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Gunpowder manufacturers and the Office of Ordnance, 1793-1815

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Gunpowder Manufacturers and the Office of Ordnance,
1793–1815

GARETH J. COLE

Introduction

Since the publication in 1989 of John Brewer's *The Sinews of Power*,¹ much has been written about the British fiscal–military state in the eighteenth century.² However, the vast majority of this literature concludes with the American War of Independence and does not examine the period of the Great Wars (1793–1815). This is a major omission; the Great Wars, in many ways, saw the fiscal–military state at its greatest extent. The three branches of the armed forces, the army, the navy, and the Ordnance, all saw their budgets grow to previously unthought-of levels. The National Debt also increased to levels never seen before. This essay examines one of the many characteristics of the fiscal–military state, namely, the relationship between the state and its private contractors. It will focus on the Office of Ordnance and gunpowder manufacturers, although in order to contextualize this relationship it will also touch on other Ordnance–private relations in the period. Iron ordnance and gun carriages will be mentioned in this context. This essay will show that during the Great Wars, the Ordnance became increasingly less reliant on private gunpowder manufacturers as it increased state production. However, the increases in state manufacture should not be overstated. Only in certain articles did the Ordnance develop its own resources; the vast majority used by the armed forces in the Great Wars were manufac-

¹ John Brewer, *The Sinews of Power: War, Money and the English State, 1688–1783* (London, 1989).

² For an older overview of these works see Huw Bowen, *War and British Society, 1688–1815* (Cambridge, 1998). For more recent works see the introduction to Stephen Conway, *War, State, and Society in Mid-Eighteenth-Century Britain and Ireland* (Oxford, 2006).

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tured by the private sector. These other stores will also be mentioned in order to contextualize the story of the powder merchants. As part of this discussion, the contracting system within the Ordnance will be briefly discussed. In addition, the reaction of the merchants to the end of the wars will be examined.

During the Great Wars of 1793 to 1815 the Office of Ordnance was responsible for supplying the armed forces with all their weaponry and associated stores. This essay will show that throughout the conflicts, the Ordnance successfully managed the task of keeping the merchant suppliers content (if not happy) and keeping up a steady supply of increasingly higher quality powder to the navy (and army, but this will not be discussed in this essay).

As stated, the Office of Ordnance was responsible for supplying the armed forces with, among many other articles, gunpowder. In order to understand the various relationships, an understanding of the structure and organization of the Ordnance itself is needed. The Office was headed by the Master-General, a senior general who, in the period under discussion, was also in the Cabinet. However, he was rarely, if ever, involved in the contracting process, most of his time being taken up by his commitments as colonel-in-chief of the Royal Artillery and Royal Engineers. The contracting was, in fact, overseen by the Board of Ordnance which consisted of the Lieutenant General, the Surveyor General, the Clerk of the Ordnance, the Principal Storekeeper, and the Clerk of Deliveries. Any three of these could form a Board. Here we see a division of responsibility in the Ordnance hierarchy between the military side and the civil side. This essay, although it discusses military stores, actually examines the role of the civil organization of the Ordnance.

Each of the Principal Officers also ran their own sub-office. Of these, the Office of the Surveyor General was the most important for this essay because it was here that all the Ordnance Bills and debentures were examined and passed for payment. Indeed, James Hadden, Surveyor General between 1804 and 1810, while giving evidence to the Commissioners of Military Enquiry stated that he saw himself as 'taking a very considerable lead' amongst the principal officers in the handling of contracts 'from the knowledge which I am naturally supposed to have acquired from my perusal of the Bills'.³

³ British Parliamentary Papers (hereafter BPP) 1810–11 (32), *Commissioners of Military Enquiry: Thirteenth Report (Master-General and Board of Ordnance)*,

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However, the role of the Surveyor General did change with the personality of the incumbent. Hadden was clearly a conscientious officer who committed to the position and he stopped all his regimental duties as a Royal Artillery officer. In contrast, the first Surveyor General of the Wars, George Berkeley, did not give up his naval career. At the time, he was a captain in the Royal Navy and concurrently with holding his Ordnance position also commanded HMS *Marlborough*, a 74-gun ship, in the Channel Fleet. In fact, he was badly wounded on board at the Glorious First of June. Berkeley could not have been as efficient and as knowledgeable as Hadden when it came to contracts and Ordnance Bills.

In addition to these men, the most important figure in the supply of powder was the Comptroller of the Royal Laboratory. Only two men held this position during the wars, Sir William Congreve the Elder and his son, Sir William Congreve the Younger. These men reported to the Board, not to the Master-General. The Congreves are important in the story because after 1802 the Comptroller was in charge of all aspects of powder supply. The autonomy afforded to these men must be emphasized because just as Hadden saw himself as the senior official expert on contracts, the Congreves can be seen as the Ordnance officials' experts on gunpowder.

Although not nearly as well known, it is necessary to mention in passing the numerous clerks and junior officials who also contributed to the successful supply of powder to the armed forces during the wars. It is these unsung men who made up the contracts, ledgers, and so on, and became a permanent administrative service supporting the work of the Ordnance.

The lack of records means that less is known about the other side of the network being examined, the private gunpowder manufacturers. Jenny West's book, *Gunpowder, Government and War in the Mid-Eighteenth Century* gives an overview of the people and personalities involved up to the Great Wars.⁴ Little can be added to this account. However, it is necessary to note that the number of manufacturers was comparatively small because of the complexity of powder man-

App. 12, Examination of Colonel James M. Hadden, Surveyor General of the Ordnance; taken upon oath, 10 Apr. 1810, 132.

⁴ Jenny West, *Gunpowder, Government and War in the Mid-Eighteenth Century* (London, 1991).

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ufacture and the capital investment needed to keep a mill working, especially during peacetime. This will be examined in more detail below. West writes that only ten mills supplied the Ordnance with powder during the Seven Years War. Current research has shown that there were five main suppliers at the start of the Great Wars; by 1813 this figure had risen to eight. Thus there were few suppliers, and this contributed to some of the problems and discussions that will be mentioned below. As far as major stores were concerned, this number of contractors was not small. The number of iron ordnance manufacturers can also be counted on the fingers of one hand, the main ones being Walkers and Carron.

Gunpowder Ingredients and their Sources

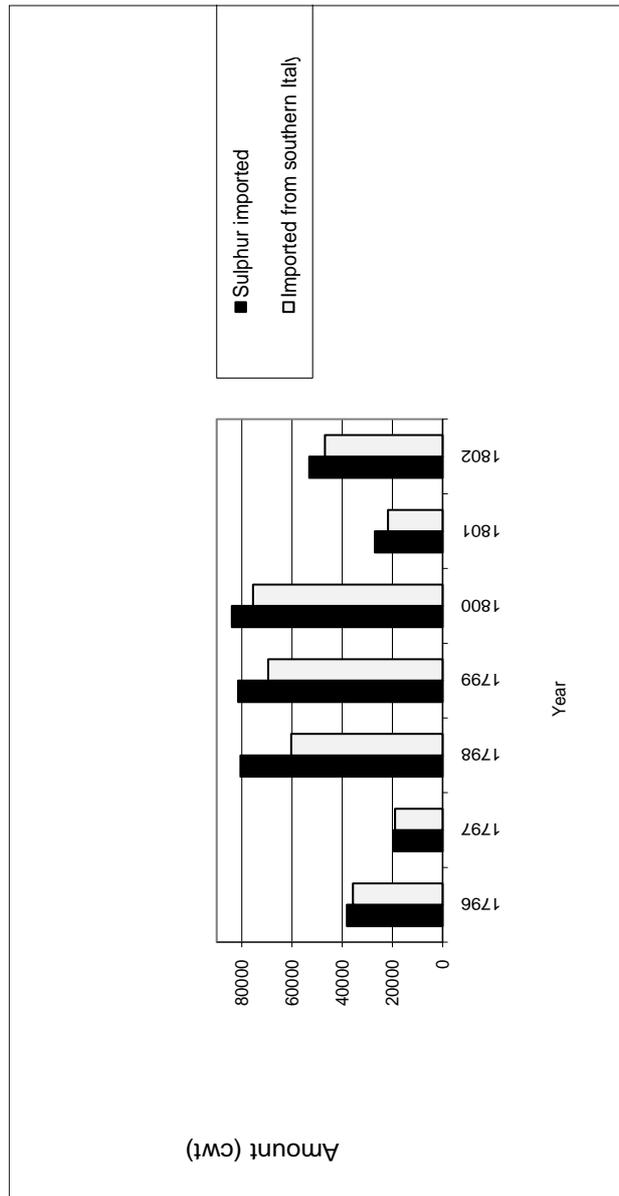
Gunpowder itself is made up of three constituent parts: saltpetre, sulphur, and charcoal. Saltpetre was imported from India by the East India Company; sulphur was imported mainly from Sicily and southern Italy; and only charcoal was sourced from the British Isles. Thus imperial trade links were important. If these had broken down, the British war effort would have been severely hindered. This point should not be underemphasized. During his tenure as Master-General, the Duke of Richmond ordered the building of a warehouse to store sulphur in case trade links were broken by hostile activity.

These links also show the importance of the private sector to the state sector and the networks that were involved within this. The Ordnance did not own any vessels capable of transporting either sulphur or saltpetre over the long distances necessary to import them. These all had to be contracted out. As mentioned, the saltpetre was brought to Britain in the hulls of East Indiamen; sulphur was brought by other private merchants. Unfortunately, little is known about the workings of the trade from Sicily, but this is worthy of a full study in itself. If the links from the Mediterranean had broken down, the production of powder would have been severely hampered. Fortunately, the navy was forced from the Mediterranean only for a very short period between 1796 and 1798. Figure 11.1 shows the small amount of sulphur imported in 1797 following this withdrawal.

As a comparison, in 1792 (a year of peace) just over 51,000 cwt of sulphur was imported, of which 48,243 came from Italy. By 1807 the

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Figure 10.1 Amount of sulphur imported into Britain, 1796–1802



Source: The National Archives, London (TNA) CUST 17/18-24.

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imports were approximately 86,500 cwt (60,000 from Italy and 26,000 from Malta). The importance of the Mediterranean supply routes is therefore obvious. Comparative figures for saltpetre have not been included because almost the entire supply was carried by the East India Company. Once the raw materials had arrived in the country, the Ordnance sent the merchants saltpetre on payment of a deposit, but they were expected to procure the sulphur and charcoal themselves, once contracts had been signed.

As regards supply, the situation in France was very different. Charcoal and sulphur were easily available, the sulphur coming from Italy. However, saltpetre was harder for the French to obtain. With the loss of their Indian colonies in the wars of the eighteenth century, they did not have access to the same supplies of saltpetre as the British. This led to a number of supply problems, described by Robert Multhauf.⁵ The importance of the imperial trade links and networks cannot be overstated when it comes to gunpowder supply. This small case study is further evidence of the usefulness of the empire to Britain in its wars against the French.

The Contracting System

One of the most important aspects in the links between the state and the private sector was the contracting process. Without this the whole supply system might have collapsed, or the state would have had to pay more for the same services. The historian of the Ordnance and its links with the private sector is fortunate that the Commissioners of Military Enquiry reported on the Ordnance in their twelfth to seventeenth reports between 1810 and 1812. These provide valuable information about the workings and organization of the Office, especially in the process of contracting.

By the period under discussion, all Ordnance stores and articles with the exception of local shipping and stores which were state manufactured were tendered out. The tendering process was straightforward. For the vast majority of stores, an advertisement was placed asking for tenders to be sent to the Office by a particular

⁵ Robert Multhauf, 'The French Crash Program for Saltpeter Production, 1776-94', *Technology and Culture*, 12/2 (Apr. 1971), 163-81.

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date.⁶ When asked by the Commissioners whether '[it is] required that the parties should attend, and deliver in their Tenders at the same time?' Robert Crew, Secretary to the Board, answered in the positive. He then opened the tenders in the presence of the Board and, 'if from a responsible person', the lowest tender was generally accepted. The contracts which were entered into would usually be for three years, 'determinable at the expiration of one, by a notice of three months from either party'.⁷ These contracts were for a period of time and not for specific quantities. Gunpowder (and iron ordnance) was different. The contracts entered into in this case were for a specific amount.

The reasons for this difference are obvious, the most important being that both powder and ordnance took a long time to manufacture. Unlike other smaller stores, these could not be ordered and then delivered in a couple of months. The Ordnance needed to know how much it was going to receive so that it could plan. The durations involved can be seen in the bill books which survive in the National Archives at Kew. To take two examples: in April 1797 a bill was allowed for 500 barrels of powder delivered by Edmund Hill. This bill had been examined and approved on 22 March of that year. However, the original warrant for the powder had been taken out in April 1796. Thus it had taken eleven months for the powder to be delivered. The second example is similar. Messrs Taylor and Co. had their bill allowed on 27 June 1797, having had it passed on 26 March 1797 from a warrant of 5 May 1796.⁸

What were the terms of the contracts? Very few Ordnance contracts actually survive in the records, and none for gunpowder have been discovered. However, a record entitled 'Heads of a contract to be offered to each of the several Powder Makers in England' has been uncovered. Although not dated, this document is representative of the type of contract signed by the powder merchants in the period under discussion. It states that for every 100 lb barrel of powder, the Ordnance would provide 105 lbs of pure saltpetre or 112 lbs of grough [*sic*] (unrefined) saltpetre. Each barrel of powder submitted was to be at least 75 per cent saltpetre. The merchants were to find

⁶ A number of these can be seen in *The Times*, which is available online.

⁷ *Thirteenth Report*, App. 9, Examination of R. H. Crew taken upon oath, 17 Mar. 1810, 119–20.

⁸ The National Archives (hereafter TNA) WO 52/107.

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their own sulphur and charcoal. No conditions are imposed concerning the sulphur, but the charcoal was to be 'made from black Dogwood, Alder or white willow properly charred in Common pits, Potts or in cylinders'.⁹

Even when the gunpowder and, in fact, all stores had been delivered to the Ordnance, the merchants were not guaranteed payment. Each article delivered, whether powder, ordnance, or even a small nail, had to pass a proof test. This was to prove that the quality was good enough for government service, or in the case of copper sheets, nails, and so on, that they matched the pattern that the Ordnance used. For nails, each merchant would have seen a sample at the beginning of his contract showing him the pattern to which the article needed to conform. If it failed proof, then the merchant was not paid. It was the proofing system that allowed the Ordnance to guarantee a minimum standard for all articles it then supplied to the army and navy. By the time of the Great Wars, the proof test for powder consisted of firing a projectile out of a mortar angled at 45 degrees. Not only did the projectile have to fly at least 145 feet, but the powder 'supplied by the powder maker shall not be less than 19 parts in 20 of the range of the King's powder'.¹⁰ Not all powder passed proof and if it did not pass, the merchant was out of pocket, especially as he had to pay a capital deposit for the saltpetre. This was not returned if the powder failed.

This short description has shown the potential power that the Ordnance had over all its contractors, although it was not always as great as it would have liked. The small numbers of manufacturers of both gunpowder and ordnance meant that it was sometimes easy for the merchants to form a cartel against the Ordnance. This will be discussed in the next section.

State v. Private Manufacture

As we have seen, the vast majority of articles and stores that the Ordnance required were provided by the private sector. The massive

⁹ Centre for Buckinghamshire Studies, D/C 3/33/1, 'Heads of a contract to be offered to each of the several Powder Makers in England', undated.

¹⁰ *Ibid.*

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growth of this business can be seen in a quick perusal of the Ordnance Bill Books in the National Archives.¹¹ However, gunpowder was different. The Ordnance actually increased the proportion of gunpowder produced by the state as compared to the private sector. This also applied to small arms and gun carriages, although these will not be discussed here. The Ordnance never manufactured iron ordnance (although it did produce brass ordnance at the Royal Brass Foundry in Chatham). Why the state increased its manufacture is open to debate, but it seems to have been for two main reasons: first, to guarantee an adequate quantity and quality of powder; and secondly, because it was regarded as cheaper for the state to produce powder.

As stated above, Jenny West has examined the gunpowder industry in the middle of the eighteenth century and she describes the government takeover of the Faversham Powder Mills in 1759. She writes: 'Purchase was undertaken with the aim of increasing government stock at a time of exceptionally high demand from the armed services.'¹² These were the first powder mills to be owned by the state, but they were not the last. The Waltham Abbey Powder Mills were taken over in 1787 and, after the outbreak of the wars, the Ordnance built a smaller set of mills in Ballincollig, just outside Cork in Ireland. This increase meant that by the end of the wars, the state was manufacturing about 70 per cent of the gunpowder needed by the armed forces.

The importance of the private sector at the start of the wars can be seen in the fact that at least 60 per cent, if not more, of the powder issued to the Royal Navy at Upnor Castle in 1793 was merchant powder. Three years into the wars, the figure was still around the 60 per cent mark. Clearly the navy could not have fought without this powder. Figures for Waltham Abbey alone give some idea of the increase in state manufacture. When it was taken over in 1787, Waltham Abbey produced around 6,000 barrels of powder. By 1809, this number had risen to 20,000 barrels and by 1813 had reached 22,400.¹³ This was a rise of almost 300 per cent. To put these figures into some kind

¹¹ TNA WO 52.

¹² West, *Gunpowder, Government and War*, 149.

¹³ W. H. Simmons, *A Short History of the Royal Gunpowder Factory at Waltham Abbey* (London, 1963), 27, 34.

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of perspective, the Select Committee on Finance's 1817 report on the Ordnance stated that the average amount of powder used in the last few years of the wars was 80,000 barrels per year.¹⁴ Thus Waltham Abbey alone produced more than a quarter of the powder needed in one year. Figures for 1809 also show the importance of the state manufactories: Waltham Abbey manufactured 20,055 barrels and Faversham 16,568 barrels, making a total of 36,623 barrels. Over the same twelve months the number of merchant barrels passing proof was 21,995.¹⁵

The two reasons suggested above for the increase in state production will now be discussed in detail. First, the issue of quantity and quality. As we have seen, the amount of powder supplied by the Ordnance reached levels that were unprecedented at the time. Even at these levels, at no stage does it appear that expeditions or campaigns were delayed because of a lack of powder.¹⁶ Having said this, the supply was not perfect. Fortunately, we have the vast majority of records for Upnor Castle Magazine, which supplied the naval forces at Chatham. One of the surviving record books shows which ships were supplied with powder, how much they were given, and of what type. Data extracted from these records suggests that in 1793, almost 30 per cent of the powder issued at Upnor was termed 'old store'. As gunpowder degrades in performance the older it gets, this powder must have been particularly weak. 'New merchant' powder does not appear to have started appearing in the magazines until 1796. Until that time, the navy seems to have been issued with older types of powder and new manufacture from state mills. The subsequent increase in state manufacture must be seen in this light. By owning their own mills the Ordnance could guarantee that there was a regular supply of powder at the start of every conflict. Because of the capital needed to run a powder mill and the cyclical nature of income from powder, which will be discussed below, it took a number of years for a private merchant to build up a regular supply.

There was, in fact, almost no state manufacture at all. According to Sir William Congreve the Elder, the then prime minister, William

¹⁴ BPP 1817 (275), *Third Report from the Select Committee on Finance (Ordnance)*, 96.

¹⁵ BPP 1812 (4), *Sixteenth Report of the Commissioners of Military Enquiry (Ordnance)*, App. 12, 84.

¹⁶ *Third Finance Select Committee*, 97.

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Pitt, had intended to sell the Faversham Powder Mills in 1783 but was persuaded not to by the Master-General, the Duke of Richmond.¹⁷ As we have seen, four years later the Waltham Abbey Mills were bought to add to Faversham.

The second reason for the state becoming more involved was financial. Throughout the period under discussion, the Ordnance tried not to waste public money. Congreve the Elder believed that by increasing state manufacture, the Ordnance was actually saving money. Although some of his figures must be treated with caution, Congreve thought that all the increases and improvements had saved the Ordnance more than a million pounds between 1789 and 1810.¹⁸ Congreve calculated that by manufacturing 407,408 barrels between January 1789 and August 1810, the Ordnance had saved almost £290,000, this being 'the difference between what that number of barrels cost manufacturing at the King's mills, and the sum that would have been paid if supplied by the merchants'.¹⁹ This is a not inconsiderable amount of money. However, the savings may not have been as large as Congreve suggested. Later in the document he values each barrel of powder at £5.²⁰ However, in 1797 the merchants were paid 'only' £2 a barrel for powder.²¹ This discrepancy would make a big difference in Congreve's numbers. However, it is still apparent that the state could manufacture powder more cheaply per barrel than the private sector.

How much money was available for the merchants? The incomes of some of the manufacturers are staggering. In the two years 1812 and 1813, John Butts received over £64,000. This was income rather than profit, but it is a substantial sum. Even some of the smaller manufacturers were earning large amounts. For example, John Hall earned over £15,000 and William Taylor more than £17,000.²² Al-

¹⁷ Simmons, *A Short History of the Royal Gunpowder Factory*, App. 1, 'Statement of Facts Relative to the Savings which have Arisen from Manufacturing Gunpowder at the Royal Powder Mills and the Improvements made since 1783', 79.

¹⁸ *Ibid.* 81.

¹⁹ *Ibid.* 79.

²⁰ *Ibid.* 80.

²¹ See e.g. TNA WO 52/108, 4 Oct. 1797. Pigou was paid £1,000 for 500 barrels.

²² Centre for Buckinghamshire Studies, D/C/3/42, 'Money paid by the Treasurer of his Majesty's Ordnance to the undermentioned contractors for gunpowder in the years 1812 and 1813'.

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though not directly comparable, in December 1797, Frederick Pigou was paid £1,000 for 500 barrels which he had delivered to Purfleet (the central Ordnance powder magazine), as we see from a contract of 17 November 1796. Just three months later he was paid another £1,000 for a contract dated 12 May 1797.²³ These were both at £2 a barrel. If time allowed, all the payments to the powder manufacturers could be traced through the Ordnance Bill books which appear to be complete. It can be seen that it was definitely advantageous for merchants to remain on good terms with the Ordnance.

As stated above, before the merchant was paid, the powder he supplied had to pass a proof test. Some sort of quality control was required by the Ordnance on all articles that it contracted for, and gunpowder was no exception. By the time of the Great Wars, a test had been developed that involved firing a small amount (a couple of ounces) of powder in a mortar and seeing how far the projectile flew. In order to pass proof, the powder had to send the projectile at least 145 feet and to be no weaker than 19/20ths of the state-produced powder.²⁴ As stated, if the powder failed proof, then the merchant was not paid. In Table 11.2, below, it can be seen that Hill's powder did not reach the minimum standard. This meant that the 253 whole barrels of large grain powder that he submitted for proof were rejected.²⁵ Two months later Hill again has some of his powder rejected (51 out of 124 whole barrels). This time, Pigou suffered the same problem, with 325 of his 794 barrels being rejected at proof.²⁶ If the powder was rejected, then no payment was made, the deposit for the saltpetre was lost, and the merchant had to collect the powder at his own expense. It would have been worse before the wars. If the powder did not reach the required standard, the whole batch would have been rejected.²⁷

²³ TNA WO 52/108 and 113.

²⁴ Centre for Buckinghamshire Studies, D/C/3/33/1, 'Heads of a contract'. However, it is not known whether this proviso carried on into wartime conditions.

²⁵ TNA SUPP 5/118, 'Report of the second and last proof of Merchants' gun powder on the 1st instant, which was proved on the 13th Ultimo.' Office of Ordnance, Purfleet, 1 Feb. 1798.

²⁶ Ibid. 'Report of the 1st Proof of merchants' gunpowder this day', Office of Ordnance, Purfleet, 15 Mar. 1798.

²⁷ Centre for Buckinghamshire Studies, D/C/3/33/1, 'Heads of a contract'.

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Table 10.1 Results of proof test of powder manufactured between 5 Apr. and 28 Dec. 1797

Manufacturer	Type	Date of manufacture (1797)	How far it fired (ft)	How far it fired after 70 days left in air (ft)
Faversham	cylinder ^a	21 Apr.	161	160
Waltham Abbey	cylinder	25 Apr.	174	175
Waltham Abbey	willow	6 May	150	153
Mr Pigou	merchant	11 Apr.	162	156
Mr Hill	merchant	6 Apr.	161	153
Mr Taylor	merchant	13 Apr.	160	152
Messer Bridges	merchant	9 Apr.	158	152
Messer Tayler	merchant	5 Apr.	149	152
Faversham	cylinder	26 Dec.	159	157
Waltham Abbey	cylinder	26 Dec.	171	163
Waltham Abbey	willow	29 Oct.	137	136
Messer Bridges	merchant	2 Dec.	163	160
Mr Taylor	merchant	14 Dec.	148	145
Messer Tayler	merchant	21 Dec.	146	145
Mr Hill	merchant	28 Dec.	145	117

^a Cylinder powder was a new type first introduced around 1787. It was substantially stronger than the traditional pit powder.

Source: TNA SUPP 5/118.

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Table 10.2 Results of proof test of power manufactured between 29 Oct. 1797 and 22 Nov. 1798

Manufacturer	Type	Date of manufacture	How far it fired (ft)
Faversham	cylinder	2 Feb. 1798	158
Waltham Abbey	cylinder	1 Mar. 1798	169
Waltham Abbey	willow	29 Oct. 1797	139
Pigou	merchant	27 Feb. 1798	156
Taylor	merchant	24 Feb. 1798	148
Tayler	merchant	24 Feb. 1798	147
Hill	merchant	14 Feb. 1798	136
Faversham	cylinder	22 Nov. 1798	165
Waltham Abbey	cylinder	18 Nov. 1798	168
Waltham Abbey	willow	14 Sept. 1798	137
Pigou	merchant	20 Nov. 1798	154
Tayler	merchant	20 Nov. 1798	151

Source: TNA SUPP 5/118

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Because of the comparison with state-produced powder, the merchants sometimes felt that the Ordnance deliberately loaded the die against them. A case in point occurred in December 1798, when the powder merchants (as a group) wrote to the Board complaining that when testing their powder, the Ordnance was not comparing like with like. In a letter dated 24 December, Congreve was adamant that this was not the case and rebutted the claims of the merchants.²⁸ This letter from Congreve is interesting because although it only gives the government side of the story, it does show that the two sectors were in competition, even when the nation was at war. Unfortunately, the letter from the merchants to the Board has not survived, but its tone can be inferred from Congreve's reply.

The merchants' first complaint was that the government was deliberately manufacturing powder that was stronger than usual to use in the comparison proof tests. In fact, according to the Assistant Firemaster of the Royal Laboratory at Woolwich, the powder used in the tests was actually in a 'defective' state. The second issue raised was pit powder v. cylinder powder. Congreve wrote:

I dare say the Powder Merchants will few of them deny having set up Iron Cylinders to char wood for their manufactories, and they must be convinced that the Ordnance does not wish them to make their powder with any particular sort of coal, if they wish it, nay I trust them so to do, and not suffer the King's Mills to continue to make bad Powder merely to favor [*sic*] the Merchants, the difference of price of Cylinder Charcoal and of common pit, being too trifling to afford any objection to the general use of the Cylinder.

The merchants were also after a price rise. They claimed that they should be paid more because of the waste of ingredients involved in the manufacturing process. Congreve claimed that this waste was 'evidently not greater now than when the Merchants received only 30 shillings per barrel'. They were, of course, receiving 40 shillings at the time the letter was written.

Finally, Congreve continued to claim that state manufacture was cheaper than merchant, and he said that he was 'sincerely pleased'

²⁸ TNA SUPP 5/30, Congreve to the Board of Ordnance, 24 Dec. 1798.

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that the people who had stated that the state could not produce powder for less than £10 a barrel had been proved wrong. This case is interesting because it shows the powder merchants working together as a group against the Ordnance as well as the pressures on them. They would be substantially out of pocket if their powder failed proof.

It was not only the powder merchants who formed cartels against the Ordnance. The manufacturers of iron ordnance did the same. The difference here was that because the state did not produce any iron ordnance of its own, the iron makers were in an even stronger position than the powder merchants. Some correspondence is worth quoting in full. Three manufacturers, Walkers, Carron, and Graham and Son, wrote to the Secretary of the Board on 27 July 1809 stating that they had received the Board's instruction that 'they expect the price of Carronades will be reduced to £24 per ton . . . on which we beg leave to observe, that we are willing to take £26 per ton for all Carronades the Honourable Board may be pleased to order in future'. This letter was forwarded to General Blomefield, Inspector of Artillery, on 18 August and he replied on 21 August that 'in consequence of the present high price of Iron and other causes, I beg to state that such a temporary advance does not appear unreasonable, but subject to a proportionate abatement, should those causes cease to operate'. On 23 August, Blomefield was informed that the gun-founders had been 'granted the advance of price'.²⁹ The Commissioners of Military Enquiry had some concerns about this situation. In their words:

we see ground of objection to the mode of granting it: it has no reference to the principle of competition; and the concert between the gun-founders, which it sanctions, tends rather to subject the Board of Ordnance on future occasions, if not on this, to the effects of combination . . . A proportionate abatement is provided for whenever the causes which justify the advance shall cease to operate. It is stated to be the duty of the Surveyor General, to notice such fluctuations in the market prices; but it is not probable that he can be as quicksighted in

²⁹ *Sixteenth Report*, App. 7, 66.

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discovering favourable changes, as the contractor will be in pointing out those of an opposite tendency.³⁰

In other words, the advantage in this situation was with the merchants. Because they were dealing only with the price of one commodity, they could read market trends more quickly than the Surveyor General, who not only had to look at many articles, but also had other Ordnance-related work to carry out. As shown above, in the case of gunpowder manufacture the impact of this form of cartel was mitigated by the state manufacturing its own powder.

Relations in War and Peace

Gunpowder, by its very nature, was more in demand under conditions of war than in peacetime. In her conclusion, Jenny West writes: 'In war there was high demand, contracts, and full employment at the mills. In peace there were few if any contracts as requirements for basic defence and military exercise and training were comparatively low.'³¹ Although she was writing about the mid-eighteenth century, the same was true for the period of the Great Wars and the peace that followed. When Ordnance contracts dried up, the little remaining demand for powder (for mining, hunting, and so on) did not produce the same large incomes that the merchants had been used to during the war years. Butts's £64,000 over two years may have been at the top end of the scale, but even £10,000 to £15,000 was not a trifling income for the period. Although West also discusses this, it is worth reiterating here that unlike, for example, iron founders, who could produce other articles at their works as well as iron ordnance, powder manufacturers were essentially one-trade merchants. Some evidence exists that they also produced empty barrels, but this did not give them anywhere near the same income as powder. At this stage, we should also remember the capital investment required to build the mills in the first place. Congreve stated that up to the end of 1810, Faversham and Waltham Abbey had cost the Ordnance a total of £45,622 12s. 4d., this being 'the whole amount expended in the origi-

³⁰ *Sixteenth Report*, 20.

³¹ West, *Gunpowder, Government and War*, 189.

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nal cost, in extensions of the works, in repairs, and improvements'.³² Although these were bigger than the private mills, they show the costs involved (and this does not include the materials such as sulphur and charcoal which the merchants had to source themselves). Faversham alone had cost the Ordnance £5,682 in 1759.³³

Another, obvious, problem in peacetime was that the Ordnance stores were not used up as quickly (if at all) as in wartime. According to the 1817 Select Committee on Finance, there were 232,000 barrels of serviceable and 62,000 of doubtful or condemned powder in store at the time of writing.³⁴ As stated above, the yearly expenditure of powder was estimated at 80,000 so there was already almost three years' supply, at war-time levels, with no additional manufacture. Once it became clear that the wars were not going to reignite, the Ordnance was left wondering what to do with all these stores. Its solution, as at the end of every war, was to sell off the excess. As far as the powder merchants were concerned, this meant that not only were they not being given new contracts, but the market was being flooded with old powder, some of which they themselves had manufactured in the first place! To put it mildly, this was not a happy situation for them. On 16 November 1818 they put their complaints into words in a memorial to the Lords of the Treasury. The discussion that follows will be based on this memorial.³⁵

They opened their complaint with the following statement concerning 'the alarming injury we are sustaining by the very peculiar contract Mr. Samuel has been allowed to accomplish with the honourable Board of Ordnance, for the purchase of certain quantities of gunpowder'. They continued:

We are persuaded it has never been the wish or intention of either your Lordships, or that honourable Board, to set up and uphold an individual, perfectly unconnected with the manufacture of an article, in opposition to the fair and legitimate interest of the manufacturers themselves; and that it only

³² Simmons, *A Short History of the Royal Gunpowder Factory*, App. 1, 81.

³³ West, *Gunpowder, Government and War*, 154.

³⁴ *Third Select Committee Report*, 95.

³⁵ BPP 1819 (167), *Copy of a Memorial of the Gunpowder Merchants to the Lords of the Treasury, of the 16th November 1818*.

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requires an explanation from them of such an effect, to induce your Lordships to prevent such injurious contracts in future.

Their main complaints can be summarized as follows:

- Samuels could supply the home and foreign markets at lower prices as gunpowder was delivered to Purfleet, Portsmouth, Plymouth, and Falmouth, saving on freight and carriage costs.
- The powder manufacturers had spent large sums of money on enlarging their own works and the peacetime sales would have been some reimbursement for these.
- Their contract had specified that all other sales would be suspended.
- Even with the advantages above, Samuels had not been able to sell much more than 10,000 barrels. They stated: 'What, my Lords, is to be inferred . . . [is] that in periods of peace, the demand is too trifling; and against trivial demand, it is in vain to press extended sales.'
- The Board had previously extracted the saltpetre at the end of the wars, rather than selling the powder itself. The merchants thought that this would actually bring Treasury coffers more money than selling the powder itself because 'purchasers of petre on a much more extended scale, are to be found amongst other traders than amongst the manufacturers of gunpowder'.
- They feared that they would have to lay off workers, and that those they laid off might take out their frustrations on the manufactories by burning them down, 'and thereby occasion the destruction of our very valuable machinery; the loss of which must wholly fall on ourselves, as it is a species of property no office will insure'.
- It would be difficult to get experienced workmen back quickly if people were laid off.
- They feared damage to buildings if they were not used for a long period of time. The buildings would have to be repaired before they could be used for manufacturing powder again.

On the last two points, the merchants commented: 'to which we might add, we hope not presumptuously, the policy of upholding a species of manufacture which can, in periods of sudden demand, fur-

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nish important aid to the Government in their military and naval operations.' The merchants were clearly worried about their profits in peacetime and their last comment was pointing out that their article was indispensable to the military. As argued above, the Ordnance had negated this point partly by increasing the amount of state manufacture and thus guaranteeing a reasonable stock at the start of any future conflict.

The Ordnance responded on 27 January 1819. Again, their points may be summarized as follows:

- It was government policy to 'lessen the great accumulation of stores left by the sudden conclusion of the war'. The sales could also be used as credit on Ordnance estimates, and with the sale of perishable stores, some storehouses, such as floating magazines, could be dismantled, thus saving the cost of maintaining them as well.
- Thus the Ordnance felt it best to sell as much as possible, even if it was at a lower cost than may have been desirable, especially as a number of the stores were of a 'perishable nature'.
- Samuels had agreed to buy many stores, not just gunpowder, and on this the Board wished to inform the Lords of the Treasury of 'the great advantage gained . . . of disposing of a number of other stores in immense quantities, which, by the common method of trusting to the periodical sales (even though attended with the advantage of public competition) it might have taken years to accomplish'.
- The Ordnance also contended that 'upon the whole, they have been good stewards to the public (unless the gunpowder merchants alone are to be considered as the public) in disposing of its general property (all circumstances considered) to the best advantage'.
- Even if the powder merchants had bought the powder, they would still have had to lay off workers as they were selling powder that had already been manufactured.
- The Board sold all stores at the place where they were stored – there was no attempt to save Samuel the cost of freight.
- As for the merchants' works, '[they] had been enlarged at a great expense, in order to supply the Government. But was this to serve the Government or themselves? And if the latter, have they not

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succeeded? Most of them (and the Board rejoice at it) have acquired fortunes by their exertions in the service of the public; but this is at least not a reason why they should continue to make them at the expense of that public.'

- As for the workmen, the Ordnance pointed out that it had also had to lay off thousands of its own workers and noted that 'many, in other trades at least, who have been loudest in their complaints of Government for bringing the public means to account, have had the liberality to set a stigma upon all who came into the Ordnance employ, and have resolved never to give them work when turned adrift.'
- Although the Master-General and Board 'deny the expediency of yielding to any part of the Memorial itself', they suspended all sales of powder for three years.

The conclusions to draw from these points are self evident, but they demonstrate the relations between the powder merchants (and other merchants, for that matter) and the Ordnance. They can be summed up thus: the Ordnance wanted to save the public purse money and the merchants wanted that money to go to them.

Conclusion

This essay has shown how relations between gunpowder merchants and the Office of Ordnance developed during the period in and around the Great Wars of 1793 to 1815. Relations were not always cordial because of the differing aims and objectives of both sides, but they did not break down either. This essay has also shown how the powder merchants came together as a group to try to force the Ordnance to adopt their way of thinking. They clearly believed that they had more power together than as individuals. They were not alone in this; the manufacturers of iron ordnance did the same thing during the wars. We have seen that they were, in fact, able to force the hand of the Ordnance at times: the ordnance manufacturers during the wars and the powder merchants, to a lesser extent, after the wars. The wars had also made the powder merchants massive profits and some of the numbers involved are staggering. These, however, were profits made under wartime conditions. Once peace broke

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out across the Continent of Europe, there was no market for gunpowder and the profits dried up almost overnight.

This essay has outlined the importance of the private sector to the British war effort. Even with the expansion in state manufacture, there was still a need for private merchants. In addition, two of the three components of the powder, sulphur and saltpetre, had to be imported into Britain in the hulls of private ships. The networks, links, and relationships between the state and private sectors described in this paper demonstrate that one could not survive without the other. If any of the chains had broken at any stage, the system would have collapsed and the Royal Navy and British Army would not have been able successfully to prosecute the conflict. One aspect that has not been discussed here is the amount of weaponry that the British were able to send their Continental allies over the twenty-five years of conflict.³⁶

Throughout the wars, the Ordnance had guaranteed the supply of a critical store while improving its quality (something which has not been discussed in any detail in this essay). The Ordnance had tried, arguably successfully, to save public money while some of the merchants managed to acquire fortunes.

³⁶ See John Sherwig, *Guineas and Gunpowder: British Foreign Aid in the Wars with France, 1793–1815* (Cambridge, Mass., 1969) for a study of this in action.