

The Use of Gunpowder Weaponry by and against Joan of Arc During the Hundred Years War

This article explores the possibility of a link between Joan of Arc and the evolution of gunpowder weaponry during the Hundred Years War, a thesis for which there is some evidence. Both the Bastard of Orléans and the duc d'Alençon testified at her retrial that she was especially adept at positioning the relatively new gunpowder weaponry that the French used in their sieges. As the duc stated:

everyone marvelled at this, that she acted so wisely and clearly in waging war, as if she was a captain who had the experience of twenty or thirty years; and especially in the setting up of artillery, for in that she held herself magnificently.¹

But this evidence is rather slight, based on memory, and insufficient to carry a thesis of this magnitude.

Still, Joan lived in an age of gunpowder weaponry use, and it would be folly to think that she was unaffected by it in her military career. Indeed, as we will discover, there were gunpowder weapons in almost every conflict in which she fought. Moreover, her ability to win in these conflicts was sometimes dependent upon these weapons, either in using them in her army's offensive tactics or in defending against their use by her opponents, the English and the Burgundians. To show this I wish first to present a brief

1. In Jules Quicherat (ed.), *Procès de condamnation et de réhabilitation de Jeanne d'Arc dite La Pucelle* (Paris 1841–49), III: 100:

et de hoc mirabantur omnes quod ita caute et provide agebat in facto guerrae, ac si fuisset unus capitaneus qui facta guerrae per xx aut xxx annos exercuisset, et maxime in praeparatione de l'artillerie, quia multum bene in hoc se habebat.

See also Dunois' testimony in *ibid.*, III: 13.

history of gunpowder weapons up to Joan's time, second to present a brief synopsis of Joan's military career, and third to attempt to marry the two with a more in-depth analysis of gunpowder weapons used both by and against her during her short-lived but extremely important command in the French army.

I have divided elsewhere the evolutionary chronology of late medieval gunpowder weaponry technology into three periods; the first period took place from c.1326 to 1382, the second from 1382 to 1436, and the third from 1436 to 1494.² Joan thus comes at the end of the second phase of gunpowder weaponry development.

The first period of gunpowder weaponry evolution saw the invention of, early experimentation with, and initial proliferation of this new technology. It is difficult to determine when the first cannon was made in

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2. See the present author's *Medieval Military Technology* (Peterborough: Broadview Press, 1992), 143–63, and 'Gunpowder Weaponry and the Rise of the Early Modern State, *War in History* (forthcoming). I have based these chronological divisions on the evolutionary development and use of gunpowder weapons by the Burgundian dukes: Philip the Bold (1363–1404), John the Fearless (1404–19), Philip the Good (1419–67), and Charles the Bold (1467–77). In 1377 Philip the Bold defeated the fortress at Odruiik using gunpowder weapons, his first victory with this technology. From then until 1435, the Burgundian dukes continued to use gunpowder weaponry to secure many military victories; employing their artillery train, they also assisted the English against the French during this period. After 1435 the Burgundians abandoned the English side in the Hundred Years War, fighting frequently with their guns against several foes from then until 1477, when Charles the Bold was killed at the battle of Nancy. Among other things, the Burgundian dukes' use of gunpowder weapons inspired their cousin, Charles VII, to develop his own gunpowder train, which he and his successors used to secure their own lands and to invade others.

Clifford J. Rogers has used the date 1420 as his chronological dividing point in late medieval gunpowder. After this date, he sees significant changes in the time it takes for sieges to be successful due to gunpowder weapons, something he attributes to the corning of gunpowder. See 'The Military Revolutions of the Hundred Years War', *Journal of Military History* 57 (1993), 262–72. However, in using this date, Rogers must disregard several similarly successful sieges which took place between 1377 and 1420; gunpowder was also cornd more than a decade prior to his date. See Bert S. Hall, 'The Coming of Gunpowder and the Use of Firearms in the Renaissance', in Brenda Buchanan (ed.), *The Manufacture and Marketing of Gunpowder* (Bath: University of Bath Press, 1996).

Europe, with written evidence from the early fourteenth century scarce and often disputed. But it is certain that primitive guns had begun to appear in Europe by the time of the illuminations of gunpowder weapons found in Walter de Milemete's *De notabilibus, sapientiis et prudentiis regum* [Concerning the Majesty, Wisdom and Prudence of Kings], made in London c.1326, and in a companion volume, known as the *De secretis secretorum Aristotelis* [The Secrets of Secrets of Aristotle], also made in London in the last half of the 1320s.³

In the late 1330s and 1340s references to gunpowder weaponry multiply. Guns were included in armories in Lille, Lucca, Aachen, Rouen, Deventer, London, Dover, Queensborough, Siena, St Omer, and Bioule Castle.⁴ They appeared at the raid on Southampton and at the siege of Cambrai in 1338, at the sieges of Tournai, Quesnoy, Mortague, Saint-Amand, and Marchiennes in 1340, at the sieges of Rennes and Hennebout in

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3. Montague Rhodes James (ed.), *The Treatise of Walter de Milemete* (London: The Roxburghe Club, 1913), 140, 181. See also David C. Nicolle, *Arms and Armour of the Crusading Era, 1050–1350* (White Plains: Kraus International Publications, 1988), #976; Philippe Contamine, *War in the Middle Ages* (trans. M. Jones) (Oxford: Basil Blackwell, 1984), 139; Joseph Needham, *Science and Civilisation in China*, vol. 5, *Chemistry and Chemical Technology*, part 7, *Military Technology: The Gunpowder Epic* (Cambridge: Cambridge University Press, 1986), fig. 82, 83; R. Coltman Clephan, 'The Ordnance of the Fourteenth and Fifteenth Centuries', *Archaeological Journal* 68 (1911): 57; J.R. Partington, *A History of Greek Fire and Gunpowder* (Cambridge: W. Heffer and Sons, 1960), 98–100; and W.Y. Carman, *A History of Firearms from the Earliest Times to 1914* (London: Routledge and Kegan Paul, 1955), 17–18.
 4. See DeVries, *Medieval Military Technology*, 145. For Rouen, see also Victor Gay, *Glossaire archéologique du moyen âge et de la renaissance* (Paris: Librairie de la société bibliographique, 1887), I: 76; for Bioule, see 'Règlement pour la défense du château de Bioule, 18 mars 1347', *Bulletin archéologique* 4 (1846–47): 490–5; for Paris, see Philippe Contamine, *Guerre, état et société à la fin du moyen âge: Études sur les armées des rois de France, 1337–1494* (Paris: Mouton, 1972), 123, n. 185; for Tours, see J. Delaville le Roulx (ed.), *Registres des comptes municipaux de la ville de Tours* (Tours: Georget-Joubert, 1878), I: 55; for Harfleur, see A. Merlin-Chazelas (ed.), *Documents relatifs au clos des galées de Rouen: Collection de documents inédits sur l'histoire de France, Section de philologie et d'histoire jusqu'à 1610* (Paris: Bibliothèque nationale, 1977), I: 205; for Dover, London and Queensborough see Clephan, 'The Ordnance', 66, and T.F. Tout, 'Firearms in England in the Fourteenth Century', *English Historical Review* 26 (1911): 666–702.

1342, at the siege of Calais in 1346–47,⁵ and almost certainly, although disputed, at the battle of Crécy in 1346, where they were used on the battlefield solely 'to cause panic'.⁶

These references continue to increase throughout the century. Also, as these guns began to increase in numbers and capability, they grew in value as weapons of war. They were used at the sieges of Carcassone in 1355, of Saint-Valery in 1359, and of Bourdeilles in 1369;⁷ they were used to defend the town of Poitiers in 1369 and in the naval battle of La Rochelle in 1372.⁸ They were used on both sides at the siege of Saint-Sauveur-le-Vicomte in 1374–75 and by the duke of Brittany to defend his lands against the English after 1375.⁹ (It should also be noted that fortifications in this period first began to acquire gunports in order to defend against gunpowder bombardment.¹⁰) By the end of the period guns were even breaching fortification walls. The first of these victories came in 1377, at the siege of Odruiik, when Philip the Bold, Duke of Burgundy, used cannon which fired 91-kilogramme balls to bring down the walls of the castle.¹¹ Later, at the siege of Oudenaarde in 1382, it is recorded that the rebellious Philip van Artevelde

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5. On the attack on Southampton see Kelly DeVries, 'A 1445 Reference to Shipboard Artillery', *Technology and Culture* 31 (1990): 819–20 and L. Lacabane, 'De la poudre à canon et de son introduction en France', *Bibliothèque de l'école de chartes* 2nd ser., 1 (1844): 36–8. On the sieges of Cambrai, Tournai, Quesnoy, Mortagne, Saint-Amand and Marchiennes, see Jean Froissart, *Chroniques*, ed. S. Luce (Paris: Jules Renouard, 1878), II: 14, 64. On Rennes and Hennebout, see *ibid.*, 144. On Calais, see Tout, 'Firearms', 673–4, 688–9.
 6. On the disputed reports of cannon at Crécy see Alfred H. Burne, *The Crecy War* (London: Eyre & Spottiswoode, 1955), 192–202.
 7. On Carcassone, see Froissart, *Chroniques*, IV: 168; on St Valery, see *ibid.*, V: 356; and on Bourdeilles, see *ibid.*, VI: 338.
 8. On the defence of Poitiers see *ibid.*, VII: 160–1, and on the battle of La Rochelle see *ibid.*, 36–43.
 9. On Saint-Sauveur-le-Vicomte see C.T. Allmand, *The Hundred Years War: England and France at War, c.1300–c.1450* (Cambridge: Cambridge University Press, 1988), 79, and Edouard Perroy, *The Hundred Years War* (trans. W.B. Wells) (London: Eyre & Spottiswoode, 1959), 166. On Brittany see Michael Jones, *Ducal Brittany, 1364–1369* (Oxford: Oxford University Press, 1970), 35, n. 2, and 159–60.
 10. See Kelly DeVries, 'The Impact of Gunpowder Weaponry on Siege Warfare in the Hundred Years War', in I.A. Corfis and M. Wood (eds), *The Medieval City under Siege* (Woodbridge: The Boydell Press, 1994), 233–6.
 11. Froissart, *Chroniques*, VIII: 248–50.

'made a marvelyous great bombard shotyng stone of marvelyous weyght and when this bombard shot it made suche a noyse in the goygne as though all the dyvels of hell had been in the way'.¹²

Their battlefield success was not far off. At the battle of Bever-shoutsveld, fought outside the walls of the town of Bruges in 1382, gunpowder weapons had their first success in deciding victory on a battlefield. Here guns brought by the Ghentenaars to besiege the town were turned against the attacking Brugeois militia which had ventured outside their protective walls to fend off the Ghentenaar onslaught. As the anonymous author of the *Chronique de Flandre* describes the scene: 'The Ghentenaars moved themselves and their artillery forward. This artillery fired a blast with such furor that it seemed to bring the [Brugeois] line directly to a halt'.¹³

The second phase of gunpowder weaponry evolution began then with successes both in sieges and on the battlefield. In western Europe, all the powers involved in the Hundred Years War—principally the French, English and Burgundians—showed increased interest in acquiring, developing and producing gunpowder weapons. The financial and military support of the leaders of these powers, who clearly seemed to have grasped the far-reaching implications of the technology, surpassed any others in Europe at the time and ensured the continual, rapid technological evolution of gunpowder weaponry. Indeed, the period from 1382 to 1436 saw the greatest increase in the number of guns and in the production of different sizes and types of weapons. It was also the period in which the first hand-held guns were invented.

Gunpowder weaponry successes became more frequent. At the siege of Maastricht from 24 November 1407 to 7 January 1408, the town received 1514 large bombard balls, an average of 30 per day.¹⁴ At the siege of Ham in 1411, only three shots were fired from the bombard known as 'Griette'. The first passed over the town and fell into the Seine; the second

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12. As quoted in Carlo Cipolla, *Guns and Sails in the Early Phase of European Expansion, 1400–1700* (London: Collins, 1965), 22.
 13. As quoted in Kelly DeVries, 'Perceptions of Victory and Defeat in the Southern Low Countries during the Fourteenth Century' (PhD dissertation, University of Toronto, 1987), 339. See also Contamine, *War in the Middle Ages*, 199.
 14. See Jean de Waurin, *Recueil des croniques et anchiennes istories de la Grant Bretagne*, ed. W. and E.L.C.P. Hardy (London: Longmans, 1864–91), II: 119; Enguerran de Monstrelet, *Chronique*, ed. L. Douet-d'Arcq, Société de l'Histoire de France (Paris: Jules Renouard, 1857–62), II: 351–9.

destroyed a tower and two adjacent walls; and the third made a breach in the wall itself. Before a fourth shot could be fired, the town capitulated.¹⁵ In 1412 at the siege of Bourges, the Duke of Berry, who was defending the city, was forced to vacate his residence no fewer than seven times to avoid the persistent and accurate gunfire of the French and Burgundian cannons.¹⁶ And at Harfleur, in 1415, Henry V had to rely on his guns to bring down the walls of the town when his mines were continually countermined. Eventually he moved his guns on clumsy platforms next to the walls of the town before the siege was effective.¹⁷

On the battlefield they also continued to appear and continued to gain some success. They were used at Aljubarrota in 1385, Castagnaro in 1387, at Tongres and Othée in 1408, at Agincourt in 1415, and at Cravant in 1423.¹⁸ It had become, in the words of M.G.A. Vale, 'patently obvious that the gun could not only batter down fortifications, but could kill, and kill selectively, from afar'.¹⁹ Guns were also found on board English, Spanish, French and Italian warships.²⁰

It was into this age of increased gunpowder use and success that Joan of Arc entered. Her military career is well known and was relatively short.²¹ Born

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15. 'Le livre des trahisons de France envers la maison de Bourgogne', in *Chroniques relatives à l'histoire de la Belgique sous la domination des ducs de Bourgogne* (textes français), ed. Kervyn de Lettenhove (Brussels: F. Hayez, 1873), 96.
 16. Richard Vaughan, *John the Fearless: The Growth of Burgundian Power* (London: Longmans, 1966), 150-51.
 17. Alfred H. Burne, *The Agincourt War: A Military History of the Latter Part of the Hundred Years War from 1369 to 1453* (London: Eyre & Spottiswoode, 1956), 42-6.
 18. Contamine, *War in the Middle Ages*, 199.
 19. M.G.A. Vale, 'New Techniques and Old Ideals: The Impact of Artillery on War and Chivalry at the End of the Hundred Years War', in C.T. Allmand (ed.), *War, Literature and Politics in the Late Middle Ages: Essays in Honour of G.W. Coopland* (Liverpool: Liverpool University Press, 1975), 64.
 20. DeVries, 'A 1445 Reference to Shipboard Artillery', 820-3.
 21. On Joan's military career see Régine Pernoud, *Joan of Arc: By Herself and Her Witnesses* (trans. Edward Hyams) (New York: Dorset, 1964), 70-164; W.S. Scott, *Jeanne d'Arc* (New York: Barnes and Noble, 1974), 46-99; Burne, *Agincourt War*, 225-71; Robin Neillands, *The Hundred Years War* (London: Routledge and Kegan Paul, 1990), 252-65; Desmond Seward, *The Hundred Years War: The English in France, 1337-1453* (New York: Atheneum, 1978), 213-32; Jim Bradbury, *The*

in Domrémy, in Lorraine, on 6 January 1412, of comparatively wealthy peasant parents, Joan had a relatively normal life until the autumn of 1428 when she approached the castellans of Vaucouleurs with her now famous tale of having heard heavenly voices. Their message, spoken to her in the wind and in the village church bells since childhood, was that she was to seek out the Dauphin of France, Charles, and that he would give her an army with which she would deliver France from its English occupiers. After an examination of her virginity by the queen and other ladies in the court and an examination of her 'divine mission' by a number of court officials, both of which she passed, Charles gave her some troops and assigned her to the army attempting, without much success, to relieve the English siege of Orléans. Joan joined this army in April 1429. It was a demoralised force, led by Count Dunois, the Bastard of Orléans, who had led his troops only two weeks before to an extremely embarrassing defeat at the battle of the Herrings. Dunois was reluctant to attack the English in their well-armed and fortified siegeworks; instead, he wanted to retreat from Orléans, giving it to the English. Joan would have none of this, for her voices had told her that a victory at Orléans must precede the crowning of the Dauphin. A new strategy was undertaken, with the French attacking several of the forts surrounding the town which were held by the besiegers. Finally, on 7 May, Joan herself led her soldiers against the most fortified and well-armed fortress held by the English, the boulevard of Tourelles, which guarded the bridge and main gate leading into the town. Despite a formidable English defensive force and, for the time, an extremely large number of gunpowder weapons guarding this boulevard, Joan prevailed, with only a little loss of life. With the fall of Tourelles, the siege was raised. The first dictate of Joan's voices had been accomplished.

From Orléans, Joan's troops moved against the towns of Jargeau, Meung and Beaugency, all of which stood in the way of a coronation at Rheims, and all were taken by her with relative ease. The English were not used to such defeats, and their army, led by the capable generals John Fastolf and John Lord Talbot, was determined not to let this trend continue.

Medieval Siege (Woodbridge: The Boydell Press, 1992), 172–5; Hugh Talbot, *The English Achilles: An Account of the Life and Campaigns of John Talbot, 1st Earl of Shrewsbury (1383–1453)* (London: Chatto and Windus, 1981), 91–102; and Pierre Duparc, 'La délivrance d'Orléans et la mission de Jeanne d'Arc', in *Jeanne d'Arc: une époque, un rayonnement* (Colloque d'histoire médiévale, Orléans, October 1979) (Paris: Editions du centre national de la recherche scientifique, 1982), 153–8.

They decided to face the French in open battle, outside the town of Patay. On 18 June 1429, this battle was fought, and the French again were victorious; again Joan was present.²² This defeat was as embarrassing to the English as the defeat at the battle of Herrings had been to the French. Talbot was captured, and Fastolf, believing it unsafe to go against the French with his depleted force, retreated to the safety of the walls of Paris. On 17 July 1429 the Dauphin was crowned King Charles VII of France at Rheims. Joan was by his side, accomplishing the second charge of her voices.

Joan's mission was technically over, but Paris was still in enemy hands, and Joan's voices now added a new charge to her duties: she must recapture the French capital, at that time under the control of a fairly sizeable English army, led by John, Duke of Bedford. Before the year was out, and after fending off a few relatively minor and bloodless skirmishes with the Duke of Bedford's force, Joan attacked the Parisian suburb of St Denis. Here she met her first defeat, for she was unable to capture St Denis and was wounded in the leg with a crossbow bolt. But she returned again the next spring, attacking outside Paris at the towns of Senlis and Melun.

Once more she met with less success than she wished, for these towns did not fall; but her persistence was enough to irritate the Duke of Bedford and to drag Philip the Good, Duke of Burgundy, into the fray. In April 1430 the Burgundians attacked the French-controlled town of Compiègne, north of Paris, driving Joan to move her troops there to defend against a Burgundian take-over of the town. On 23 May, leading a sortie out of Compiègne, Joan was captured by the Burgundians and sold to the English. A little more than a year later, on 30 May 1431, she was burned to death as a heretic in the market place of Rouen.

As Joan approached Orléans in February 1429 no one, including perhaps her voices, would have blamed her for turning around and returning to Domrémy. There had never been an engagement in the world's history to that time that had involved more gunpowder weapons on both sides than the siege of Orléans. The English army had moved to the town on 1 October 1428 and had been besieging it since then. Yet, although capturing the important boulevard of Tourelles which guarded the bridge across the Loire from the main gate of the town, they had not broken through the defences,

22. It is disputed exactly how much influence Joan had at the battle of Patay. However, all continental sources do note her presence on the battlefield.

despite intensive bombardment of the town itself. But their's were not the only guns at Orléans. There is evidence that there were guns both with the residents inside the town as well as with the French relief army which arrived at the siege near the end of the year.²³ Indeed, a shot from one of these weapons killed Thomas Montagu, the Earl of Salisbury and leader of the English forces, as he peered out of a tower on the Tourelles. The anonymous author of *The Brut* reports:

And tho at the last, as he was busi to sete and loke vpon his ordynauncis, forto gete it [the town] yf he myght, a fals thef, a traitour withynne the toune, shotte a Gonne, and the stone smot this good Erle of Salusbury, that he was dede thorough the stroke; wherefore was made grete doole and sorow for hys dethe long tyme afturward, for the greate doughtynesse and manhode that was founde in hym, and in hys governaunce at all tymes.²⁴

So Joan had a formidable task before her. In fact, the large number of guns with the English besiegers may suggest a more sympathetic assessment of Dunois' previous inaction. To relieve the siege, the French had to recapture Tourelles, and this was, at least in the view of the French commander, an impossible task. Built in June 1426 as one of many boulevards constructed around the town—at least that is the date when gunpowder weapons were ordered to be delivered there—the boulevard of Tourelles, after its initial capture, had been rebuilt as an English gunpowder weaponry fortification and filled with guns of all calibres and sizes.²⁵

Dunois may have been afraid of attacking Tourelles, but Joan, bolstered by a belief that she had been sent by God for the fulfillment of this

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23. See the various comptes of the town of Orléans in P. Charpentier and C. Cussard (eds), *Journal d'un siège d'Orléans, 1428–1429* (Orleans: H. Herluison, 1896), 187–95, 236–7, 251–66, 276–391, and the *Chronique de la Pucelle* in Quicherat, *Procès*, IV: 214. See also M. Boucher de Molandon, *L'armée anglaise vaincue par Jeanne d'Arc sous les murs d'Orléans* (Orleans: H. Herluison, 1892), 51–3, 81–94, 96–9, 135–54.
24. *The Brut, or the Chronicles of England*, ed. F.W.D. Brie (London: Oxford University Press for the Early English Text Society, 1906), I: 434–5. See also Kelly DeVries, 'Military Surgical Practice and the Advent of Gunpowder Weaponry', *Canadian Bulletin of Medical History* 7 (1990): 136.
25. Both Perceval de Cagny (*Chroniques* in Quicherat, *Procès*, IV: 8–9) and the *Chronique de la Pucelle* (in *ibid.*, 227–31) mention 'canons' and 'coulevrines'. See also the *Chronique du siège d'Orléans* in *ibid.*, 98–164, and Eberhard Windecke, *Denkwürdigkeiten* in *ibid.*, 493.

mission, was not. On 6 May Joan herself led her soldiers against this gunpowder artillery fortification. The *Journal du siège d'Orléans* reports what happened:

Early in the morning on the day after, which was Saturday, the sixth day of May, the French attacked Les Tourelles and the boulevard while the English were attempting to fortify it. And there was a spectacular assault during which there were performed many great feats of arms, both in the attack and in the defence, because the English had a large number of strong soldiers and had strengthened skillfully all of the defensible places. And also they fought well, notwithstanding that the French scaled the different places adeptly and attacked the angles at the highest of the strong and sturdy fortifications so that they seemed by this to be immortal. But the English repulsed them from many places and attacked with artillery both high and low, both with cannon and other weapons, such as axes, lances, pole-arms, lead hammers, and even with their bare hands, so that they killed and wounded many French.

Joan would not give up the assault; delivering a fiery speech 'in the name of God', she urged her men forward, claiming that the English 'were not a stronger force' than they. She also promised 'to touch the staff of her standard on the boulevard'. Her troops responded with shouts and charged forward. Tourelles fell a very short time later.²⁶ The English fled, and Joan

26. *Journal du siège d'Orléans*, in *ibid.*, 159–61:

Le jour d'après au plus matin, qui fut samedi, sixiesme jour de may, assaillirent les François les Tournelles et les boulevars et taudis que les Angloys y avoyent faiz pour les fortiffier. Et y eut mout merueilleux assault, durant lequel y furent faitz plusieurs beaux faiz d'armes, tant en assaillant que en deffendant, parce que Angloys y estoient grant nombre fort combatans, et garnis habondamment de toutes choses deffensables. Et aussi le monstrèrent ilz bien, car nonobstant que les Franchois les eschelassent par divers lieux mout espesement, et assaillissent de fronc, au plus hault de leurs fortifficacions de telle vaillance et hardiesse, qu'il sembloit à leur hardi maintien que ilz cuidassent estre immortelz: si les reboutèrent ilz par maintes fois et tresbuschèrent de hault en bas, tant par canons et autre traict, comme aux haches, lances, guisarmes, mailletz de plomb, et mesmes à leurs propres mains, tellement qu'ilz tuèrent que blecèrent plusieurs François . . . Dont elle fut très dolente, et leur dist: "En nom de Dieu vous entrez bien brief dedans, n'ayez doubte, et n'auront les Angloys plus de force sur vous. Pour quoy repousez vous un peu, beuvez et mengez." Ce qu'ilz feirent, car à merveilles luy obéissoient . . . Et ce dit, laissa son estandard, et s'en ala sur son cheval à ung gentilhomme estant là près: "Donnez vous garde, quant la queue de mon estandard sera ou touchera contre le boulevard." Lequel luy

entered the town at the head of her victorious army. Left behind by the retreating army was their arsenal, including their 'large bombards and cannons, bows, crossbows, and other artillery'.²⁷

The victory at Orléans, for which Joan justifiably received her nickname, Maid of Orléans, was followed by assaults against the English-held towns of Jargeau, Meung and Beaugency. At each conflict the French artillery train, now strengthened by the English pieces captured at Orléans, was present in full force.²⁸ Jargeau fell on 12 June, despite John Fastolf's attempt to reinforce it with troops and guns from Paris, after a day and night of continual French bombardment of the walls.²⁹ The *Journal du siège d'Orléans* names the French gun 'Bergière' as particularly effective in the conflict,³⁰ while the *Chronique de la Pucelle* gives credit to one Jean le Cannonier, whose culverin, it is reported, was devastating against the English.³¹ Meung fell after the English troops and guns positioned on the bridge across the Loire were bombarded for the whole night of 17–18 June,

dis ung peu aprez: "Jehanne, la queue y touche!" Et lors elle luy respondit: "Tout est vostre, et y entrez!" Laquelle parolle fut toust après congneue prophécie, car quant les vaillans chiefz et gens d'armes estans demourez dedans Orléans virent que on vouloit assaillir de rechief, aucuns d'eulx saillirent hors de la cité par dessus le pont.

See also Perceval de Cagny, *Chroniques* in *ibid.*, 8–9; *Chronique de la Pucelle* in *ibid.*, 227–31; Jacques Debal, 'Les fortifications et le pont d'Orléans au temps de Jeanne d'Arc', *Dossiers d'archéologie* 34 (May 1979): 88–92; *id.*, 'La topographie de l'enceinte fortifiée d'Orléans au temps de Jeanne d'Arc', in *Jeanne d'Arc: une époque, un rayonnement*, 25–7; and Françoise Michaud-Fréjaville, 'Une cité face aux crises: les remparts de la fidélité, de Louis d'Orléans à Charles VII, d'après les comptes de forteresse de la ville d'Orléans (1391–1427)', in *ibid.*, 53. The boulevard stood as late as 1676. See Debal, 'Topographie', 37.

27. *Journal d'un siège*, in Quicherat, *Procès*, IV: 164. See also the *Chronique de Lorraine* in *ibid.*, 333.
28. *Chronique de la Pucelle*, in *ibid.*, 233.
29. On Fastolf's reinforcement of Jargeau see *Journal du siège d'Orléans* in *ibid.*, 170. On the French bombardment see Perceval de Cagny in *ibid.*, 12; the *Journal du siège d'Orléans* in *ibid.*, 171; and the *Chronique de la Pucelle* in *ibid.*, 234. See also Philippe Contamine, 'La guerre de siège au temps de Jeanne d'Arc', *Dossiers d'archéologie* 34 (May 1979): 11–12.
30. *Journal du siège d'Orléans*, in Quicherat, *Procès*, IV: 171.
31. *Chronique de la Pucelle*, in *ibid.*, 237. This gunner should not be confused with the more famous Jean Bureau, who would later become one of Charles VII's masters of artillery.

'one of the earliest recorded cases of "night firing"', according to Alfred H. Burne.³² That day, Joan and her co-captains, Dunois and d'Alençon, moved into the town of Beaugency and set up their gunpowder weapons against the neighbouring castle, occupied by 500–600 English soldiers, also armed with some gunpowder weapons. After a strong bombardment of the castle walls, the French advanced and took the fortification; 'the English were able to put up only a small amount of resistance', Jean Chartier reports.³³

After the battle of Patay—for which there is no record of gunpowder weapons being present—and after the crowning of Charles VII at Rheims, Joan turned her attention to Paris, and again she encountered gunpowder weapons. Because of the existence of an inventory recorded at the Bastille in 1428, there is no doubt of the large number of guns present in the French capital.³⁴ Even if the English did siphon off some of these weapons to reinforce the Loire towns of Orléans and Jargeau, the numbers in Paris still were impressive. Also awe-inspiring must have been the anti-gunpowder weaponry devices which had been added to protect the more traditional Parisian fortifications: gunports and boulevards.³⁵

Joan's army at Paris was undoubtedly also outfitted with gunpowder weapons, but it is the defending guns which incite most chroniclers' comments. Gunpowder weapons were numerous especially at St Denis, perhaps the most fortified Parisian suburb because of its symbolic royal and religious value. Yet the guns at Tourelles had not daunted Joan; nor would they at St Denis. 'The assault was difficult and long', writes Perceval de Cagny, 'and it was a marvel how much noise was made by the cannon and culverins which fired at those outside the walls at such a rate and in such a quantity as to be without number'. Still, Cagny insists, because of the Maid's presence with the army and by the grace of God, 'no man was wounded or killed'.³⁶ (Clement de Fauquembergue, on the other hand, insists that many

32. Burne, *Agincourt War*, 255. See also the *Journal du siège d'Orléans* in Quicherat, *Procès*, IV: 174, and Héraut du Roy Berry, *Le recouvrement de Normandie*, in *ibid.*, 44.

33. Jean Chartier, *Chronique de Charles VII*, in *ibid.*, 66. See also Perceval de Cagny in *ibid.*, 14, and *Journal du siège d'Orléans*, in *ibid.*, 174.

34. 'Inventaire de la bastille de l'an 1428', *Revue archéologique* 12 (1855): 321–49. See also Guy Llewelyn Thompson, *Paris and its People under English Rule: The Anglo-Burgundian Regime, 1420–1436* (Oxford: Clarendon Press, 1991), 83–4, 91–2, 104–11.

35. DeVries, 'Impact of Gunpowder Weapons', 234.

36. Perceval de Cagny in Quicherat, *Procès*, IV: 26–7:

French soldiers were wounded and killed by gunfire at St Denis.³⁷) Joan failed in this assault, but she should not be blamed for this failure, declares the anonymous author of the *Journal du siège d'Orléans*: 'she wished to attack such a strong town and so well stocked with men and artillery, simply because it was the city of Paris'.³⁸ The following spring, in attacking Senlis, Joan encountered a similar defeat under extremely vigorous defensive gunpowder weaponry bombardment.³⁹

Finally, in April 1430 a new enemy faced Joan. In this instance, the Maid of Orléans was the defender, as the Burgundians, their services purchased by England, attacked her in Compiègne.⁴⁰ At this date, there was no power with a stronger or more numerous gunpowder weaponry arsenal than the Burgundians.⁴¹ And almost all of it was directed entirely at Compiègne and Joan. Contemporary chroniclers report the existence of at least five large bombards, two veuglaires, one large and one small, innumerable culverins, and two 'engins' among the besieging Burgundian army;⁴² other sources record the transportation of at least 17,000 lbs of gunpowder with the artillery train.⁴³ Extant artillery comptes for the Burgundian

L'assault fut dur et long, et estoit merueille à ouyr le bruit et la noise des cagnons et coulevrines que ceulx de dedens gectoient à ceulx de dehors, et de toutes manières de traict à si grant planté comme innombrable ... mais par la grâce de Dieu et l'heur de la Pucelle, oncques home n'en mourut ne ne fur bleciés.

See also Contamine, 'Guerre de siège', 12-13.

37. Clement de Fauquembergue, *Journal* in Quicherat, *Procès*, IV: 457.

38. *Journal du siège d'Orléans*, in *ibid.*, 199-200.

39. Herault du Roy Berry in *ibid.*, 47.

40. Richard Vaughan, *Philip the Good: The Apogee of Burgundy* (London: Longman, 1970), 17.

41. See Kelly DeVries, 'The Guns of the Burgundian Dukes in the Later Middle Ages: The Evolution of the Military Revolution' (forthcoming). See also Joseph Garnier, *L'artillerie des ducs de Bourgogne d'après les documents conservés aux archives de la Côte-d'Or* (Paris: Honoré Champion, 1895).

42. Waurin, *Réceuil*, III: 362; Monstrelet, *Chronique*, IV: 418-19; Georges Chastellain, *Oeuvres*, ed. Kervyn de Lettenhove (Brussels: F. Hayez, 1863-66), II: 53; Antonio Morosini, *Chronique: extraits relatifs à l'histoire de France*, ed. G. Lefevre-Pontalis and L. Dorez (Paris: Jules Renouard for the Société de l'histoire de France, 1898-99), III: 319-23.

43. Contamine, 'Guerre de siège', 16.

forces have shown that these tallies are in fact too low.⁴⁴ German cannons also accompanied the besieging force.⁴⁵

But this show of technological power did not intimidate either Joan or Guillaume de Flavy, the 'captain' of Compiègne. They had their own gunpowder weaponry arsenal, and they had prepared their defences to use it, destroying any fortifications which hindered gunfire.⁴⁶ These guns would prove very effective, particularly, as reported by an anonymous eyewitness, 'the great number of small engines, called coulevrines, which were made of bronze and which fired lead balls'. These balls were even able to penetrate the armour of a man-at-arms.⁴⁷ Eventually, after an unsuccessful siege which lasted the entire summer, the Burgundians were forced to retreat from the town, abandoning their intentions and most of their large artillery train.⁴⁸ But this came too late for Joan. On 23 May she had been taken prisoner, and during this retreat was awaiting her fate at Rouen, far from the victorious French gunpowder weapons of Compiègne.

Gunpowder weapons played an enormous role in Joan of Arc's military career. At every conflict she was witness to the massive destruction they could cause; she fought successfully against them, and she fought successfully with them. In the end, at St Denis and Senlis, they proved superior to even her God-given martial capabilities. On one occasion they were even included in one of her prophecies. At Joan's retrial the duc d'Alençon testified:

during the attack on the town of Jargeau, Joan told me at one moment to retire from the place where I was at, for if I did not retire from that place, 'that machine'—and she pointed to a piece of artillery in the town—'will

44. As transcribed in Pierre Champion, *Guillaume de Flavy, capitaine de Compiègne* (Paris: H. Champion, 1906), 174–83. See also Alain Salamagne, 'L'attaque des places-fortes au XVe siècle à travers l'exemple des guerres anglo et franco-bourguignonnes', *Revue historique* 289 (1993): 78–9.

45. Champion, *Guillaume de Flavy*, 171–2.

46. *Ibid.*, 48.

47. Quoted in *ibid.*, 49, n. 10:

Et si avoient dedens la dicte ville grant plenté de petits engiens, nommez coulevrines, lesquelx estoient de metal de coeivre et trayoient boules de ploncq qui perchoient ung homme d'armes tout outres, comme ilz faisoient deux ou trois fortes croustes de quesne.

48. Vaughan, *Philip the Good*, 24–5, and Louis Carolus-Barre, 'Compiègne et la guerre, 1414–1430', in *111e Congrès national des Sociétés savantes, Poitiers, 1986, Histoire médiévale, Tome I: La France Anglaise* (Poitiers: C.T.H.S., 1986), 386–7.

kill you'. I fell back, and a little later on that very spot where I had been standing someone by the name of my lord du Lude was killed ... That made me very much afraid, and I wondered greatly at Joan's sayings after all these events.⁴⁹

49. In Quicherat, *Procès*, III: 96-7:

Dicit etiam quod, durante insultu contra villam *de Jargueau*, ipsa Johanna dixit loquenti existenti in quadam platea quod recederet ab illo loco, et quod nisi recederet, "illa machina," ostendendo quamdam machinam existentem in villa, "te occidet." Et recessit loquens, et paulo post ex eadem machina, in eodem loco a quo recesserat ipse loquens, fuit quidam occisus, qui vocabatur *Monseigneur du Lude*; de quo habuit magnum timorem ipse loquens, et multum mirabatur de dicits ipsius Johanna, attentis praedicits.