widows providing weapons to the government: Jane Bowers and Anne Addis, probably the widows of Henry Bowers and Thomas Addis, Gunmakers in 1596.

<sup>26</sup>WO 49/31 and Stern, 55.

<sup>27</sup>WO 49/49, 50. The five men still engaged in the trade were Christopher Bird, John Harrington, Thomas Laverocke, Jr., Roger Holder or Howlder, and Richard Berrowe. Since Thomas Addis was a gunmaker in 1596, and his name appears on the charter of the Gunmakers Company in 1637, he probably was also still in the trade. Christopher Bird was also around in 1637 to sign the charter.

<sup>28</sup>WO 49/54, 55 and "Charter of the Company of Gunmakers, London" 80-81. The continued expansion in the number of gunmakers indicates both that the trade had come of age and that the period of peace from 1629-1637 was not as corrosive of the gunmaking market as had the earlier period from 1604-1625. It is also possible that the continental market for weapons was increasingly open to English gunmakers.

## LONDON GUNMAKERS 1590-1603, 1625-29, 1637

Taken from Ordnance Office indenture books 1593-1627 and from "The Charter of the Company of Gunmakers, London" *Journal of Army Historical Research* 6:79-93. (W) = Widow.

### Gunmakers 1590-1603

Walter Kue  
Philip Dier  
Gosson Harrison  
William Hoape  
Alexander Glendell  
William Shaw  
Richard Burnett  
Richard Parry  
Richard Berrowe  
Jeffrie Staunton  
John Longworth  
Thomas Laverocke, Sr.  
Thomas Parker  
Richard Shipping  
Christopher Bird  
James Mitchell  
Vulcan Skynner  
Jane Staunton (W)  
Adam Swan  
John Gurre  
Robert Browning  
Melchezedicke Jonson  
Henry Bowers  
Thomas Addice  
Robert Stephens  
James Thomas  
William Griffin  
Cuthbert Thewe  
Peter Jones  
Robert Smith  
Thomas Daye  
John Skynner  
Williame Catle (Kettle?)  
James Burleighe  
John Woodruffe  
Jane Woodruffe (W)  
Isabel Hopkins (W)  
Mary Mythchel (W)  
Robert Bucke  
John Barboure  
Thomas Laverocke, Jr.  
Robert Humphrey  
John Crampe  
John Miller  
Sylvester Foster  
Roger Holder  
Maire Longworth (W)  
**Gunmakers 1625-29**  
Richard Berrowe\*  
Thomas Laverocke, Sr.\*  
Christopher Bird\*  
Thomas Addice\*  
William Griffin\*  
Thomas Daye\*

Williame Catle (Kettle?)\*  
John Barboure\*  
Thomas Laverocke, Jr.\*  
William Saunders  
Henry Rowland  
John Harrington  
Edward Jones  
John Cowch  
John Silke  
Izacher Spence  
Christopher Fell  
Edward Groffarn  
William Groves  
William Clare  
John Eales  
Thomas Southwicke  
Wardner Pynne  
George Brough  
Richard Miller  
John Cannon  
Richard Pope  
Thomas Locke  
Richard Holder  
Thomas Calerope (Caltrapp)  
Henry Burras  
Alice Laverocke (W)  
Henry Coxe  
John Kettle (Catle?)  
Stephen Russell  
John Birham  
Richard Brante  
John Cottrell  
Constantine Bateson  
John Forster  
Alice Birham (W)  
\* = Listed also in 1593-1603.  
**Gunmakers 1637**  
Henry Rowland: His Majesty's  
Gun-Maker  
Thomas Addis\*  
John Watson  
John Norcott  
William Graves  
William Dawson  
William Clare  
John Eccles  
Edward Jones\*  
William Wattson  
John Kettle\*  
John Coach  
Robert Wheeler  
Samuel Thomas  
George Day  
Edward Burows  
Henry Harris

Edward Graffance (Griffin)\*  
George Fisher  
Thomas Smith  
Thomas Johnson  
Walter Beugh  
William Borton  
Michael Rowland  
Ralph Venn  
Rowland Swinnerton  
John Freese  
William Morris  
Thomas Barnes  
Frances Kellaway  
William Watts  
George Busse  
John Fox  
William Shambroth  
John Ethrett  
Sebastian Carter  
William Cordwell  
Richard Atkin  
Oliver Wadland  
William Batts  
Thomas Franke  
Thomas Bradley  
Richard Giles  
Thomas Lee  
Thomas Armstrong  
Roger Carlile  
Walter Cassell  
William Stockman  
Thomas Trundell  
Edward Daffe  
Richard Bridges  
John Sutton  
William Wilkinson  
John Pearce  
Edward Pilcher  
Thomas Waple  
James Towricke  
John Davison  
John Foster  
Thomas Pope  
Richard Pope  
Richard Jones  
Henry Chorsley  
Christopher Bird\*  
John Silke, Sr.  
John Clarke  
William Close  
Paul Close  
Henry Gardiner  
Warrenar Pym  
John Finch  
Erasmus Finch

Thomas Lydale  
William Gardner  
John Hilleyard  
Ephraim Bird  
Jonathan Bird  
Edward Sanden  
Henry Winterbourne  
Thomas Norcutt  
Abraham Faber  
Thomas Lamb  
John Eversley  
Thomas Symonds  
William Rolch  
Robert Ley  
Philip Thomkins  
Edward Fellers  
John Wallis  
Edward Wallis  
Jasper Calchuffe  
John Tomkins  
Christopher Fell  
Thomas Kinge  
Thomas Thomas  
Francis Rennardson  
Thomas Clement  
John Brett  
Thomas Elvin  
John Alberry  
William Wheatley  
John Anderson  
Thomas Pycroft  
John France  
Thomas Locke  
Alexander Payne  
William Calleway  
Launcelott Graves  
John Gibbs  
Robert Roe  
Roger Basse  
John Locke  
Francis Arnnald  
Thomas Bortsun  
William Poulter  
Henry Kelch  
William Middleton  
Mark Chaunney  
Nathaniel Painter  
John Beadford  
Thomas Albery  
Bartholonew Anthony  
Peter Banks  
Simon Marsh  
Thomas Yatt

\* = Listed also in 1625-29.