

BECOMING ROYAL: THE  
GOVERNMENT'S ACQUISITION OF  
THE POWDER MILLS AT  
WALTHAM IN 1787



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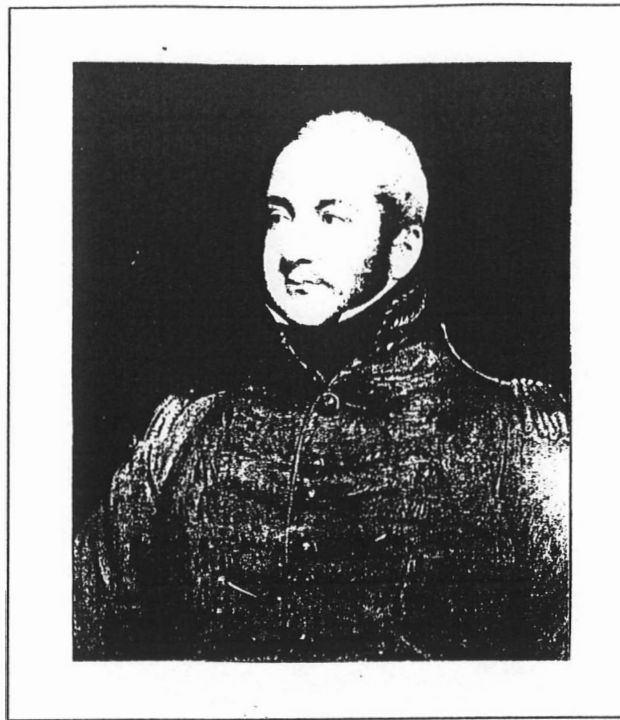


Fig. 1. Major William Congreve

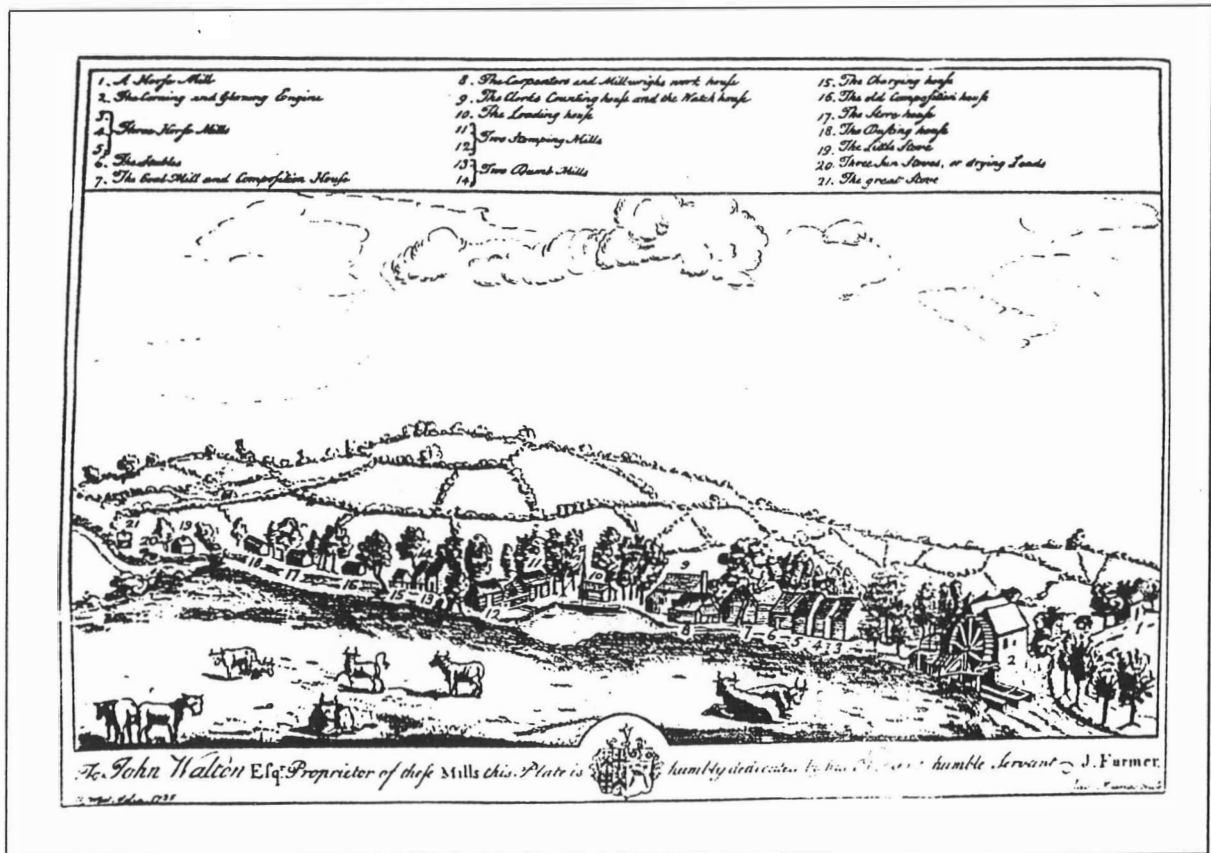


Fig. 2. An engraving showing the view from the west of Waltham Mills, from John Farmer's history of the town, 1735. The use of mill wheels and powder barges demonstrate the dependence of the works on water.

## Preface

just put in.

✓ The writing of this dissertation was by no means an easy feat, especially given the scarcity of published sources on the subject of gunpowder in late eighteenth century Britain. Indeed, when I began my research I was shocked at the lack of general works on the period. However, the fact that I was exploring somewhat uncharted territory made the challenge even more fascinating, and the wealth of original sources to be found on the Waltham Mills proved somewhat encouraging. Nevertheless, I was led down many a blind alley searching for material: those sources used herein were discovered as a result of both my perseverance, and determination to prove that the government's acquisition of the powder mills at Waltham Abbey did have some historical significance.

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On discovering that *Hansard* held no record of the transaction, I was somewhat disheartened, but I feel sure that my studies have led me to view historical documents in a different light: the fact that *Hansard* did not hold any record of the purchase does not mean that it did not take place in 1787, but simply implied that the whole event was not considered to be highly important at the time. This would in some respects support my argument that it was Major William Congreve (see fig. 1) who engineered the agreement, thus certain ministers had yet to be convinced - and Congreve had yet to prove - that the purchase of Waltham Mills would save the government thousands of pounds, and supply the British forces with gunpowder of the highest quality.

I took it upon myself to examine the reasons behind the government's purchase of the Waltham Mills in 1787. When put into historical context, this year occurred in a period of change, a time when colonisation had resulted in a certain degree of conflict - notably the American War of Independence - and preceding the French Revolution by a couple of years. When viewed from this perspective, it is perhaps natural to assume that the transaction was an attempt to improve the quality of British gunpowder, thus strengthening the armed forces and safeguarding the country. However, I intend to prove that the govern-

ment would not have purchase the Waltham Abbey Powder Mills without the intervention of one man: Major Congreve.

The only published work I came across on the eighteenth century focused mainly on the politics of the period, and the effects of colonisation. Had I seen a way to incorporate these matters into my thesis I would have indeed taken it, but other than outlining the main events of conflict and colonisation I could see no justification for going into extreme detail. My task as I saw it was to prove the importance of William Congreve in this drama, a man whose politics did not correspond with the main defence policies of the day. The acquisition of the Waltham Powder Mills was not a result of some grand strategy held by the government, despite the great need for adequate systems of defence. But this does not mean that the friction in Europe, and indeed other parts of the world, was not taken into account when the decision to purchase the mills was reached: it seems a little obvious to point out that Congreve would have been aware of the need for high quality gunpowder to be supplied to British troops.

Therefore with very little secondary evidence to act as a guideline, and a great deal of (almost) indecipherable original sources, I set out to explain the reasons behind the government's purchase of the Waltham Mills, and confer to William Congreve the recognition he deserves.

## Introduction

On the 22 October, 1787, the Powder Mills at Waltham Abbey were officially procured by the government. This followed a series of conflicts and wars which arose out of the effects of colonisation, approximately half-way between the government's purchase of the Faversham Powder Mills in 1759, and the acquisition of Ballincollig Mills in 1804. In retrospect, it appears as though the purchase of the Waltham Mills was part of a grand strategy to nationalise the gunpowder industry, in order to standardise the quality of powder. But in this essay I intend to prove that this theory is perhaps a little too simple, and that the reasons behind the government's purchase of the Waltham Mills all lead back to the genius and dedication of Major William Congreve.

To state that the Waltham Mills were 'nationalised' in 1787 suggests that the government had developed a plan to purchase a string of powder mills in order to control the production of gunpowder. Indeed the government did also buy the mills at Faversham and Ballincollig in County Cork, but the amount of time which passed between each transaction makes the link a little too tenuous to remain convincing. The mills at Waltham were, in a sense, nationalised in 1787, but this was through chance, rather than by design. There seems to be very little evidence to support the theory that the government wished to control the standard of gunpowder: any evidence of the sort would be seriously undermined by the fact that William Pitt planned to *sell* the Faversham Mills in the early 1780s. It was only through the efforts of William Congreve that these mills were saved, and, through his advice, the Waltham Mills were purchased. After being appointed Deputy Comptroller of the Royal Laboratory at Woolwich in 1783, Congreve carried out a series of investigations which placed the motives of the private manufacturers - who at the time were supplying government with the majority of powder - under some suspicion, and led him to conclude that state-owned powder mills would prove far more profitable.

In the first section of this work I will attempt to outline the changes and developments which were taking place during the late eighteenth century, focusing on advancements made in industry, trade and colonisation. Through this I hope to exemplify the fundamental need for high calibre gunpowder to safeguard the country, protect overseas territories, and generally keep Britain in the race for world power. This will be followed by a description of Waltham Abbey, particularly the history of the town, and its location. In chapter three the actual mill itself will be closely examined, as it was, and the position it held, before 1787.

The fourth and fifth sections of this work will focus on the conditions laid out in the agreement of 1787; William Congreve's part in the story; and the deception of the private contractors. The Duke of Richmond, William Congreve's superior, stood to gain a great deal from his deputy's astute observations, and chapter six will concentrate on his position before and after the transaction. In the short section which follows I will attempt to place the importance of the purchase in its historical context, and examine whether Major Congreve's actions improved the potential of the British forces. The late eighteenth century was, after all, a period of discovery and conflict in which high quality ammunition was needed.



## Industry, Conflict and Colonisation

It is extremely difficult, if not impossible, to sum up in a short paragraph the complexities of eighteenth century England, and the subject certainly deserves more attention than can be contributed here. Nevertheless, it is perhaps necessary to outline the changes which took place in the latter half of the century: the Industrial Revolution had not yet reached its zenith, but inventions and advancements in industry were progressing with great speed. These industrial developments, coupled with the conflict and colonisation which took place during this period, exemplify the character of the age: one of change, prosperity, and exploration.

The eighteenth century does not fit neatly into any categories, a theory reinforced by comparing this period to both the chaos and disorder of the 1600s, and the industrialisation and urbanisation of the nineteenth century. In retrospect, the eighteenth century appears to represent the calm after the storm of the Civil Wars and execution of Charles I: an age of reason after fanaticism. However, this period also saw a great deal of change, conflict and development. Population was rising, perhaps due in part to improvements in diet; an effective attack on Smallpox in the 1760s; and steady advances in agriculture, furthered by the extension of lands under cultivation. Although mid-century Britain was still primarily a rural country, and, as such, living in the pre-factory age, the beginnings of the Industrial Revolution are evident in such matters as the steady advance in industry through the multiplication of patents, and major developments in communication.

The late eighteenth century provided the perfect degree of commercial opportunity for individuals who had both an eye for invention and an awareness of possible financial gain. Iron, cotton and pottery were just three of the commodities that boosted the development of industry, in which inventions generally served to improve the quality of the finished product.

James Watt's steam engine served mainly as a pumping machine during this period, and by 1783 it was being used in the majority of Cornish tin mines, where drainage was a

reference.

serious problem at deeper levels. Richard Arkwright's water-frame of 1769 and James Hargreaves's patenting of the spinning jenny in the following year mechanized the process of spinning cotton, and by 1780 the emergence of cotton manufacture as one of the country's premier industries was becoming apparent. The growth of pottery as an important commodity and exportable product was developing, perhaps as a result of changing social habits such as the popularity of tea, coffee, and hot chocolate, and the demand for quality wares on the part of the wealthy and expanding middle classes.<sup>1</sup> Josiah Wedgwood, founder of Wedgwood Potteries, invented a ceramic pyrometer, which he then marketed. These men worked from a solid intellectual foundation, whether self-taught, or formally educated. The beginnings of a new age were evident in such events as the use of coked coal in smelting furnaces, the advantages of which spelled the end of charcoal-based smelting, and led to the building of ten new smelting furnaces between 1756 and 1762. A patent for refining pig iron was taken out by the Cranage brothers in 1766, and subsequently perfected by Henry Cort in 1783. Iron was not yet making a big impact, but the building of the iron bridge over the River Severn in 1779, and the laying of 20 miles of iron railways in the Coalbrookdale complex, were signs of things to come.<sup>2</sup>

Efficient methods of communication developed between the years 1750-80 contributed towards the growth of urban industrialisation, which was to transform parts of the country during the latter half of the century.<sup>3</sup> Over 450 Acts, setting up turnpike trusts, were passed between 1760 and 1774, and engineer John Metcalf improved road surfaces on highways throughout the country with such zeal that by 1766 the coach journey from London to Manchester had been cut to three days.<sup>4</sup> The growth of a regular postal service was one of the chief outcomes of better transport during this period. By the 1780s, stage-coaches could out-speed the horse post, and as a result John Palmer, of Bath, was given a Post Office contract to carry the mail between Bristol and London by coach, beginning in 1784. Palmer's coaches completed the journey in sixteen hours and were such a success

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<sup>1</sup> I.R. Christie, *Wars and Revolutions: Britain 1760-1815* (London, Edward Arnold, 1982), p. 16  
<sup>2</sup> *op. cit.*, p. 13  
<sup>3</sup> *op. cit.*, p. 8  
<sup>4</sup> *ibid*

that within a few years fast mail-coaches served all the main towns, delivering both mail and newspapers.

The building of canals which continued through the 1760s and 1770s provided an important transport infrastructure, one which was used to great advantage by both the iron, and earthenware, industries, to distribute heavy, bulky raw materials and products.

Industry was steadily advancing, promoted by inventions and commercial opportunity. Improvements in methods of transportation, mainly through highways and canals, led to a greater degree of social contact and integration of economic activity. Perhaps inevitably, urbanisation and industrialisation would follow. England was on the verge of a massive change, one which would arise out of developments in industry, and the effects of colonisation.

The eighteenth century saw a great deal of conflict, generally stemming from problems of trade and colonisation. England and the other seafaring nations of Western Europe, particularly France, the Netherlands, Portugal and Spain, had long been rivals in the construction of trading empires in Africa, Asia and the Americas. Each country was fiercely defensive of its colonies and trading posts, and foreign merchants were frozen out. In this atmosphere of competitiveness, it was perhaps inevitable that conflict would arise. In 1739, Britain went to war with Spain over trading disputes in the Caribbean, and within a year a full-scale European war had broken out over the disputed succession to the Austrian throne. The war quickly spread to India, North America and the high seas, where the main struggle was between Britain and France: no clear victor emerged from the Anglo-French struggle, however, until the Seven Years' War, which broke out in 1756. Britain dominated the seas, and captured West Indian islands and West African trading posts from France. Perhaps even more importantly, through the efforts of Robert Clive, French power in south-east India was broken, and his great victory at Plassey in 1757 laid the foundations for future British supremacy over the whole of India. Britain's capture of Quebec in 1759 led to the collapse of the French empire in North America, and in the Treaty of Paris, in 1763, Britain claimed, among other territories, Canada and all of North America down to the Mississippi.

At this point, Britain was speedily gaining lands and power, but this euphoria was to be relatively short-lived. The Thirteen Colonies, the backbone of her American Empire, were becoming increasingly restless, and objected to being taxed by parliament in London. What began as a quarrel soon grew into a full-blown revolutionary war: the Thirteen Colonies united and produced a Declaration of Independence in 1776. In 1783, threatened by the force of the rebels, along with France and Spain, Britain officially recognised the independence of the colonies.

It was perhaps with this situation in mind that Congreve recognised the need to improve the quality of gunpowder employed by the British forces, in order to protect Britain's territories abroad. In an age of advancement - in areas of industry, colonisation and trade - it was imperative that Britain did not fall behind in the race for world power, and was careful not to cede her most important trading posts. But before the country began to aim too high, Major Congreve recognised the need to go 'back to basics,' and improve Britain's gunpowder industry.

## Waltham Abbey

Waltham Abbey is a small market town in the south-west corner of Essex, approximately fifteen miles from the centre of London. Edward the Confessor granted the town to Harold Godwinson, Earl of Wessex, who for a few short months in 1066 was King of England. Harold is said to have been cured of a form of paralysis while praying before the Holy Cross of Waltham, and in gratitude he began building a church in 1060, where he is reputed to have been buried. Harold's church was soon replaced by one in the Norman, or Romanesque style, and in 1177 Henry II, as part of his penance after the murder of Thomas Becket, began to construct the monastic buildings on the east end of the church. Life in the early medieval period centred around the Abbey itself, and the community which it produced continued to thrive when the right to hold a market was granted by Richard I in 1189.

At the Dissolution of the Monasteries there was a suggestion that the church would become a cathedral, but the fact that it was not central to Essex, and too close to London, led to the Abbey claiming the dubious distinction of being the last monastic house to be dissolved by Henry VIII.

The development of the town was undoubtedly related to that of the church; thus when the Abbey was dissolved in 1540 Waltham became a simple, unremarkable country town. It was not until the development of the powder mills, over two centuries later, that the community began to grow and prosper once more. Indeed, the manufacture of gunpowder was to become the principal industry of the town for over two hundred years, <sup>No.</sup> from the government's acquisition of the mills in 1787 until the factory closed in 1945. For over two centuries the site led the way in developments in gunpowder technology. In 1872 a guncotton factory was built, and in 1891 the first cordite, a mixture of nitrocellulose and nitroglycerine, was made at Waltham Mills. Much of the cordite used by the British in <sup>No</sup> World War One was produced at Waltham Abbey. The importance of the site can be

gauged by the complete devastation wreaked on the town by bombs during the Second World War: 499 bombs of various sizes were dropped on Waltham Abbey, including 15 parachute mines, 14 VI doodlebugs or bombs propelled by a ramjet engine, 16 V2 rockets and 30 incendiary bombs.

The Waltham Mills have therefore played a very important part in the history of warfare, especially after William Congreve advised the government to purchase the property in 1787. However, in order to ascertain *why* Congreve chose the mills at Waltham, it is perhaps necessary to examine the exact situation of the establishment, and look at the condition of the mills before when they were privately owned.

Waltham Abbey lies on a gravel terrace, between the River Lea and the rising ground of Epping Forest. The Lea is a tributary of the River Thames, flowing into the Thames at Canning Town. Gunpowder was stored at Greenwich from an early date until 1763, when the magazine was moved from there to Purfleet. The gunpowder produced at Waltham Abbey was therefore transported by barge - to avoid explosions: horses might bolt, with disastrous results - to Purfleet, along the Lea and the River Thames.

Gunpowder manufacture at Waltham can be traced back to the 1660s, when a former oil mill was converted to a powder mill.<sup>1</sup> A large number of powder mills are recorded to have existed on the River Lea, but all except Waltham, the furthest upstream, ceased working by 1700. The fact that the Waltham establishment controlled its own water supply could hold the key to its survival (see fig. 2).

The situation of the Waltham Abbey Powder Mills would undoubtedly have proved highly suitable to William Congreve. Although in close proximity to London, the town was also fairly secluded, and the relative ease and security in which the powder could be transported along the River Lea to Purfleet, was an advantage which Congreve was quick to pick up on. The condition of the mills before 1787 also hinted the profits which could be made from ownership of the establishment, and perhaps indicated the great potential of the Waltham Mills.

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<sup>1</sup> K. N. Bascombe, *Waltham Abbey*, (Gloucs., Alan Sutton, 1995), p.89

## Becoming Royal

In October 1787, the Waltham Powder Mills came under governmental control after John Walton, the proprietor of the establishment since 1735, agreed to the terms proposed by William Congreve. The mills were purchased by Congreve on behalf of the government for £10,000, and the conditions within the agreement undoubtedly stood in Walton's favour, as the minutes of the Surveyor General, dated 11 October 1787, illustrate:

John Walton Esq. having in his letter of the 11th Inst. signified that he is willing to dispose of the Powder Mills at Waltham Abbey...for the sum of £10,000...and that an Interest of Five Per Cent on the said sum to commence from September 21st, 1787, and to continue till Payment is made.<sup>1</sup>

John Walton was also exonerated from making any further payments on 'all Land Tax, Parish Rates, Rents, or Charges, he heretofore paid or was liable to pay, up to Michaelmas, 1787...the Ordnance taking the same upon themselves.'<sup>2</sup> At this point, the mills were in a state of disrepair, and the offer made by Congreve must have seemed like a welcome escape to John Walton. The mills were therefore purchased, and became known as the 'Royal Powder Mills.'

The government's procurement of the mills at Waltham displays all the signs of a highly planned strategy to nationalise the gunpowder industry, thus monopolising the production of gunpowder, and this policy would seem to be sensible given the delicate situa-

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<sup>1</sup> *Minutes of the Surveyor General*, October 1787 PRO/WO/47/110

<sup>2</sup> *ibid*

tions in France and in the Colonies. The theory would also be supported by the government's acquisition of other principal powder mills in this period, as Glenys Crocker suggests:

In the military sector, the government ceased to rely on private manufacturers when it acquired Faversham in 1759, followed by Waltham Abbey in 1787 and Ballincollig in County Cork in 1804.<sup>3</sup>

Certainly the evidence would seem to support this theory of nationalisation. But without the enthusiasm and confidence of William Congreve, the standard of Britain's gunpowder, and consequently the ability of the British forces in battle, would have been significantly impaired.

William Congreve is undeniably a key figure in any explanation of the mills' transformation from private to royal, and it would perhaps be fair to state that he was the driving force behind the whole transaction.

Born in Staffordshire in 1743, at the age of thirteen Congreve applied to the Master Gunner to become a cadet at the new Artillery Academy at Woolwich, and by 1758 he had served with distinction at the siege of Louisburg. As well as serving at the capture of Havannah, and at Martinique, Congreve commanded the Artillery under the Duke of York in Flanders, and at the siege of Valenciennes. During peace-time, Congreve was not idle: after the close of the Seven Years War in 1763 he improved the construction of Field Artillery by introducing, among other inventions, the block trail. Although less publicly known than his son, the inventor of the Congreve Rocket, he nevertheless exercised an important influence on the instruction and science of the Royal Artillery, and his actions regarding the reorganisaton of the gunpowder industry improved Britain's defences beyond measure.

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<sup>3</sup> G. Crocker, *The Gunpowder Industry*, (Buckinghamshire, Shire Publications, 1986), p.9



Early in 1779, the Navy Board began to receive a number of serious complaints from Admiral Barrington, concerning the 'inadequate number of stores' and poor quality of gunpowder being supplied to naval vessels.<sup>4</sup> William Congreve, at this point a captain, was instructed to proceed to Plymouth and investigate. At the naval stores, only four barrels out of one hundred were found to be serviceable, a worrying state of affairs given the country's conflict with America. The Naval Board, acting on the advice of Congreve, strongly urged the government to purchase another set of mills in an attempt to standardise the quality of gunpowder. But it was not until 1783, when Congreve took his post as Deputy Comptroller at the Royal Laboratory, that the problem was seriously addressed.

In July 1796, Congreve sent a petition to the Prime Minister, William Pitt, asking for an increase in his pension. This request was supported by an account of Congreve's achievements, and it is here that the main reasons behind the government's acquisition of the mills at Waltham are to be most clearly demonstrated. In 1783, at the time of Congreve's appointment as Deputy Comptroller, the government intended to *sell* the mills at Faversham, thus losing all control over the manufacture of gunpowder. This plan undermines the nationalisation thesis, for any scheme to monopolise the gunpowder industry would require the Faversham Mills to remain under governmental control. Therefore if the gunpowder on the naval vessels was in such poor condition, and, as a result, the country's safety was severely jeopardised, why did the government think it wise to relinquish the mills at Faversham? Congreve states in his petition that the main reason why the Faversham Mills were almost sold was to be found in the actions of the private mill owners:

.. indeed Government were almost inclined to part with these Mills at the representations of the Contractors, whom you, Sir, may remember they would have persuaded Government that the King's servants could not make Gun Powder for less than £10 pr. Barrel.<sup>5</sup>

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<sup>4</sup> *Naval Board Minutes*, ADM/3/87

<sup>5</sup> *William Congreve's petition to William Pitt*, 1796, SRO/D/1057/M/F/63/1-7 p.4

In 1783 Congreve was called before the Privy Council, where he ‘anxiously advised against the Mills being parted with,’ and stated that another set of mills should be purchased.<sup>6</sup> His recommendations would eventually be fulfilled when the Privy Council decided to keep the Faversham establishment, and buy the Waltham Mills from John Walton, a site well known to the Board as one of the largest suppliers in periods of conflict.

The private contractors were deceiving the government with assurances that gunpowder could not be produced any cheaper in state mills, thus justifying the extortionate prices they charged. However, after the mills at Faversham escaped sale, Congreve proceeded to carry out improvements which led to an increase in the number of barrels made there:

I happily succeeded...in procuring an  
Augmentation of their Powers, so that instead  
of 3500, they now make 9000 Barrels.<sup>7</sup>

Not only did Congreve enlarge the overall production rate at Faversham, he also managed to improve the powder at the Waltham Mills, thus proving the contractors wrong, and saving the government a great deal of money in the process. But the Waltham Mills were in need of some repairs before the production of high quality powder could begin.

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<sup>6</sup> *William Congreve's petition*, 1796, p.4  
<sup>7</sup> *ibid*

## Repairs and Profits

In 1783 his Grace the Duke of Richmond appointed Major Congreve Deputy Comptroller of the Royal Laboratory, in which department he has saved the Government upwards of three hundred thousand pounds, and very much improved the British Gun powder.<sup>1</sup>

So wrote the unofficial biographer of William Congreve, presumed to be his niece, Anne. If this statement is accepted to be true, it is necessary to explore in further detail evidence to support this claim, such as accounts compiled before 1787, and any correspondence between Congreve and the workers at Waltham Mills after the government took over. This will indicate any increase in profits and show to what extent Congreve presided over the everyday running of the mills after October 1787.

Unfortunately, no records from before 1787 survive, and this makes the task of surmising the condition of the Mills at that time, and of measuring the profits, extremely difficult. The evidence in the third section points toward a well-organised and profitable establishment, at least as late as the 1730s, but a close examination of the agreement drawn up between John Walton and the government in 1787 reveals that the mills were in need of some repairs:

The premises to be accepted in the State they now are; and J. Walton declared exempt from and future Charge or Expence whatever on their Account...J. Walton shall be exonerated from all further Payments.. relating to..Repairs of

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<sup>1</sup> *Biographical noted on Sir William Congreve*, late Eighteenth century, SRO/D1057/M/F/64, p.3

the Buildings and Bridge near his House.<sup>2</sup>

The buildings were obviously in need of repairs when the government purchased the site, and any evidence of renovation after 1787 would illustrate the determination of Congreve to improve the machinery, therefore improving the finished product, and thus standardising the quality of the gunpowder used by the British forces.

A large number of documents survive from the letter books of the years 1787-9, which indicate both the vast number of repairs undertaken at the mills, and the extent to which Congreve supervised the running of the establishment. Orders relative to the Royal Powder Mills at Waltham Abbey were set out by Congreve on everything from the shape of iron nails and troughs, to dusting reels lined with canvas.<sup>3</sup> On 19 December 1787 Major Congreve sent a letter to the Acting Storekeeper, James Wright, requesting a list of implements needed at the Mills:

..as soon as you have made out the list of  
Utensils and Stores which are necessary to carry on  
the works at Waltham Abbey Powder Mill you are to  
bring that list to me at Charlton, as I have some direc-  
tions to communicate to you thereon.<sup>4</sup>

Major Congreve certainly commanded a great deal of respect at the Waltham Mills, and his authority is exemplified in the fact that *all* changes and repairs could not go ahead without his approval. Indeed, most of the proposed improvements were the results of Congreve's own ideas: he frequently inspected the Mills, and, when this proved impossible, requested that a list be sent to Woolwich updating him on the condition of the buildings. On 12 December 1787 Henry Forman, secretary to Major Congreve at the

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<sup>2</sup> *Copy of letter from Board of Ordnance to John Walton, 12 October, 1787*

<sup>3</sup> *Waltham Mills - letters received 1787-9, PRO/SUPP/5/188/12*

<sup>4</sup> *op. cit.*, PRO/SUPP/5/188/19

Royal Laboratory, wrote to James Wright asking for an inventory of tools and repairs needed:

I am directed by the Major to write to you to desire you will...go through the different Mills etc. and should any articles appear to you to be necessary for the more effectually carrying on of His Majesty's Service, you will be so good as to point them out, and should any have been demanded, which may appear to you to be superfluous, you will also mark against them in Red Ink and transmit the same to Major Congreve as soon as possible.<sup>5</sup>

Congreve also directed the completion of repairs at the Mills, and carried out his duties with such enthusiasm that any restoration work undertaken was finished with great speed. On 13 December, just three weeks after the government took possession of the establishment, Congreve wrote to the 'Respective Officers' at Waltham, requesting 'a particular Account of the repairs which have been done, and what further repairs are now carrying on at the Powder Mills.'<sup>6</sup> On 18 December, another letter arrived at Waltham, again from Congreve, and again enquiring after the progress of repairs:

Major Congreve desires you will inform him how long it will be before the new press is put up in the Corning House and whether the Canvas Reel for Glazing and dusting Powder is nearly completed.<sup>7</sup>

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<sup>5</sup> *Waltham Mills - letters received 1787-9*, PRO/SUPP/5/188/14

<sup>6</sup> *op.cit.*, PRO/SUPP/5/188/16

<sup>7</sup> *op. cit.*, PRO/SUPP/5/188/18

The exact scale of refurbishment carried out at the Mills is not known, but can be measured to some extent by the fact that the production of gunpowder did not resume until February 1789. No official description of the works before 1787 is known to exist, making the process of estimating the amount of repairs difficult, but Frederick Drayson's *Treatise* of 1830 begins with a brief account of the government's purchase of the Mills, and describes the establishment at the time as having:

..one salt-petre refinery, one horse composition mill, one mixing house, seven gunpowder mills, one corning house worked by horses, a dusting house and two gloom stoves.<sup>8</sup>

By 1789, when the production of gunpowder recommenced under the supervision of Congreve, there were ten operating gunpowder mills, a sulphur and saltpetre refinery, horse mills for the processing of sulphur, saltpetre and charcoal, a horse corning mill, and a charcoal pit.<sup>9</sup> Therefore the building of at least three new gunpowder mills appears to have taken place shortly after the government purchased the site.

Congreve's efficiency led him to encourage communication between the workers of both sets of Royal Mills, at Faversham and Waltham Abbey. In his letter of 13 December, Congreve indicated that a certain number of men had been trained at Faversham, in preparation for working at the Waltham Mills:

A number of Labourers are now learning to make Powder at Faversham who, when Waltham Abbey Mills are set to work, will be brought up from Faversham.<sup>10</sup>

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<sup>8</sup> F.Drayson, *Treatise*, PRO/SUPP/5/762 Drawings M.P.II.15

<sup>9</sup> Simmons, *A Short History*, (London, 1962), p.28

<sup>10</sup> *Waltham Abbey - letters received 1787-9*, PRO/SUPP/5/188/16

This was undoubtedly an attempt to pool the knowledge and experience of the two establishments, and perhaps form a bond of camaraderie between both groups of workers. Indeed, a lifelong friendship developed between James Wright, the Storekeeper of the Waltham Mills, and his counterpart at Faversham, Bartholomew Bennett.

William Congreve was also adept at hiring the most capable men to carry out the work at the Waltham Abbey Powder Mills, and recognised the need for fit and qualified men in the gunpowder industry. On 19 December, 1787, he wrote to James Wright, directing him to dismiss the least competent workers:

If you find in the course of your works,  
that you cannot employ all the Labourers you have,  
you will please to give the supernumerary ones  
the Week's warning agreed upon - you will please  
to discharge those men first who seem to be the  
least fit for the Powder Making Business. The  
Powder Makers you must retain at all events, and  
employ them in the best manner you can, but if any  
of them appears as if they would through age,  
be unfit for work, you must give such men a  
Month's warning, and then discharge them  
also.<sup>11</sup>

Congreve's desire to have only the most efficient men employed at the Waltham works is exemplified in his letter of the 13 December, in which he mentions that the workers were to be inspected:

Major Congreve...will come over to  
the Mills agreeable to His Grace the Master  
General's orders and select such Labourers and

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<sup>11</sup> *Waltham Abbey - letters received*, PRO/SUPP/5/188/19

Powder Makers from the set now employed at Waltham Abbey as he thinks will be fit for carrying on His Majesty's Service thereat.<sup>12</sup>

The Major concerned himself with every aspect of the day-to-day running of the Mills, and proved to be a very able and devoted individual. When the government first purchased the Waltham establishment, Congreve was careful to establish the exact sources of income of the mills which would benefit the Ordnance, evidence of which is found in a letter addressed to James Wright:

You will be so good to ascertain to the Major as soon as possible what advantages will arise to the Ordnance of quit Rents, Tenths or Tythings or any other profit which may accrue by the Ordnance being in possession of these Powder Mills and Grounds.<sup>13</sup>

Major Congreve certainly appears to have played a large part in the renovation - and subsequent success - of the Mills at Waltham. In his petition to William Pitt, written in 1796, Congreve quotes the large savings made from the efficient running of the Waltham Mills, thus proving the statement he made sixteen years previously, when called before the Privy Council, that 'Government could well afford to manufacture their own Powder.'<sup>14</sup> The profits arising from the Mills show beyond doubt that the establishment, under the supervision of Congreve, was a great success:

The Mills which I recommended the purchase

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<sup>12</sup> *Waltham Abbey - letters received.*, PRO/SUPP/5/188/16

<sup>13</sup> *Waltham Abbey - letters received*, 2 December 1787, PRO/SUPP/5/188/21

<sup>14</sup> *William Congreve's petition to William Pitt*, 1796, p.4



of, have paid off in nine years a debt of £23,000,  
so that every year now produces a very great Clear  
Saving.<sup>15</sup>

The 'nationalisation' of the gunpowder industry was not part of a planned strategy, but on a certain level this is what happened to the manufacture of gunpowder. Faversham, and especially Waltham Abbey, proved to be extremely profitable to the government, who no longer had to rely on private mills for powder. The private contractors do not appear to have suffered any major damages as a result of the government's acquisition of the Waltham Mills. However, it would appear that the transaction discredited the private manufacturers to such an extent that they were willing to supply better powder - at a smaller cost - in order to stay in business:

In Waltham Abbey, 11,000 Barrels are annually made; consequently Government now make for themselves about 20,000 Barrels a year, by which means they have been enabled to keep the Contractors in Order and make them supply better Powder, a truth which I am sure has not escaped so vigilant a minister as Mr. Pitt.<sup>16</sup>

Therefore the government were not only making a great saving - and indeed making a profit from the Mills - but were receiving better powder from the private contractors in the process. Congreve also referred to the quality of the powder being produced at the Waltham Mills as being 'one third stronger than it formerly was, so that 200 Barrels will go as far as 300 used to go, and hence again arises a very great Saving.'<sup>17</sup>

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<sup>15</sup> *William Congreve's petition to William Pitt, 1796, p.4*

<sup>16</sup> *ibid*

<sup>17</sup> *ibid*

Further evidence of the duplicity of the private manufacturers can be found in the management of saltpetre. The ingredients of gunpowder are charcoal, saltpetre and sulphur; the saltpetre, or potassium nitrate, being used to supply oxygen and therefore constituting a very important element. Before William Congreve was appointed deputy controller of the Royal Laboratory in 1783, any powder damaged during production was sold to the merchants, in order that they might extract the saltpetre and sell the remaining powder. Congreve followed the actions of the merchants closely, and reported his doubts to the Privy Council on several occasions, stating that their 'selling of the damaged powder was a great injury to the country,'<sup>18</sup> and insisting that were government to extract the saltpetre, a great saving would be made. Congreve succeeded in preventing any further sale of damaged powder to the merchants, and invented a press which extracted 'upwards of 6 lbs of saltpetre per Barrel more than the Merchants paid for,' an achievement which saved the government an enormous amount of money, and a great deal of saltpetre. Congreve believed this was not the only advantage to be made, as the honour and standing of Britain had also been saved:

There was a strong reason to suspect that many of the Merchants never extracted this Powder at all, but merely dressed it up and sent it to the foreign Market, by which means they obtained 4s. 6d. a Barrel drawback improperly, and by sending a bad Article to market, injured the Credit of this Country.<sup>19</sup>

William Congreve recommended the government purchase the mills at Waltham Abbey, and advised against the selling of the Faversham Mills. He then proceeded to manage both establishments with an enthusiasm and zeal which ensured the production of high-standard gunpowder. Because the government had been, to a certain extent, cheated

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<sup>18</sup> *William Congreve's petition to William Pitt, 1796, p.5*

<sup>19</sup> *ibid*

and overcharged by the private manufacturers, they could afford to demand lower prices; the private contractors, now beholden to the Government, did not want to be frozen out of the market, thus the gunpowder received from them was of a higher quality. Therefore Congreve's claim that he had 'made Improvements in Gun Powder...and great Savings to Government in that Manufacture' would seem to be supported by the great wealth of evidence which places Major Congreve at the hub of all developments in the gunpowder industry during the 1780s. However, the Major could not work alone. The approval of his superior, the Duke of Richmond, was needed to ensure Congreve's ideas would eventually be realised.

## The Duke of Richmond

The Duke of Richmond is undoubtedly a key player in this drama, if only to reinforce the importance of William Congreve's recommendations. Richmond was appointed Master General of the Ordnance, with a seat in cabinet, on 30 March 1782, and on 19 April of the same year was elected and invested a Knight of the Garter. A somewhat controversial character, Richmond resigned his office on 3 April 1783, after refusing to join the coalition ministry, only to resume it again in December, on Pitt's accession to power.<sup>1</sup> His strength during the struggle against the opposition in 1784 was said to have prevented Pitt resigning in despair, and it was reported that George III remarked on this occasion 'there was no man in his dominions by whom he had been so much offended, and no man to whom he was so much indebted, as the Duke of Richmond.'<sup>2</sup> Although developing into a zealous courtier, Richmond became extremely unpopular, and was frequently attacked by the opposition, who irately compared his domestic frugality with the lavish use of public money at the Ordnance office. Although undoubtedly a competent minister, Richmond's impulsive temperament repeatedly placed him in delicate situations, as in 1787, when an acrimonious discussion with the Marquis of Lansdowne over commerce with France put an end to their friendship, and very nearly ended in a duel.<sup>3</sup>

As Master General of the Ordnance, Richmond's job was not an easy one. He was frequently criticised for his failure to anticipate potential threats to the kingdom, and organise appropriate defensive measures. In *The Times* newspaper, dated 15 April 1786, the Duke was castigated for neglecting to fulfil his duties efficiently; misusing public money; and effectively trying to further his position at the cost of Britain's safety:

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<sup>1</sup> *Dictionary of National Biography*, p.925

<sup>2</sup> *Memorials and Correspondence of C.J. Fox*, 1853, i. 455

<sup>3</sup> *Dictionary*, p.925

In the fortification scheme, the noble Duke at the head of the Ordnance...found employment in the anticipation of possible, instead of lightening the burthen of real evils...So long as..Great Britain may be surprised by a foreign invasion...so long will the present Master General of the Ordnance find employment for the public revenue in *his own line*, and seek to raise the post he fills into the first office of the State.<sup>4</sup>

As William Congreve's governor, Richmond stood to gain a great deal from his deputy's astute observations. According to the author of the biographical notes on William Congreve, written in the late eighteenth century, it was Richmond who appointed Congreve Deputy Controller of the Royal Laboratory in 1783.<sup>5</sup> The Duke clearly recognised the strength of Congreve's abilities. Although undoubtedly capable, Richmond's tempestuous, bold manner often lead to accusations of impertinence, and he came to rely a great deal on the calm, sharp mind of Congreve. With the purchase of the Waltham Mills in 1787 came the praise the Duke had sought for many years, ostensibly the result of his own careful planning. On 31 October 1787, some nine days after the mills were acquired, *The Times* wrote:

The active mind of the Duke of Richmond, which has been treated with so much ridicule by Opposition wit, is now found to produce the most serious advantage to his country. The Ordnance department never underwent such practical exertion as the last few weeks have produced, from

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<sup>4</sup> *The Times*, 15 April 1786, p.2

<sup>5</sup> *Biographical Notes on Sir William Congreve*, p.3

the indefatigable spirit of this able Minister.<sup>6</sup>

Fine praise indeed, but it was the competence and judgment of Congreve which led to the government's acquisition of the powder mills: thus it follows that Richmond owed a considerable amount of his new found popularity to his enthusiastic deputy.

The Duke of Richmond never forgot the proficiency with which his 'right hand man' dealt with problems of defence and matters of ordnance. In 1797, Richmond sent Congreve a letter, lending him full support in all affairs:

If applied to I should certainly certify  
my full support, and if you think the production of this  
Letter can be of any use in forwarding your constant and  
zealous exertions for the good of the Service, you have  
my full consent for that purpose.<sup>7</sup>

The Duke clearly valued William Congreve as an indispensable assistant, and it would be fair to suggest that the actions of the Deputy Comptroller of the Royal Laboratory not only benefited the entire country, but also, on a smaller scale, improved the reputation and standing of the Duke of Richmond. If the Duke recognised the kudos and recognition he would receive after the purchase of the Waltham Abbey Powder Mills, the permission Congreve sought from him regarding the transaction may have been granted without any reluctance.

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<sup>6</sup> *The Times*, 31 October, 1787, p.2

<sup>7</sup> *Letter from Duke of Richmond*, 1797 SRO/D1057/M/F/45/1

## After 1787

It would of course be impossible to discover the exact impact William Congreve's actions had on the performance of the British forces after 1787. From 1793 the British fought in the Revolutionary and Napoleonic Wars against France, and their achievements in these campaigns could have been the result of intelligence, bravery or strategy, as opposed to simply the outcome of using high quality gunpowder. But a glance at the tests carried out at the Waltham Mills, and the number of barrels produced therein, could indicate the quality of the gunpowder supplied to the British during the French Wars.

Experiments were made during the 1790s both to improve the standard of the powder produced at the Waltham Mills, and, once improvements had been made, to maintain the quality. This uniformity was imperative as one batch of powder used in service should provide a shell or bullet with the same range as the next: a great emphasis was placed on the importance of using pure ingredients in order to produce a stable powder. William Congreve demonstrated the improvements made in the powder in trials carried out on Marlborough Downs, where 10-inch shells were fired by 9 lb lots of gunpowder from different makers, including six private merchants. The powder produced at the Royal Gunpowder Factory had the greatest range of 4,430 yards, exceeding its closest rival, a private manufacturer, by 160 yards, and most of the others by 500 yards.<sup>1</sup>

During the years of the Napoleonic Wars production of powder increased rapidly at the Waltham Mills. By 1809, 20,000 barrels were produced; by 1811 the number was 21,000 and by 1813 it had risen to 22,000. This rate was increased at the beginning of 1814, but after Wellington's victory attempts to reduce the output were made and only 10,000 barrels were produced. However, after Napoleon's escape from Elba in 1815

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<sup>1</sup> M. McLaren, *The Explosives Research and Development Establishment - Historical Background* (1975), p. 179

nearly 16,000 were made that year. In 1816, after the Battle of Waterloo, only 4,000 barrels were made, and less than 1,000 were produced in 1819 and the following years.<sup>2</sup>

The evidence shows a prospering establishment, producing high quality gunpowder to supply to the British troops, increasing production in times of war. The standard of the powder being made at the Waltham Mills, and the number of barrels supplied, suggest the British forces, and consequently the entire country, benefited from the actions of Major Congreve during the 1780s.

William Congreve died in April 1814, at the age of 71. So passed into history a militarist who applied technical and scientific ability to improve not only the equipment for field artillery, but the high quality of gunpowder supplied to the British troops. Congreve undoubtedly saved the government thousands of pounds through his actions as Deputy Comptroller of the Royal Laboratory, yet his epitaph indicates at what personal cost:

In the discharge of his Civil Offices...he  
had the happiness of saving his country more  
than One Million Sterling, yet died unenriched  
himself.<sup>3</sup>

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<sup>2</sup> McLaren, *Explosives Research*, (1975), p. 179

<sup>3</sup> *Epitaph of William Congreve*



## Conclusion

The purpose of this thesis has been to chart the reasons behind the government's purchase of the Waltham Mills in 1787, and show the importance of William Congreve as the driving force behind the whole transaction. Without the intervention of Congreve, the Faversham Mills may well have been sold, and it is doubtful whether those at Waltham would have been purchased by government. Because of these factors, it is difficult to accept the nationalisation theory. Also, if the state intended to nationalise the gunpowder industry, the purchasing of suitable mills would certainly have taken place over a shorter span of time: the fact that Faversham, Waltham and Ballingcollig were bought by the government over a period of almost fifty years makes this argument a little hard to accept. It was only through the astute observations of Major Congreve that the gunpowder industry was developed and improved.

After uncovering the deception of the private contractors, William Congreve recommended the purchase of Waltham Mills, but it is necessary to explore the reasons why he did this. It is perhaps obvious that the duplicity of the private merchants led to this proposal, but why choose Waltham? The answer is to be found in the position of the establishment, and the reputation the mills held in the 1730s. Although by 1787 the mills were in need of some renovation, the works of individuals such as John Farmer, who had praised the Waltham Mills in 1735, would undoubtedly have been read and noted by Congreve, as a marker of the site's great potential. However, the main reason why the establishment would have been appropriate was its location. Situated on the banks of the River Lea, the mills were protected and secluded. The river provided not only the water power needed for the smooth running of the factory, but also a convenient medium for the transportation of powder from Waltham to Purfleet, linking into the River Thames at Canning Town. This advantageous position greatly recommended the mills as the perfect site to

purchase, being in close proximity to the River Lea; to London; and yet remaining secluded.

The duplicity of the private merchants led to the government's acquisition of the Waltham Powder Mills, a transaction engineered by Congreve. William Pitt had recommended the sale of the Faversham Mills by the time Congreve was appointed Deputy Comptroller in 1783, a result of assurances received from the private manufacturers that their gunpowder was the cheapest the government could find. The Major, suspicious of these claims, investigated the actions of the private contractors, and discovered they had been selling poor quality powder to the government at extortionate prices, thus making a very large profit. He also uncovered proof that the private manufacturers had been selling damaged powder abroad, without extracting the saltpetre. Thus the Major advised the government to keep the Faversham establishment, purchase the site at Waltham, and find a way to extract the saltpetre without the help of private contractors. Not only did William Congreve expose the treachery of the private manufacturers, *and* secure the procurement of Waltham Mills, he also invented a press in order that the process of saltpetre extraction might be completed more efficiently, and presided over the day-to-day running of both the Faversham and Waltham establishments, with an energy and zeal that ensured prosperity.

Of course William Congreve could not work alone: the approval of the Master General of the Ordnance, the Duke of Richmond, was needed to develop and realise the majority of Congreve's ideas. It was the Duke who appointed Congreve Deputy Comptroller in 1783, therefore he must have recognised the ability and potential of the man. Richmond also needed a deputy who could be relied upon to oversee the working of the Royal Laboratory while he was at Parliament, which Congreve did with great enthusiasm. Therefore when William Congreve sought the Duke's approval regarding the purchase of the Waltham Mills, his superior could hardly have doubted Congreve's allegations against the private merchants. Also, Richmond stood to gain a great deal from a scrap of good publicity, which would surely be the outcome of a successful improvement of the gunpowder industry. The vehemence with which the Duke had been attacked in the press for not fulfilling his duties must have aggravated the Master General to such an extent, that the chance to silence the critics, and to gain recognition, must have seemed like a welcome

opportunity. Therefore when Major Congreve sought to push through the purchase of the Waltham site, the Duke did not stand in his way.

The vast number of barrels which were produced during the French wars, and the tests carried out by William Congreve which showed the high quality of gunpowder, place the Royal Powder Mills in Waltham at the centre of late eighteenth century British defence. Major Congreve saved Britain thousands of pounds through his dedication to improve the standard of gunpowder, thus strengthening the British troops.

The government's acquisition of the Waltham Powder Mills in October 1787 may not appear to have been a revolutionary event: certainly the transaction passed almost unnoticed at the time. But it is worth considering how different the fortunes of the British soldiers in the French Wars would have been, had William Congreve decided against recommending the purchase of those mills in a simple Essex town.

## Source Abbreviations

PRO	Public Record Office
SRO	Staffordshire Record Office
SUPP	Supply - Ordnance Records
ADM	Admiralty Records

## Bibliography

West. J.  
RCHME

### PUBLISHED SOURCES:

I. R. Christie, *Wars and Revolutions - Britain 1760-1815*, (London, Edward Arnold, 1982)

K. N. Bascombe, *Waltham Abbey*, (Gloucs., Alan Sutton, 1995)

Dr. Thomas Fuller, *The History of the Worthies of England*, (London, 1662)

W. H. Simmons, *A Short History of the Royal Gunpowder Industry at Waltham Abbey*, (Northumberland House, London, 1962)

J. Farmer, *The History of Waltham Abbey*, (London, 1735)

P. Muilman, *New and Complete History of Essex*, (London, 1770)

G. Crocker, *The Gunpowder Industry*, (Buckinghamshire, Shire Publications, 1986)

C.J. Fox, *Memorials and Correspondence*, (London, 1853)

### *Dictionary of National Biography*

M. McLaren, *The Explosives Research and Development Establishment - Historical Background*, (1975)

I. C. Christie, *Myth and Reality in Late-Eighteenth-Century British Politics and Other Papers*, (London, Macmillan, 1970)

### UNPUBLISHED SOURCES:

*Minutes of the Surveyor General, 1787* PRO/WO/47/110

*Naval Board Minutes, 1779* ADM/3/87

*William Congreve's petition to William Pitt, 1796, from Congreve letters*,  
SRO/D1057/M/F/63/1-7

*Biographical notes on Sir William Congreve, late Eighteenth century,*  
SRO/D1057/M/F/64

*Copy of Letter from Board of Ordnance to John Walton, House of Lords Records*

*Waltham Mills - letters received 1787-9, PRO/SUPP/5/188*

*The Times Newspaper, 1786-7*

*Letter from the Duke of Richmond, SRO/D1057/M/F/45/1*

*Epitaph of William Congreve in St. Luke's Church, Charlton*