

Salt peter: The Mother of Gunpowder

Review Number: 1481

Publish date: Thursday, 12 September, 2013

Author: David Cressy

ISBN: 9780199695751

Date of Publication: 2013

Price: £16.99

Pages: 256pp.

Publisher: Oxford University Press

Publisher url: <http://global.oup.com/academic/product/salt-peter-9780199695751;jsessionid=EBF294F4C90425AD88780B31E080EE40?cc=gb&lang=en&>

Place of Publication: Oxford

Reviewer: Dan Spencer

The quest for saltpeter, the 'inestimable treasure' of Tudor and Stuart monarchs, crucial for the production of gunpowder, is the subject of David Cressy's work, which spans the reign of the first Tudor, Henry VII, to the industrialised warfare of the 20th century. Cressy boldly sets out the importance of his topic, describing it as a special commodity, vital for the national security of the nation, which pitted the needs of the state against the rights of the individual. These are issues which are pertinent to the modern era, as revealed by the recent leaks of the NSA whistle blower Edward Snowden.

As Cressy acknowledges, the chronological scope of the book is a departure from his previous research. His publications have encompassed a wide variety of topics pertaining to the period between the mid 16th and mid 17th centuries, including unusual cultural practices, ritual, and the collapse of the government of Charles I. Underlying themes of his publications are their focus on bringing the stories of obscure individuals to life, and their interest in 'relationships between the governors and governed'.⁽¹⁾ This is apparent in the core of the book (chapters three to six) where the clash between the saltpetermen and local communities is brought vividly to life.

The express purpose of this book is to address the gap in the historiographical literature. Cressy quotes the assessment of Kelly DeVries that 'no comprehensive study of late medieval and early modern saltpetre production has been written'.⁽²⁾ He begins by identifying the five main strands of previous research and describes their limitations. The first consists of specialist studies of the technology of gunpowder manufacture. The second comprises historians of science, whose focus is limited to celebrity scientists. The third is made up of military historians, who despite the importance of gunpowder to the 'military revolution' debate, 'take the logistics of firepower for granted' (p. 4). The fourth comprises the study of the traffic of the East India Company from the 17th to 19th centuries, but which is divorced from its wider context. The fifth strand consists of social, legal, and political historians, who have only examined saltpeter superficially.

It is important to note that Cressy builds on and contributes to research such as by Brenda J. Buchanan, Jenny West, and Bert S. Hall.⁽³⁾ His main contribution is to draw upon these disparate strands to write a book which traces the story of the provision and consumption of saltpeter over the course of five hundred

years. His extensive archival research and interest in integrating the science and technology of saltpeter, and its social, military and administrative history, means that in the space of a relatively short book (237 pages including bibliography), he is able to make a significant contribution to the field.

The book can be divided into three principal parts. The first chapter looks at the science and technology of saltpeter over the course of the period. Chapters two to six trace the attempts by successive English monarchs to reduce their reliance on imported saltpeter, by developing a domestic industry. In the final two chapters, the focus shifts to the British Empire, America and France, and how these powers accommodated their need for saltpeter.

The first chapter, 'Mysterious saltpeter', begins by describing the practical qualities of gunpowder. Whereas charcoal and sulphur were plentiful and cheap, saltpeter had to be imported at great expense from the continent. Though saltpeter had been utilised for weapons since the 14th century, its nature and properties were a mystery which were investigated by successive generations of alchemists, natural philosophers and military technicians. Francis Bacon sought to dispel speculation about the 'spirit' of saltpeter, yet identified it as the energising 'spirit of the earth'. Knowledge of the properties of saltpeter came to England via translations and plagiarisms of continental works, notably from Vannoccio Biringuccio's work 'De la pirotechnia'. Peter Whitehorne drew on this treatise to establish the procedures for the making of saltpeter that would be used for centuries to come. However despite this transfusion of knowledge from the continent, most English saltpetermen, in the words of the Bohemian, Joachim Gaunz, continued to 'work blindly and without knowledge' (p. 65).

In the second chapter, 'The Gunpowder Kingship of Henry VIII', the increasing use of guns in early Tudor England led to a corresponding growth in the gunpowder requirements of the state. The limited scale of production of saltpeter in England, meant that the demands of expeditionary armies, forts, and a rapidly expanding navy, were met through imports from the continent. The first tentative steps to reduce this dependency on imports, through the establishment of a domestic saltpeter enterprise, were set in motion in 1515, by the granting of a commission to the German, Hans Wolf, to gather saltpeter in England wherever it was to be found. However by the time of the accession of Queen Elizabeth I, in 1558, as much as 90 per cent of England's saltpeter was still imported from abroad.

The third chapter, 'The Elizabethan Quest for Infinite Security', details a renewed effort to reduce this reliance on the continent. The new regime felt particularly vulnerable to threats from a religiously divided Europe and feared disruptions to the supply of saltpeter. New markets were sought in North Africa and Russia, and elaborate schemes for a centralised production method based on continental practices were proposed. Ultimately, however, the Privy Council settled on a new procurement system to meet the country's extensive saltpeter needs. Saltpetermen were granted commissions to extract saltpeter wherever it could be found, principally from stables, dovecotes and cellars. The complaints of aggrieved subjects were set aside, and by the end of the reign the new system furnished up to half the kingdom's annual needs. However the extraction of saltpeter came at a significant social cost which was to plague the successors of Queen Elizabeth.

In chapter four, 'Saltpeter for a Peaceable Kingdom', the new government of James I had no need for its extensive stocks of gunpowder, which it began to dispose of. This reduced need for saltpeter brought into focus the corruption and abuses of the saltpetermen. The saltpetermen were forced onto the defensive in 1606, when the legality of their activities was challenged, and they were forced to make concessions. However the outbreak of the Thirty Years War (1618–48) led to a renewed drive for saltpeter extraction and the unpopularity this entailed. The fifth chapter, 'The inestimable treasure of Charles I', documents the increased tensions of the reign of Charles I which ultimately led to Civil War. Examples of complaints by aggrieved subjects include that of Christopher Wren, father of the architect Christopher Wren, whose pigeon house was badly damaged by the activities of the Wiltshire saltpeterman, Thomas Thornhill, in 1637. As an officer of the Order of the Garter, Wren was able to seek redress by taking his suit directly to the king, but few people had his political connections. Moreover, the Crown almost invariably took the side of the

saltpetermen, who blamed landowners for their own shortcomings, and who claimed that modern farming practices, which impeded their work, were acts of sedition. Despite the unpopularity caused by the activities of the saltpetermen, saltpeter production still fell significantly short of requirements, and only imports could keep the royal powder mills at full capacity.

In chapter six, 'Saltpeter revolution', the royal saltpeter enterprise unravelled as the country slid towards war. Though MPs in the Long Parliament were divided along ideological lines, the grievances presented in parliament's Grand Remonstrance, as to the 'vexation and oppression' of the saltpetermen, addressed widespread complaints. The outbreak of civil war in 1642 led to a scramble for saltpeter and other military supplies. Parliament had an immediate advantage due to its control of the gunpowder mills in London, Portsmouth and Hull, but the needs of war soon led to the resumption of a programme of saltpeter extraction. The Royalists, by contrast, were in a much weaker position, as their saltpeter producers were only able to meet a fraction of their needs, and only imports kept the royalist war effort afloat. However this disadvantage in saltpeter supply is likely to have played a role in the Royalist defeat. The victorious Interregnum government, despite proposals for centralised saltpeter plants, ultimately depended upon the old system of procurement and imports from abroad. However, a significant change had occurred by the time of the Restoration in 1660. Imports of saltpeter from India by the East India Company, which had begun in small quantities in the reign of James I, rose significantly by the reign of Charles II. This resolved the problem of saltpeter 'vexation and oppression', and provided England with the means to carry out imperial expansion.

Chapter seven, 'Saltpeter for a global power', sees a change of focus from the activities of the saltpetermen to that of the East India Company. Whereas Charles I in the 1630s was struggling to achieve a target of 288 tons of saltpeter a year, imports from India topped 1,000 tons during various years of the reign of Charles II. The volume of supplies available to later Stuart monarchs surpassed that from all previous conflicts. The 18th century saw further increases in the scale of British warfare, as can be seen with gunpowder consumption, which increased from 647 tons each year in the Seven Years War (1756–63), to over 1,600 tons by the American Revolutionary War (1775–83). The British conquest of Bengal, following the victory at Plassey in 1757, meant that she was able to secure 70 per cent of the world's saltpeter production. The French attributed their defeat in the Seven Years War to shortages of saltpeter. The saltpeter needs of the British Empire grew in proportion to the growth of her power in the 19th century. This reliance was only ended by developments in propulsives and explosives at the end of the century.

The final chapter, 'The New World and the Ancien Régime', shifts to the activities of the United States and Ancien Régime France. On the outbreak of war with the British Empire, in 1775, the Continental Congress faced a desperate shortage of saltpeter. Attempts to create a domestic saltpeter enterprise only fulfilled a fraction of the needs of the Thirteen Colonies. Fortunately, however, the French were able to supply the colonists with all the necessary gunpowder. This rendered a domestic industry surplus to requirements, and by the end of the 19th century American imports of saltpeter from India surpassed that of Britain. The second part of this chapter briefly describes the development of saltpeter production in France. Early modern France had a centralised saltpeter enterprise, which was supplemented by imports from overseas. Following their exclusion from India, after the Battle of Plassey in 1757, the French were forced to reorganise their domestic system of production. Under the able guidance of Antoine Laurent de Lavoisier, France's foremost chemist, saltpeter production rose from 832 tons in 1775 to 1,273 tons in 1784. This later met the needs of Revolutionary France in combating the British Empire.

This is a very well structured and organised book. In the introduction, Cressy concisely and persuasively sets out the case for his topic of research, before providing a useful summary of each of the chapters. Each chapter begins with an extract to set the scene, and ends with a precise summary. This means the book is easy to follow and different sections can be dipped into without the reader feeling lost. It is also well illustrated. The 20 figures depict scenes from the 16th to the 18th centuries. Particularly useful are the images of saltpeter production, which provide a visual aid to complement the textual descriptions. His section on, 'A note on measurement and spelling', though brief, is in itself worth consulting, for the

information that a hundredweight barrel of sulphur weighed 112 pounds, whilst its saltpeter equivalent weighed 100 pounds. The two diagrams in the appendix also give some indication as to how the saltpeter system worked.

Cressy has clearly carried out extensive archival research. This can be seen from his biography which lists 17 archives and libraries he has consulted. The breadth of research means that he is able to enrich his account with numerous examples. In the first chapter this takes the form of a discussion of key works, ranging from *The Arte of Shooting in Great Ordnance* by the Elizabethan gunner, William Bourne, to the *History of the Making of Salt-Peter* by the philosopher, Thomas Henshaw, in the 17th century. The strength of this approach can best be seen by the clash between the saltpetermen, acting as agents of the Crown, and local communities, in chapters three to six. These examples are fascinating and provide interesting illustrations of the period, particularly when combined with a discussion of the political context. This can be seen with the Oxfordshire saltpetermen, Nicholas Stephens, who in his desperate attempts to meet his quota, outrageously allowed his workers to dig up churches. This, in part, formed the context to Parliament's attempt to pass the Petition of Right in 1628, which was to affirm the rights of the subject against the encroachment of the royal prerogative. Cressy is thus able to incorporate the story of saltpeter within the broader social and political history of the period. This approach is less successful in the last two chapters of the book, particularly chapter seven, where there is a considerable emphasis on statistics.

Cressy has also identified further research questions. These include weighing the needs of national security against the rights of the individual, the relationship between science and warfare, and the intellectual consequences of government arms programmes. Furthermore his work opens up additional avenues of research. What distinguished England from the continent in attitudes and practices towards the production of saltpeter? Whereas in Germany the management of nitre beds began in the late 14th century, as revealed by *Das Feuerwerkbuch* (Firework Book), these practices were never adopted in England. Did perceived shortages of saltpeter influence the strategic military aims of early modern rulers? For instance, were the governments of Elizabeth I and James I deterred from intervening in continental wars in part due to England's tenuous supply of saltpeter?

Despite the importance of Cressy's work, I do have some minor criticisms, principally that the chapters and focus are uneven. The chapters of the book, with the exception of the first one, have a chronological sequence. This works well from chapters two to six, where the story of the crown's attempts to procure saltpeter in England is largely told through the activities of the saltpetermen in the local communities. Chapter seven, by contrast, covers a substantial period of time (1660–1941) and relies heavily on statistics. This shift is largely due to Cressy's use of different sources for this chapter, but it is much more impersonal and gives the chapter the feel of an epilogue. Chapter eight does provide some contrast to the history of saltpeter in Britain, however it is not entirely clear why the activities of the United States and Ancien Régime France are examined, and the seven pages allocated for the latter seem inadequate. This is particularly the case as the contents of the previous seven chapters are aimed solely at the history of saltpeter in England. The book appears to be based on an adaptation of Cressy's article, 'Saltpetre, State Security and Vexation in Early Modern England', and I feel that it could and should have been expanded in length to be more comprehensive, including covering the use of saltpeter in the English Civil Wars.⁽⁴⁾ In light of his comments that military historians 'take the logistics of firepower for granted' it is a shame that the usage of saltpeter in warfare is only given a brief treatment, and this means that the ambitious aims of his book are not fully realised.

However Cressy has made a significant contribution to the existing literature. He has demonstrated the central importance of this commodity to successive English and British monarchs, and the lengths to which they would go to obtain it; often at great social cost. He has also succeeded in linking the history of saltpeter with military, scientific, political and social events. This can be seen notably in chapter five, where the social unrest caused by the activities of the saltpetermen is identified as being a contributory factor in the growth of opposition to the government of Charles I. It is thus an important topic of investigation for those researching the cause of the English Civil Wars. Therefore Cressy has produced a book which is essential reading for

historians of the early modern period.

Notes

1. David Cressy, *England on Edge: Crisis and Revolution 1640-1642* (Oxford, 2006) p. xi.[Back to \(1\)](#)
2. Kelly DeVries, 'Sites of military science and technology', in *The Cambridge History of Science*, ed. Katherine Park and Lorraine Daston (3 vols., Cambridge, 2006), p. 311.[Back to \(2\)](#)
3. Brenda J. Buchanan, "'The Art and Mystery of Making Gunpowder': the English experience in the seventeenth and eighteenth centuries", in *The Heirs of Archimedes: Science and the Art of War through the Age of Enlightenment*, ed. Brenda J. Buchanan (London, 2005), pp. 233–74; Jenny West, *Gunpowder, Government and War in the Mid-Eighteenth Century* (Woodbridge, 1991); Bert S. Hall, *Weapons and Warfare in Renaissance Europe: Gunpowder, Technology, and Tactics* (Baltimore, MD, and London, 1997).[Back to \(3\)](#)
4. David Cressy, 'Saltpetre, state security and vexation in Early Modern England', *Past and Present*, 212 (2011), 73–111.[Back to \(4\)](#)

Other reviews:

Historical Association

http://www.history.org.uk/resources/general_resource_6431_73.html [2]

Daily Mail

<http://www.dailymail.co.uk/home/books/article-2282391/Explosive-story-big-bang-SALTPETER-THE-MOTHER-OF-GUNPOWDER-BY-DAVID-CRESSY.html> [3]

Source URL: <https://reviews.history.ac.uk/review/1481>

Links

[1] <https://reviews.history.ac.uk/item/62767>

[2] http://www.history.org.uk/resources/general_resource_6431_73.html

[3] <http://www.dailymail.co.uk/home/books/article-2282391/Explosive-story-big-bang-SALTPETER-THE-MOTHER-OF-GUNPOWDER-BY-DAVID-CRESSY.html>