FIREARM INFORMATION SHEET

COLLECTION NUMBER: 9122

TYPE: Pair English Pistols with Brass Cannon Blunderbuss Barrels

IGNITION SYSTEM: Flint lock

LOCK MARKINGS/DECORATIONS: Brass lock plate marked "W. GRICE" in riband

DATE OF MANUFACTURE: Circa 1750

PLACE OF MANUFACTURE: England

MAKER: William Grice

LENGTH OVERALL: 13 7/8 inches

BARREL LENGTH: 8 inches - brass cannon, blunderbuss

CALIBER: .76

WOOD TYPE: Walnut

MOUNTINGS: Silver with silver wire inlay at tang and wrist. Elegant and large silver escutcheon at wrist and open work sideplate.

BARREL MARKINGS/DECORATION: Barrels London proofed with crown over "P" and crown over "V" (viewed and proofed). Also marked "W. G." in rectangle, for William Grice.

STOCK MARKINGS/DECORATION:

REPAIRS/RESTORATION: None

HISTORICAL/ARTISTIC SIGNIFICANCE: A pair of high quality pistols by a well known maker with an extremely unusual combination of features, i.e., brass, cannon barrel, blunderbuss. This would be akin to having a pink Cadillac convertible with four wheel drive.

PROVENANCE: Ex-Collection Warren Thomas Lewis, Evergreen, Colorado

PUBLICATIONS:

COST:

ESTIMATED MARKET VALUE AND DATE:

grafen Franz Johann Wilhelm und 1776 des Altgrafen (später Fürst) Joseph Salm. Vermutlich Lehrmeister von Adam Rosen. Q0

GREVILLE-HARSTON & COMPANY Charles, Birmingham+London/GB, erw 1872-76. Birmingham: 1872-75, 95 Bath Str. London: 1873-75, 12 Queen Victoria Str; 1876, 117-118 Bishopsgate Str Without. Q1

GREY Samuel, Tullamore, Ont./CDN, erw 1869. Q48

GREY William, London/GB, erw 1826-72. Arbeitet bis 1826 als Werkleiter bei Joseph MANTON. 1841-44, 25 Artillery Pl West; assoziiert sich 1844 mit William MOORE, 78 Edgware Rd; 1857-62, 41 Old Bond Str; 1863-72, 43 Old Bond Str; auch die Bezeichnungen «William MOORE & William GREY» oder «William MOORE & GREY» und «William MOORE & CO» sind bekannt. Sein Sohn Frederick Hargreaves Grey, welcher am 24.10.1865 das Patent Nr 2'743 für innenliegende Zündstifte mit aussenliegenden Hahnen erhalten hat, übernimmt 1872 das Geschäft. Q1

GRICE James, London/GB, erw 1794-98. 2 Whistler's Ct, Cannon Str. Q1

GRICE James, Birmingham/GB, erw 1897-1900. Ct 1, Weaman Str. Q1

GRICE John & William, Birmingham/GB, erw 1743. Liefert der Kriegsmaterialverwaltung 250 Paar Pistolen und 250 Karabiner. Q503

GRICE Joseph, Birmingham/GB, erw 1782-97. Sand Str. Arbeitet 1782-88 zusammen mit William GRICE. Q1

GRICE William, Birmingham/GB, erw 1766-77. Bull Str. Signiert auch «London», obwohl er in dieser Stadt nicht nachweisbar ist. Eine Waffe trägt die Jahrzahl 1756. Q1

GRICE William, Birmingham/GB, erw 1774-88. 5 Sand Str. Ab 1781 assoziiert mit Joseph GRICE. Q1

GRICE William M., Lexington, Mich./USA, erw 1868-71. Q4

GRICE & MORRIS, Birmingham/GB, erw 1799-1817. Sand Str. Q1

GRIEB Jakob, Burgdorf, Bern/CH, erw 1708-40. Q8

GRIEB Johann Heinrich, Burgdorf, Bern/CH, *1687-1760†. Vater von Johann Heinrich GRIEB *1722. Q8

GRIEB Johann Heinrich, Burgdorf, Bern/CH, *1722-1798†. Sohn von Johann Heinrich GRIEB *1687. Q8

GRIEB Johann Jakob, Burgdorf, Bern/CH, *1751-1834†. Wird 1775 Bürger und Mitglied der Zunft. Q8

GRIEBNER A., Aschaffenburg, Bayern/D, ca 1870. Q0

GRIENBERGER Dominicus, Innsbruck/A, erw 1678. BS. Q

GRIENBERGER Tobias, Innsbruck/A, erw 1668. BS. Q

GRIENWALT Michael, München/D, erw 1645-65. Nach seinem Tod übernimmt Adam MAETL seine Werkstatt. Q

GRIERSON Charles, London/GB, erw 1794-1848. 10 New Bond Str. Übernimmt 1794 die Werkstatt von John TOW. Bezeichnet sich als «Maker to His Majesty». Q; Q0; Q1

GRIESER Georg, Augsburg?, Bayern/D, erw 1567-69. BS. Arbeitet am Hofe Maximilian II. Q

GRIESER Karl, Innsbruck/A, erw 1680-1712. Q

GRIESSELICH & COMPANY Nebel, London/GB, erw 1868-1876. 59 Basinghall Str. Q1

GRIFFIN Henry, Birmingham/GB, erw 1688-89. BM der Kriegsmaterialverwaltung. Q215

GRIFFIN Joseph, London/GB, erw 1750-1787. Wird 1750 Mitglied gistriert 1759 seine Marke. 1762-64 Zunftmeister. Assoziiert sich John TOW: «Griffin & Tow». Diese Firmenbezeichnung ist bis 178 Q0; Q1; Q206

GRIFFIN Joseph, Columbia, Hamilton Co., O./USA, erw 1820. C

GRIFFIN Patrick, Connersville, Fayette Co., Ind./USA, *1835. Tätig

GRIFFIN & TOW, London/GB, erw 1770-87. 10 New Bond St Joseph GRIFFIN. Q1; Q81

GRIFFIS (GRIFFITHS?) Benjamin, Birmingham/GB, erw SM+Händler. Q1

GRIFFITH Charles, Whitby, Ont./CDN, erw 1865-71. Q48

GRIFFITH Joseph, Birmingham/GB, erw 1829. 136 Snowhill. Q

GRIFFITH Joseph, Louisville, Ky./USA, erw 1837-76. Händler+I beitet 1837 in Ohio. 1843-76 in Louisville, Market Str between 5th a 294 Green Str; 1848-49, Walnut Str between Campbell and Mentzel werb von Waffen in England. 1874-76 «Griffith & Son». Q4

GRIFFITH William, Birmingham/GB, erw 1838. Ct 6, Northwood

GRIFFITH William, Birmingham/GB, erw 1861. 2 Newton Str. Q

GRIFFITHS Albert, Birmingham/GB, erw 1840-50. 1840-48, Liver Great Hampton Str. Q1

GRIFFITHS Benjamin, Birmingham/GB, erw 1799-1825. SM. 1 Lichfield Str; 1817-25, 18 Lichfield Str. Von 1811-16 auch an der W geführt. Q1

GRIFFITHS Charles, Birmingham/GB, erw 1851-57. 40 Whittall

GRIFFITHS Edward, Birmingham/GB, erw 1853-59. Ct 8, Lovec

GRIFFITHS George, Birmingham/GB, erw 1799-1801. SM. Sun

GRIFFITHS J., Birmingham/GB, erw 1859. Ct 17, Price Str. Q1

GRIFFITHS John, Cincinnati, O./USA, erw 1834-66. Aus .../GB s hält 1842 einen Auftrag über 5'000 Gewehre. Lieferschwierigkeite zur Übergabe des Vertrages an E. REMINGTON & SON. 1852-5 SIEBERT assoziiert. Q5

GRIFFITHS John, Birmingham/GB, erw 1862. 110½ Constitutio

GRIFFITHS Joseph, Birmingham/GB, erw 1811. SM. Duddesto

GRIFFITHS Roland, Birmingham/GB, erw 1863-66. Upper Prio

GRIFFITHS Thomas, Wednesbury, Staffs./GB, erw 1834-42. S auch ein William aufgeführt. Q1

GRIFFITHS William, Birmingham/GB, erw 1827-49. 145 Livery

GRIFFITHS William, Birmingham/GB, erw 1834-46. Fabrikant vor und Luftgewehren. 61 Weaman Str. Q1

GRIFFITHS William, Birmingham/GB, erw 1838-69. 1838-50, 1851-54, 47 Hampton Str; 1854-59, 17 Mott Str; 1860-69, 2 Ne

GRIFFITHS William, Birmingham/GB, erw 1894-1900. Back o 1899, 15+16 Weaman Str. Q1

GRIFFITHS CYCLE CORP. LTD John, Toronto, Ont./CDN, erv

GRIFFITHS & SIEBERT, Cincinnati, O./USA, erw 1852-54. 729 M auch John GRIFFITHS. Q6

GRIFFITHS & WORSLEY, Manchester, Lancs./GB, erw 1863-6 Gate. Q1

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Internationales Lexikon der Büchsenmacher, Handfeuerwaffen-Fabrikanten und Armbrustmacher von 1400–1900.
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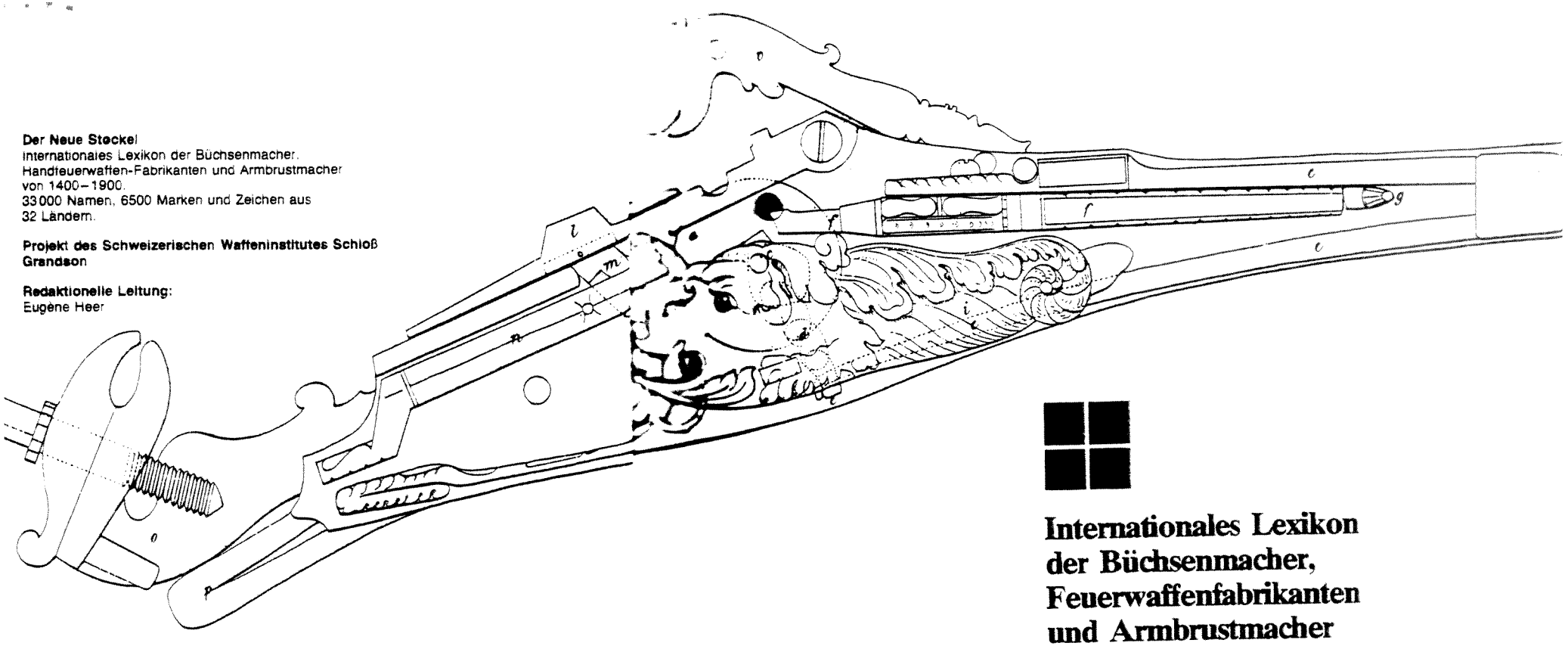

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enfield, the emperor of mechanics no man in London has invented more e articles for other people to get the dit of . . .' Hawker, 1844.

& Son Engineers, bullet mould, persion cap & machinery makers, 10 ad St., Soho, 1850–72; 5 Queen's lgs., Pancras St., 1873–83. Contracs to War Dept., 1854; East India Co., 51–8.

ENSILL
h Jeweller, 36 Strand, 1776–80. Reled silver-mounted pistols.

ENWELL
ge Viewer of bayonets & ramrods for ist India Co., in London, 1807–19.

ENWOOD
ert 1 Appr. to James Goodwin, 1655; e of Joiners Co., 1662. Gunstock aker, 1669–88 (JNC). Summoned to urt by Gunmakers Co., 1678. d. 1690.
ert 2 Son of Robert (1). Workman of seph Stace, left gold guinea in his will, 89. Free of Joiners Co., by patrimony, 90. Invited to Gunmakers Co. feasts, 90–1.

EEVES see **GRAVES**

EGG/GREEG
n Free of Dyers Co., by patrimony, nd took Livery, 1743. Presumably a unmaker by trade as Samuel Abbott urned over to his widow, Dorothy, to earn the art of gunmaking, 1766.

Trade card of Charles Grierson, showing patent breech of 1801. A plate from R. B. ornhill's Shooting Directory (1804).

GREGOR
John & Peter Supplied Ordnance with Dragoon and naval muskets, 1645 (BO, LM).

GREGORY
Ann Widow of Thomas (1), gunmaker, Eastcheap, 1742–56 (GMC).
James Gun Case Maker, 3 Hunt's Ct., Castle St., Leicester Sq., 1832–9; 3 Castle St., 1840–63. Business continued by widow, Mary, 1864.
John Gunsmith, Mouse Alley, 1646 (SBA).
Michael Appr. to Cornelius Radley in Gunmakers Co., 1780.
Nathan Appr. to Godfrey Tailor, turned over to Thomas West, 1670; free of Gunmakers Co., 1677. Proof piece and mark, 1683. Viewer, Tower of London, proved arms for Ordnance at Birmingham, 1695–9. Gunmaker to East India Co., 1708–12.
Richard Appr. to Abraham Brind, turned over to John Vaughan, 1690; free of Gunmakers Co., 1698. Gunmaker to Ordnance, 1704–8. Last ref., 1713 (GMC).
Thomas 1 Son of Nathan, free of Gunmakers Co., by patrimony, 1706. Elected Assistant, 1723; Master, 1729. Gunmaker to East India Co., 1717–32.
Thomas 2 Gunmaker, North Pl., Bethnal Green, 1841 Census (age 40).
William Journeyman gunmaker, Webbs Pl., Gowers Walk, Whitechapel, 1841 Census (age 25).

GREY see also **GRAY**
William 1 Gun Case Maker, 2 Jermyn St., 1830–5; 48 Wardour St., 1836–9.
William 2 Gunmaker, 25 Artillery Pl. West, 1841–3. Premises taken over by William Patrick Grey, glass merchant.
William Parker Gunmaker (Successor to William Moore), 78 Edgware Rd., 1847. Became Moore & Grey (q.v.).
William Patrick Cabinet maker, Wardour St., assignee and creditor of Joseph Manton, 1826 (B 3/3516). Same man as William (1)?

GRICE
James Gun Manufacturer, 2 Whistler's Ct., Cannon St., 1793–6. Joseph Grice (1782–97) and William Grice (1766–90), gunmakers, Birmingham, also marked guns 'London'.
John Gunsmith, Ratcliff, 1712–14 (SDS).
Thomas Appr. to John Willows in Gunmakers Co., 1704.
William Junr. Gunmaker, near Salter's Hill, Cannon St., 1803.

GRIERSON
Charles Former workman of John Manton, gunmaker (Successor to John Tow), 10 New Bond St., 1793–1841. Gunmaker to George III. Granted Eng. Pat. No. 2566 (Improved taper breech), 1801.
John Gunmaker, 10 New Bond St., 1841–9. Age 50 in 1841 Census.

GRIEVES
John Gunmaker, Rosemary Lane, 1816 (SMW).

GRIFFIN/GRIFFYNE/GRYFFYN
Benjamin Appr. to Samuel Harrison, 1719; gave up appr. and worked as journeyman for master, 1723 (GMC). 'Foreign' gunmaker allowed to prove guns by Gunmakers Co., 1724–31. Told to give up work by Gunmakers Co., but traded as gunmaker (Successor to Samuel Harrison), Bond St., 1735–70. Registered silversmith's mark, Goldsmiths Hall, 1743 (Grimwade 171). With son, Joseph, took out Sun Ins. (No. 159594) on goods 'at the Cross & Griffin', New Bond St., 1757. d. and will pr. 1770 (PCC). Bur. at Winkfield, Berks.
Joseph Son of Benjamin. Appr. to Samuel Blanckley, turned over to father, 1741; free of Gunmakers Co., 1750. Proof piece and mark, 1759. Elected Assistant, 1759; Master, 1762, 1763. Apptd. Gentlemen Armourer to His Majesty's Stables-in-Ordinary, 1760 (LS 13/203). Gunmaker to His Majesty near the Duke of Grafton's, Bond St., 1763 (Dir). In partnership with father until 1770, then with John Tow, 1772–82. d. and will pr.1784 (PCC). Succeeded by John Tow.
Nathaniel Appr. to John Benbridge, in Gunmakers Co., 1756.
Richard Gunmaker, Swan Alley, East Smithfield, d. 1600 (SBA).
Thomas b. 1784. Gunsmith, m. 1809 (AHB); 5 Chamber St., 1810–11; 40 Rosemary Lane, 1813–18 (SMW). Emigrated to S. Africa, on pioneer ship, *Chapman*, 1819. Became one of the foremost settlers in Port Elizabeth, d. 1843.
William 1 Gunmaker, Wapping, repaired muskets and calivers for Ordnance, 1596–1612 (BO, Folger, Add. Ms. 5752).
William 2 Journeyman gunmaker, Back Church Lane, Whitechapel, 1841 Census (age 24).

GUNMAKERS OF LONDON 1350–1850

Howard L. Blackmore

GEORGE SHUMWAY PUBLISHER
YORK, PENNSYLVANIA

out the fired primer. The Berdan flash hole, off-center and small, was not adapted to this expedient and so lost favor in the United States.

Berdan resigned his commission in 1864 to devote his time to perfecting a system for converting the old large-caliber muzzle-loading rifles to breechloaders. His conversion used a hinged breech block. Several nations adopted his idea, including Spain and Russia. Spain ordered Berdan breech actions from the Remington Arms Company which were then incorporated into muzzle-loading rifles at a Spanish arsenal.

In 1869 Berdan patented a bolt-action breechloader, which was adopted by Russia. This rifle was ordered in considerable quantities from the Colt Patent Firearms Manufacturing Company; later it was made in Russia. Berdan died on March 31, 1893. B.R.L.

See also: BOXER CARTRIDGE; CARTRIDGE; PRIMER.

BERTHIER RIFLE

A bolt-action, magazine-fed rifle developed by Berthier, a French official. Essentially the rifle is a combination of the French-developed Gras action, in modified form, with the Mannlicher vertical in-line magazine. It is therefore sometimes called Mannlicher-Berthier.

The bolt is of two-piece construction with dual locking lugs on the removable bolt head. The magazine of the original model (M1890) was fed with a three-round clip which is inserted in the action and functions as part of the magazine, falling out at the bottom when the last round is chambered. In 1916 a five-round magazine was adopted. All models are unusual in that they have no safety.

The Model 1890 carbine, which appeared in three slightly different versions – cavalry, cuirassier, and gendarmerie – was followed by the 1892 artillery and gendarmerie musketoons. Only the gendarmerie and artillery weapons used bayonets. The first true rifle to be extensively manufactured was the M1907/15, which had a barrel length of 30.71 inches compared to the 17.7-inch barrel of the carbines. Like the carbine, it had a turned-down bolt handle. In 1934, a quantity of M1907/15's were re-barreled with a shorter barrel chambered for the French 7.5 mm. M1929 cartridge and fitted with a five-round staggered box magazine; they are called M1907/15M34.

In 1916 a rifle and a carbine were introduced with a five-round magazine. They are basically the same as the earlier model Berthiers except for the magazine and the use of a horizontal bolt handle on the M1916 rifle.

All the Berthiers are chambered for the 8 mm. Lebel cartridge (M86), except the M1907/15M34. The muzzle velocity of this cartridge from the rifle is 2,380 feet per second. J.E.S.

Illustration: page 207.

Hicks, Captain (later Major) James Ernest, assisted by André Jandot, *Notes on French Ordnance, 1717–1936*, Mount Vernon, N.Y., 1938.

Smith, Walter H. B. and Joseph E., *The Book of Rifles*, 3rd edition, Harrisburg, Pa., 1963.

BICYCLE RIFLE

Achieving its greatest popularity during the bicycling era of the "gay nineties," the bicycle rifle was, for the most part, a single-shot pistol equipped with either a wooden or metal detachable skeleton extension stock. This provided a convenient arm for carrying on a bicycle, for either hunting or target shooting. On occasion, the guns could be carried in a case strapped under the crossbar of the bicycle. The barrel length was usually ten to twenty inches, and calibers included .22, .25, .30 and .32, mostly rim-fire. For loading, some had side-swing barrels while others were equipped with tip-down barrels. Most popular of the American arms were the J. Stevens, Frank Wesson, and Quackenbush rifles. H.C.L.

BIRMINGHAM

From the early sixteenth century, Birmingham was noted for its smiths and cutlers, but it was not until the English Civil War that it began the manufacture of firearms. The new trade was firmly established in 1689, when five of the leading gunsmiths secured regular contracts from the Ordnance in London. Thus began family businesses which, in time, were to employ hundreds of outworkers producing by hand the various parts of a gun. During the eighteenth century the industry spread into the neighboring towns of Wednesbury, Solihull and Darlaston, and the district became the main source of supply for barrels and locks in Britain. Large warehouses were built by the main contractors for the storage of materials and assembly of arms; an Ordnance factory and proofhouse were built in Bagot Street in 1797, and by the end of the Napoleonic Wars the annual production of the district exceeded half a million arms. In 1813 the gunmakers constructed their own proofhouse in Banbury Street, authorised by Act of Parliament, and when Government orders declined began supplying large numbers of cheap guns to London and Liverpool merchants for the African and Indian trade. This export of guns reached its peak during the American Civil War, when nearly 10,000 people were reported employed in the trade. Increased competition from the Ordnance factory at Enfield forced the Birmingham gunmakers to use more and more machinery, and gradually the groups of small workshops were replaced by factories and the old family firms were taken over by public companies. The largest of these was the Birmingham Small Arms Company, founded in 1861 and still in operation. H.L.B.

Harris, Clive (editor), *The History of the Birmingham Gun-Barrel Proof House*, Birmingham, 1946.

See also: PROOF MARKS.

BLACK POWDER

See: GUNPOWDER.

BLUING

An artificially induced oxidation of iron or steel by any one of many different chemical processes. The result varies in color from very light blue through purple-blue to blue-black. This process serves two functions: that of enhancing the appearance of the firearm, and that of offering a chemical barrier to future corrosion.

There are two general means of bluing recognized by gunsmiths: the hot blue, which involves equipment and skill, but which is recognized as the most durable; and the cold-blue technique. The latter is many times referred to as "patent blue" because it is available bottled ready for use and sold under various trade names. A third method which may or may not involve the use of chemicals is the heat blue, but this is suitable only for small parts and will not be considered here.

The bluing of firearms is probably not as ancient an art as its application to the decoration of armor, though it is encountered on guns made before 1550. Extensive use of blued military arms commences in the mid-nineteenth century.

The chemical mechanism by means of which a chemically induced blue is achieved has never been properly explained, but bluing can be accomplished by many chemical combinations, most of which contain nitrates in some form. Hot bluing is more difficult, but it is also the most desirable and is the type used by firearms manufacturers. H.W.

Angier, R. H., *Firearms Blueing and Browning*, Onslow County, N.C., 1936.

Howe, James Virgil, *The Modern Gunsmith*, 2 vols, London and New York, 1934.

See also: DECORATION OF FIREARMS.

BLUNDERBUSS

A blunderbuss is a short firearm with an expanding bore, usually flaring out in a bell at the muzzle. The name is be-

lieved to be a corruption of the German *Dunder* (thunder) and *Buchse* (gun). It developed on the continent of Europe during the first half of the seventeenth century, spreading to England about mid-century, and from there to America.

The blunderbuss was a specialized weapon designed to scatter a quantity of shot in a wide pattern at relatively short range. A contemporary reference describes it as "very fit for doing great execution in a crowd, to make good a narrow passage, door of a house, stair-case; or in boarding a ship." It was thus the seventeenth- and eighteenth-century version of the modern riot gun, or, more closely, the antecedent of the shotgun carried by stagecoach guards of the last century and by many prison guards today.

The standard load was as many pistol balls or buckshot "as would chamber conveniently." A large one might take as many as twenty buckshot and a charge of 120 grains of black powder. The popular notion that blunderbusses were loaded with stones, broken glass, nails or bits of scrap iron is false. Such projectiles might have been used in an emergency, but they would have ruined the bore in short order. Lead balls provided a more uniform load and were more easily carried.

Another myth about the blunderbuss is that the size and shape of the bell determined the spread pattern of the bullets. This ballistic fallacy even fooled the early makers of the guns themselves. As a result, blunderbusses were made with huge bells for a wide spread in all directions, and oval or elliptical bells in an attempt to direct the bullets in an elongated pattern parallel to the ground, to avoid wasting the many shots that would fly over the enemies' heads if they followed a circular dispersion. Actually, balls can spread out at only a given rate. If the muzzle expands more rapidly in any direction, it ceases to have an effect upon the shot. Practical experience eventually indicated that those arms with a large basic caliber, a bore that expanded gradually throughout its entire length, and a short barrel, produced the widest spread of bullets, far exceeding those with huge bells. Thus the exaggerated flares of the early blunderbusses gave way after 1750 to shorter arms with almost cylindrical bores the flare being simulated on the outside by a thickening of the metal with decorative moldings at the muzzle.

Recent tests, held under the auspices of the National Rifle Association of America, have confirmed these theories about shot dispersal from blunderbusses. After firing several specimens with widely differing characteristics, it was demonstrated that they fired a fairly consistent shot pattern no matter what the size and shape of their muzzles. At 40 feet there would be a mean spread of 20–36 inches; at 60 feet, 40–50 inches. Furthermore, the test blunderbuss firing the widest spread had the largest bore diameter at the breech and the smallest muzzle diameter of the guns tested.

Even though it had little or no effect on the spread of the shot, a belled muzzle did have some real advantages. It had a wonderful psychological effect upon anyone at whom it was pointed, and it made the gun easier to load on a lurching stagecoach or a rocking ship.

The blunderbuss was primarily a gun of the flintlock period. A very few wheel lock specimens are known, and some late pieces were made with percussion locks after about 1825. The eighteenth century was the era of the blunderbuss, and it appeared in myriad forms, both in pistols and long guns. Brass-barreled specimens were especially popular, and many are found with triangular bayonets, which folded back along the barrel against spring pressure and were secured by a catch, ready to snap forward when the latch was released. Extra big versions were also manufactured, for use as swivel guns on ship gunwales and small boats. After 1800 the popularity of the blunderbuss in Europe and America declined rapidly, and by 1840 it had all but disappeared.

The center of blunderbuss production was western Europe, especially England. The density of population in this area, and the intense maritime activity, made it a highly desirable weapon. Less heavily populated areas in eastern Europe with little or no shipping found it of less use. Blunderbusses were imported into America during the late seventeenth century, but found little popularity at that time. It was not until the next century that increased urbanization and maritime commerce created a demand for them there. A few blunderbusses were made in America, including some military specimens during the early nineteenth century, but most were bought in England. Blunderbusses were also made in quantity in North Africa, the Near East and India. Normally these were small specimens, of little practical use, with huge bells and short butt stocks – almost caricatures of the true weapon. They have been produced there, largely for the tourist trade, until modern times. H.L.P.

Illustrations: pages 40, 283.

Peterson, Harold L., *Arms and Armor in Colonial America, 1526–1783*, Harrisburg, Pa., 1956.

Peterson, Harold L., *The Treasury of the Gun*, New York, 1962 (*The Book of the Gun*, London, 1963).

BOLT ACTION

The breech mechanism known as bolt action was named from its resemblance to the common door-locking bolt. One of the earliest was that used in Von Dreyse's needle gun of the late 1830's. The bolt contains the firing pin, spring, and an extractor for withdrawing fired cartridges from the chamber. Lugs, an integral part of the bolt, hold it against the backward force of the powder explosion by transmitting the force to surfaces in the bolt housing or receiver.

There are many bolt types, designed for speedy, safe and dependable operation. Two main classifications are the straight-pull and the turning bolts. Of the former, the Swiss Schmidt-Rubin, Austrian Mannlicher and Canadian Ross are examples. Turning bolts can be placed in three general groups: (*a*) Mausers and Mauser types, (*b*) Mannlichers, and (*c*) other types. Among the last are such systems as the Krag-Jørgensen, Lebel, and Lee-Enfield. The Mauser has been the most extensively used.

The typical Mauser bolt has strong one-piece construction, with front locking lugs and an additional rear safety lug. Mausers are loaded by stripping cartridges from a charger or clip, pushing them down with the thumb.This clip, a thin metal strip with edges turned over, holds the cartridges by their grooves.

In a Mannlicher bolt, the locking lugs are a little further back on the separate bolt head, which does not rotate when the bolt is turned. A clip full of cartridges goes into the magazine, remaining until the last cartridge has been fired, then falling out below.

The Lee-Enfield bolt has its locking lugs at the rear. The Krag-Jørgensen has only one lug. B.R.L.

Illustration: page 46.

Smith, Walter H. B. and Joseph E., *Small Arms of the World*, 6th edition, Harrisburg, Pa., 1960.

Textbook of Small Arms, H.M. Stationery Office, London, 1929.

See also: BREECHLOADERS; CHASSEPOT, ANTOINE ALPHONSE; DREYSE, JOHANN NIKOLAUS VON; GRAS RIFLE; KRAG RIFLE; LEBEL RIFLE; LEE RIFLE; MANNLICHER; MAUSER; MOSIN-NAGANT RIFLE; NEEDLE GUN; REPEATING ARMS; ROSS RIFLE.

BOOTLEG PISTOL

See: UNDERHAMMER GUN.

BORE

See: CALIBER.

BOURGEOYS, MARIN LE

Probably the inventor of the true flintlock. He was born *ca.*1550 at Lisieux, Normandy, into a family of locksmiths, crossbow-makers, armorers and clockmakers. He was ap-

ENCYCLOPEDIA OF

FIREARMS

Edited by

HAROLD L. PETERSON

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FIREARM INFORMATION SHEET

COLLECTION NUMBER: 9122

TYPE: Pair Pistols

IGNITION SYSTEM: Flint with Brass lockplate marked W. GRICE

DATE OF MANUFACTURE: Mid 18th C.

PLACE OF MANUFACTURE: England

MAKER: W. Grice

LENGTH OVERALL: 13 7/8"

BARREL LENGTH: 8" Brass, cannon, blunderbuss.

CALIBER: .76

WOOD TYPE: Walnut

MOUNTINGS: Silver with Silver wire inlay at tang and wrist
Elegant and large silver escutcheon at barrel and open work sideplate

BARREL MARKINGS/DECORATION: Barrels London proofed with Crown over P and Crown over V (Viewed + Proofed) also marked [W.G] for William Grice

STOCK MARKINGS/DECORATION:

REPAIRS/RESTORATION: /

HISTORICAL/ARTISTIC SIGNIFICANCE: A pair of high quality pistols by a well known maker with an extremely unusual combination of features ie brass, cannon bbl, blunderbuss bbl.

PROVENANCE: This would be akin to having a Pink Cadillac, convertible, with 4 wheel drive.

PUBLICATIONS:

COST:

ESTIMATED MARKET VALUE AND DATE:

out the fired primer. The Berdan flash hole, off-center and small, was not adapted to this expedient and so lost favor in the United States.

Berdan resigned his commission in 1864 to devote his time to perfecting a system for converting the old large-caliber muzzle-loading rifles to breechloaders. His conversion used a hinged breech block. Several nations adopted his idea, including Spain and Russia. Spain ordered Berdan breech actions from the Remington Arms Company which were then incorporated into muzzle-loading rifles at a Spanish arsenal.

In 1869 Berdan patented a bolt-action breechloader, which was adopted by Russia. This rifle was ordered in considerable quantities from the Colt Patent Firearms Manufacturing Company; later it was made in Russia. Berdan died on March 31, 1893. B.R.L.

See also: BOXER CARTRIDGE; CARTRIDGE; PRIMER.

BERTHIER RIFLE

A bolt-action, magazine-fed rifle developed by Berthier, a French official. Essentially the rifle is a combination of the French-developed Gras action, in modified form, with the Mannlicher vertical in-line magazine. It is therefore sometimes called Mannlicher-Berthier.

The bolt is of two-piece construction with dual locking lugs on the removable bolt head. The magazine of the original model (M1890) was fed with a three-round clip which is inserted in the action and functions as part of the magazine, falling out at the bottom when the last round is chambered. In 1916 a five-round magazine was adopted. All models are unusual in that they have no safety.

The Model 1890 carbine, which appeared in three slightly different versions – cavalry, cuirassier, and gendarmerie – was followed by the 1892 artillery and gendarmerie musketoons. Only the gendarmerie and artillery weapons used bayonets. The first true rifle to be extensively manufactured was the M1907/15, which had a barrel length of 30.71 inches compared to the 17.7-inch barrel of the carbines. Like the carbine, it had a turned-down bolt handle. In 1934, a quantity of M1907/15's were re-barreled with a shorter barrel chambered for the French 7.5 mm. M1929 cartridge and fitted with a five-round staggered box magazine; they are called M1907/15M34.

In 1916 a rifle and a carbine were introduced with a five-round magazine. They are basically the same as the earlier model Berthiers except for the magazine and the use of a horizontal bolt handle on the M1916 rifle.

All the Berthiers are chambered for the 8 mm. Lebel cartridge (M86), except the M1907/15M34. The muzzle velocity of this cartridge from the rifle is 2,380 feet per second. I.F.S.

Illustration: page 207.

Hicks, Captain (later Major) James Ernest, assisted by André Jandot, *Notes on French Ordnance, 1717–1936*, Mount Vernon, N.Y., 1938.

Smith, Walter H. B. and Joseph E., *The Book of Rifles*, 3rd edition, Harrisburg, Pa., 1963.

BICYCLE RIFLE

Achieving its greatest popularity during the bicycling era of the "gay nineties," the bicycle rifle was, for the most part, a single-shot pistol equipped with either a wooden or metal detachable skeleton extension stock. This provided a convenient arm for carrying on a bicycle, for either hunting or target shooting. On occasion, the guns could be carried in a case strapped under the crossbar of the bicycle. The barrel length was usually ten to twenty inches, and calibers included .22, .25, .30 and .32, mostly rim-fire. For loading, some had side-swing barrels while others were equipped with tip-down barrels. Most popular of the American arms were the J. Stevens, Frank Wesson, and Quackenbush rifles. H.C.L.

BIRMINGHAM

From the early sixteenth century, Birmingham was noted for its smiths and cutlers, but it was not until the English Civil War that it began the manufacture of firearms. The new trade was firmly established in 1689, when five of the leading gunsmiths secured regular contracts from the Ordnance in London. Thus began family businesses which, in time, were to employ hundreds of outworkers producing by hand the various parts of a gun. During the eighteenth century the industry spread into the neighboring towns of Wednesbury, Solihull and Darlaston, and the district became the main source of supply for barrels and locks in Britain. Large warehouses were built by the main contractors for the storage of materials and assembly of arms; an Ordnance factory and proofhouse were built in Bagot Street in 1797, and by the end of the Napoleonic Wars the annual production of the district exceeded half a million arms. In 1813 the gunmakers constructed their own proofhouse in Banbury Street, authorised by Act of Parliament, and when Government orders declined began supplying large numbers of cheap guns to London and Liverpool merchants for the African and Indian trade. This export of guns reached its peak during the American Civil War, when nearly 10,000 people were reported employed in the trade. Increased competition from the Ordnance factory at Enfield forced the Birmingham gunmakers to use more and more machinery, and gradually the groups of small workshops were replaced by factories and the old family firms were taken over by public companies. The largest of these was the Birmingham Small Arms Company, founded in 1861 and still in operation. H.L.B.

Harris, Clive (editor), *The History of the Birmingham Gun-Barrel Proof House*, Birmingham, 1946.

See also: PROOF MARKS.

BLACK POWDER

See: GUNPOWDER.

BLUING

An artificially induced oxidation of iron or steel by any one of many different chemical processes. The result varies in color from very light blue through purple-blue to blue-black. This process serves two functions: that of enhancing the appearance of the firearm, and that of offering a chemical barrier to future corrosion.

There are two general means of bluing recognized by gunsmiths: the hot blue, which involves equipment and skill, but which is recognized as the most durable; and the cold-blue technique. The latter is many times referred to as "patent blue" because it is available bottled ready for use and sold under various trade names. A third method which may or may not involve the use of chemicals is the heat blue, but this is suitable only for small parts and will not be considered here.

The bluing of firearms is probably not as ancient an art as its application to the decoration of armor, though it is encountered on guns made before 1550. Extensive use of blued military arms commences in the mid-nineteenth century.

The chemical mechanism by means of which a chemically induced blue is achieved has never been properly explained, but bluing can be accomplished by many chemical combinations, most of which contain nitrates in some form. Hot bluing is more difficult, but it is also the most desirable and is the type used by firearms manufacturers. H.W.

Angier, R. H., *Firearms Blueing and Browning*, Onslow County, N.C., 1936.

Howe, James Virgil, *The Modern Gunsmith*, 2 vols, London and New York, 1934.

See also: DECORATION OF FIREARMS.

BLUNDERBUSS

A blunderbuss is a short firearm with an expanding bore, usually flaring out in a bell at the muzzle. The name is be-

lieved to be a corruption of the German *Dunder* (thunder) and *Buchse* (gun). It developed on the continent of Europe during the first half of the seventeenth century, spreading to England about mid-century, and from there to America.

The blunderbuss was a specialized weapon designed to scatter a quantity of shot in a wide pattern at relatively short range. A contemporary reference describes it as "very fit for doing great execution in a crowd, to make good a narrow passage, door of a house, stair-case; or in boarding a ship." It was thus the seventeenth- and eighteenth-century version of the modern riot gun, or, more closely, the antecedent of the shotgun carried by stagecoach guards of the last century and by many prison guards today.

The standard load was as many pistol balls or buckshot "as would chamber conveniently." A large one might take as many as twenty buckshot and a charge of 120 grains of black powder. The popular notion that blunderbusses were loaded with stones, broken glass, nails or bits of scrap iron is false. Such projectiles might have been used in an emergency, but they would have ruined the bore in short order. Lead balls provided a more uniform load and were more easily carried.

Another myth about the blunderbuss is that the size and shape of the bell determined the spread pattern of the bullets. This ballistic fallacy even fooled the early makers of the guns themselves. As a result, blunderbusses were made with huge bells for a wide spread in all directions, and oval or elliptical bells in an attempt to direct the bullets in an elongated pattern parallel to the ground, to avoid wasting the many shots that would fly over the enemies' heads if they followed a circular dispersion. Actually, balls can spread out at only a given rate. If the muzzle expands more rapidly in any direction, it ceases to have an effect upon the shot. Practical experience eventually indicated that those arms with a large basic caliber, a bore that expanded gradually throughout its entire length, and a short barrel, produced the widest spread of bullets, far exceeding those with huge bells. Thus the exaggerated flares of the early blunderbusses gave way after 1750 to shorter arms with almost cylindrical bores the flare being simulated on the outside by a thickening of the metal with decorative moldings at the muzzle.

Recent tests, held under the auspices of the National Rifle Association of America, have confirmed these theories about shot dispersal from blunderbusses. After firing several specimens with widely differing characteristics, it was demonstrated that they fired a fairly consistent shot pattern no matter what the size and shape of their muzzles. At 40 feet there would be a mean spread of 20–36 inches; at 60 feet, 40–50 inches. Furthermore, the test blunderbuss firing the widest spread had the largest bore diameter at the breech and the smallest muzzle diameter of the guns tested.

Even though it had little or no effect on the spread of the shot, a belled muzzle did have some real advantages. It had a wonderful psychological effect upon anyone at whom it was pointed, and it made the gun easier to load on a lurching stagecoach or a rocking ship.

The blunderbuss was primarily a gun of the flintlock period. A very few wheel lock specimens are known, and some late pieces were made with percussion locks after about 1825. The eighteenth century was the era of the blunderbuss, and it appeared in myriad forms, both in pistols and long guns. Brass-barreled specimens were especially popular, and many are found with triangular bayonets, which folded back along the barrel against spring pressure and were secured by a catch, ready to snap forward when the latch was released. Extra big versions were also manufactured, for use as swivel guns on ship gunwales and small boats. After 1800 the popularity of the blunderbuss in Europe and America declined rapidly, and by 1840 it had all but disappeared.

The center of blunderbuss production was western Europe, especially England. The density of population in this area, and the intense maritime activity, made it a highly desirable weapon. Less heavily populated areas in eastern Europe with little or no shipping found it of less use. Blunderbusses were imported into America during the late seventeenth century, but found little popularity at that time. It was not until the next century that increased urbanization and maritime commerce created a demand for them there. A few blunderbusses were made in America, including some military specimens during the early nineteenth century, but most were bought in England. Blunderbusses were also made in quantity in North Africa, the Near East and India. Normally these were small specimens, of little practical use, with huge bells and short butt stocks – almost caricatures of the true weapon. They have been produced there, largely for the tourist trade, until modern times. H.L.P.

Illustrations: pages 40, 283.

Peterson, Harold L., *Arms and Armor in Colonial America, 1526–1783*, Harrisburg, Pa., 1956.
Peterson, Harold L., *The Treasury of the Gun*, New York, 1962 (*The Book of the Gun*, London, 1963).

BOLT ACTION

The breech mechanism known as bolt action was named from its resemblance to the common door-locking bolt. One of the earliest was that used in Von Dreyse's needle gun of the late 1830's. The bolt contains the firing pin, spring, and an extractor for withdrawing fired cartridges from the chamber. Lugs, an integral part of the bolt, hold it against the backward force of the powder explosion by transmitting the force to surfaces in the bolt housing or receiver.

There are many bolt types, designed for speedy, safe and dependable operation. Two main classifications are the straight-pull and the turning bolts. Of the former, the Swiss Schmidt-Rubin, Austrian Mannlicher and Canadian Ross are examples. Turning bolts can be placed in three general groups: (*a*) Mausers and Mauser types, (*b*) Mannlichers, and (*c*) other types. Among the last are such systems as the Krag-Jørgensen, Lebel, and Lee-Enfield. The Mauser has been the most extensively used.

The typical Mauser bolt has strong one-piece construction, with front locking lugs and an additional rear safety lug. Mausers are loaded by stripping cartridges from a charger or clip, pushing them down with the thumb.This clip, a thin metal strip with edges turned over, holds the cartridges by their grooves.

In a Mannlicher bolt, the locking lugs are a little further back on the separate bolt head, which does not rotate when the bolt is turned. A clip full of cartridges goes into the magazine, remaining until the last cartridge has been fired, then falling out below.

The Lee-Enfield bolt has its locking lugs at the rear. The Krag-Jørgensen has only one lug. B.R.L.

Illustration: page 46.

Smith, Walter H. B. and Joseph E., *Small Arms of the World*, 6th edition, Harrisburg, Pa., 1960.
Textbook of Small Arms, H.M. Stationery Office, London, 1929.

See also: BREECHLOADERS; CHASSEPOT, ANTOINE ALPHONSE; DREYSE, JOHANN NIKOLAUS VON; GRAS RIFLE; KRAG RIFLE; LEBEL RIFLE; LEE RIFLE; MANNLICHER; MAUSER; MOSIN-NAGANT RIFLE; NEEDLE GUN; REPEATING ARMS; ROSS RIFLE.

BOOTLEG PISTOL

See: UNDERHAMMER GUN.

BORE

See: CALIBER.

BOURGEOYS, MARIN LE

Probably the inventor of the true flintlock. He was born *ca.*1550 at Lisieux, Normandy, into a family of locksmiths, crossbow-makers, armorers and clockmakers. He was ap-

ENCYCLOPEDIA OF

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Edited by

HAROLD L. PETERSON

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