

# Medieval surgeons surprisingly skilled in healing horrific wounds, says book by Longwood professor

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This essay is part of a series on cultural, scientific and esoteric matters.



At the Battle of Shrewsbury in 1403, future King Henry V was shot in the face with an arrow that lodged six inches deep into the back of his skull. A surgeon saved his life. Skilled medical care in a period often associated with wanton violence? Indeed, says a medieval scholar who recently published a book on the subject.



Dr. Larissa "Kat" Tracy (left), associate professor of medieval literature at Longwood University, is the co-editor of [Wounds and Wound Repair in Medieval Culture](#), the latest of several books she has published on torture, brutality and violence in the Middle Ages. As with much of her scholarship on medieval life, the book paints a picture of this period that might surprise some readers.

"Wound repair was fairly sophisticated in the medieval period. Most people assume that it was not sophisticated, but it was," said Tracy. "For example, they used maggots to debride necrotized skin and used honey as an antibacterial to prevent infection. They knew they needed to clean wounds, even if they didn't know why."

"We know from 12th-century surgical manuals that they knew how to treat skull fractures. There is no way to know if they had anesthesia, but they understood opium and herbs, so I imagine they figured it out," said Tracy, adding that forensic archaeologists have determined from studying disinterred remains that "a lot of wounds healed."

Honey was used to treat the dire wound sustained by Henry V, then a 16-year-old prince, which is detailed in one of the book's chapters by Michael Livingston. Honey was used both while removing the arrowhead (accomplished with probes "infused with rose honey," wrote royal surgeon John Bradmore), as well as in closing and healing the wound, a painstaking process repeated by Bradmore over 20 days.

While skeletal remains often reveal evidence of wound treatment, they can also indicate the cause of death and postmortem mutilation. The remains of the notorious King Richard III, slain in the 1485 Battle of Bosworth, which ended the War of the Roses and placed the Tudors on the throne, shows that his corpse was stabbed repeatedly. One of the book's contributors, Robert Woosnam-Savage, was a member of the team of investigators that examined Richard's remains after they were uncovered in a parking lot in Leicester, England, in 2012.



Wounds and Wound Repair in Medieval Culture

"We know that Richard died from a number of blows to the head with sharp-bladed weapons, which is called sharp force trauma, and he also suffered sharp force trauma after death," said Tracy. "Scholars suggest his corpse was thrown over a horse, and, in a case of postmortem mutilation, soldiers stabbed it and whacked at it."

Richard's skeleton bears traces of at least 11 wounds, "probably nine at the time of his death and two after his death," wrote Woosnam-Savage, a weapons curator at the Royal Armouries Museum in Leeds, England. "The massive trauma to Richard's skull indicates that he was probably both helmetless and lying prone, facedown."

In addition to co-editing the book, Tracy contributed one of the chapters. That chapter, related to her interest in the Arthurian legend, analyzes head wounds in the Stanzaic *Morte Arthur*, an anonymous poem written in Middle English in about 1400, as a political warning about the destabilizing effects of rebellion and weak kingship.

The book features 23 contributors from a variety of fields, including archaeologists, art historians, historians, literary historians, theologians, linguists and medical experts. It was co-edited by Dr. Kelly DeVries, a professor of history at Loyola University Maryland who is an expert on medieval warfare.

"The book was Kelly's idea, which he'd been thinking about for years, and he invited me to be co-editor," said Tracy, adding that it's the first installment in a series she edits called [Explorations in Medieval Culture](#) from the publisher Brill. "The series will be interdisciplinary and will feature both monographs and collected volumes."

Tracy co-founded and co-directs [Longwood's Undergraduate Medieval Conference](#). Meeting in the Middle. She received the 2015 Scholarly Achievement Award from the [Southeastern Medieval Association](#) in October 2015.

### Excerpt from *Wounds and Wound Repair in Medieval Culture*:

"Many modern misconceptions about the Middle Ages suggest that medieval society was medically stunted, backwards, or primitive, and that treatments bordered on the ludicrous or downright dangerous. But numerous surgical texts circulated throughout medieval Europe and some offered more useful (and successful) treatments than others. Medieval surgery evolved from a complex system of text, practice, belief, transmission, science, and folklore. The first major medical center was twelfth-century Salerno, Sicily, where Christian and Muslim communities lived side by side. Many medieval medical and surgical texts and treatments reflect Muslim influence and, in some cases, origins."

### Amplifying the topic

#### The Scar of Henry V

Matthew Lewis [Blog](#)



Portrait of Henry V in profile, hiding his right side where the wound probably was.

On 21st July 1403, a rebel army led by Sir Henry Percy, known as Harry Hotspur, son of the 1st Earl of Northumberland, gave battle to the forces of King Henry IV. The somewhat beleaguered monarch was supported by his oldest son and heir, Henry of Monmouth, Prince of Wales, who was only 16 years of age. This young man was later to become the legendary king of Agincourt fame, "Hammer of the Gauls" as his tomb inscription lauds him. That sunny day was darkened by clouds of arrows and rang with the screams of the many dying. It may also have defined the future Henry V as we remember him.

The background to the Percy rebellion was a mounting list of grievances that they felt was going unaddressed. They had been loyal to the new regime initially, but went unpaid for their ongoing defence of the troublesome and perilous Scottish border. Harry Hotspur, a famed soldier in his early forties, was dissatisfied that his wife's brother, Edmund Mortimer, Earl of March was being left to languish as a prisoner of the Welsh rebel leader Owain Glyndŵr, his ransom unpaid. Harry and his uncle, Thomas Percy, Earl of Worcester marched south to offer battle to the King on the Welsh border. The two armies met on 21st July at Shrewsbury in fierce fighting that Holinshed recounts later in the hour.

During one of the many volleys of missiles, Prince Henry was hit in the face by an arrow which embedded itself six inches into his right cheek, probably at a downward angle as the arrow fell. Raphael Holinshed, the Tudor chronicler, recounted that:

"The prince that daie helpe his father like a lustie young gentleman: for although he was hurt in the face with an arrow, so that diverse noble men that were about him, would have conveyed him fourth of the field, yet he would not suffer them so to doo, least his departure from amongst his men might happlie have striken some feare into their hearts: and so without regard of his hurt, he continued with his men, never ceased, either to fight where the battell was most hot, or to encourage his men where it seemed most need."

When the battle was finally over, the Percy force fleeing after Harry Hotspur fell, Prince Henry was rushed to receive treatment. The arrow shaft was removed, but the barbed head was lodged, unreachable and immovable. Eventually, the London surgeon John Bradmore was called to see what he could do. Bradmore's answer was as revolutionary as it was risky. He later wrote a book entitled *Philomena*, in which he retold the treatment that he devised:

"First, I made small probes from the pith of an elder, well dried and well distilled in purified linnen (made) to the length of the wound. These probes were infused with rose honey. And after that, I made larger and longer probes, and so I continued to always enlarge these probes until I had the width and depth of the wound as I wished it. And after the wound was as enlarged and deep enough so that, by my reckoning, the probes reached the bottom of the wound. I prepared some small little tongs, small and hollow, and with the width of an arrow. A screw ran through the middle of the tongs, whose ends were well rounded both on the inside and outside, and even the end of the screw, which was entered into the middle, was well rounded overall in the way of a screw, so that it should grip better and more strongly."

Bradmore worked away at widening the wound to give himself room to reach the arrow head. Once he could access it, he screwed the thread of his newly invented implement into the arrow head. Next, he tells how "Then by moving it to and fro (with the help of God) I extracted the arrowhead". The next concern was how to treat the gaping wound in the Prince of Wales' cheek and prevent a deadly infection from taking hold.



The ingenious surgeon tells how he washed the wound with white wine and wiped the inside of it out with a probe covered with honey, an early antiseptic, barley, flour and flax. Bradmore cleaned the wound in this way for the next twenty days, each day making the probe a little smaller to allow the wound to heal over as it was cleaned. To prevent seizures, a possibility that obviously concerned Bradmore, he applied medicines to the prince's neck to loosen the muscles.

Bradmore describes this wound as being on Henry's cheek, "next to his nose on the left side", though it is generally believed that it was the prince's right cheek that was hit; Bradmore perhaps referring to his own left. The surgeon's star was in the ascendant. He was paid 40s for medicines provided to the king's household in 1403 and granted an annuity of ten marks for his successful treatment of the prince. Later, he was made surgeon of the Port of London in 1408. He was also called upon to treat one William Wynclowe, the king's pavilioner, whose suicide attempt left him with a wound to his stomach. Bradmore treated him for eighty days and the man survived. He wrote his book, *Philomena*, before his death in 1412.

The wound left a physical scar on Henry that he carried for the rest of his life. The only remaining contemporary portrait shows him in profile, his left side facing the viewer. It is likely that this was to avoid displaying his damaged right cheek. For all of his fame as the victor of Agincourt and for forcing himself to be recognised as the rightful heir to the throne of France, this early episode and the physical mark that it left upon the prince is often overlooked. Henry's apparent desire to hide it may suggest that it was not a mark of battle that he wore with pride. Perhaps he did not want his enemies to be made aware of his mortality and the fact that a stray arrow almost killed him at 16. He needed to appear invincible if he was to inspire fear in the French.

It might also be worth considering the psychological impact of this near-death experience on the young Prince of Wales. It is well known that Henry was something of a tearaway in his youth. Holinshed reports that when he became king, Henry had a sudden, severe change of attitude: "For whereas aforesaid he had made himselfe a companion unto misrule mates of dissolute order and life, he now banished them all from his presence (but not unrewarded, or else unpreferred) inhibiting them upon a great paine, not once to approach, lodge, or sorourne within ten miles of his court or presence". It is possible that his experience at Shrewsbury caused him to go off the rails for a while, the brush with death causing him to embrace a life of fun and excess whilst his position afforded him that luxury. By 1407, he was key to his father's efforts in Wales, so must have curtailed his wild living. Once king, it had to end.

The early trauma may have also informed his more sober role as king. Henry was a renowned soldier, but piety and honour forged a strong moral compass (the execution of prisoners at Agincourt is often cited against this, but it can be understood in its context, if not excused because the threatened French resurgence did not materialise). Henry offered the King of France a single combat duel between himself and the French king's son, The Dauphin (the king being too infirm for such a trial). It is most likely that Henry did so knowing not only that the Dauphin lacked military experience and courage and so would be forced to decline, dishonouring himself, but also that in the unlikely event of acceptance, Henry would win. However, he told the French king Charles VI that he wished to settle the matter in this manner to avoid "the effusion of blood". Agincourt was to be the only pitched battle of Henry's French campaign and he perhaps genuinely wished to avoid them where possible, preferring not to spill the blood of thousands of men.

Henry was also famous during his campaign for his treatment of his men, from whatever social level. He would apparently walk the camp frequently, not only keeping his men on their toes, but conversing with them, offering praise where it was due, criticism when it was warranted and encouragement where it was needed. This approach may have been nurtured by his experience at Shrewsbury. He had learned at a young age that any man present might be the one that would save his life. He should therefore be grateful that each one is there and instill in every man the desire to save their good and gracious king. Shrewsbury may, after some reflection, have created and reinforced his belief that God was on his side.

All of this may be to overstate the impact of the injury Henry sustained at Shrewsbury, but it is compelling to see the horrific injury as sending him off the rails as he realised how narrowly he had escaped death, and to see it at work in his later treatment of his men and his behaviour on campaign. If nothing else, it explains why we see him only in profile on his left hand side. Here is a video discussing the removal of the arrow head from Prince Henry's cheek:

I shall leave you with Holinshed's Chronicle's assessment of Henry at the end of its detailing of his reign:

"This Henrie was a King, of life without spot, a prince whose all men loved, and of none disliked, a captain against whose fortune never frowned, nor his chance once sturnd, whose people his so devere iusticer both loved and obeyed (and so humane withall) that he left no offense unpunished, nor friendship unrewarded; a terror to rebels, and suppressor of sediton, his vertues notable, his qualities most praise-worthie."

"In strength and nobleness of bodie from his youth few to him comparable, for in wrestling, leaping, and running, no man welllike to compare. In casting of great iron barres and heavie stones he excelled commonlie all men, never shrinking at cold, nor clothfull for heat; and when he most laboured, his head comelie uncovered, no more wearie of harness than a light cloake, verie valiantlie abiding at needs both hunger and thirst; so manfull of mind as never seeme to quinch at a wound, or to smart at the paine; nor to turne his nose from evill savour, nor close his eyes from smoke or dust; no man more moderate in eating and drinking, with diet not delicate, but rather more meet for men of warre, than for princes, or tender stomachs. Everie honest person was permitted to come to him, sitting at meate, where either secretlie or openlie to declare his mind. High and weightie causes as well betweene men of warre and other he would gladlie heare, and either determined them himselfe, or else for end committed them to others. He stopt verie little, but that verie soundlie, in so much that when his soldiers sang at nights, or minstrels played, of courage invincible, of purpose unmutable, so wisardie always, as feare was banisht from him; at everie alarm he first in armor and forrest in ordering. In time of warre such was his providence, bountie and hap, as he had true intelligence not onelie what his enemies did, but what they said and intended; of his devises and purposes few, before the thing was at the point to be done, should be made privie."

"Knooen be it therefore, of person and forme was this prince, rightlie representing his herosicall affects, of stature and proportion tall and manlie, rather leaner than grosse, somewhat long necked and blacke haired, of countenance ansible, eloquent and grave was his speech, and of great grace and power to persuade: for conclusion, a maistie was he that both lived died a pattern in prisonhood, alode-starre in honour, and mirror of magnificence; the more rightlie awaited in his life, the more deeplie lamented at his death, and famous to the world alive."

Matthew Lewis is the author of a brief biography of Richard III, [A Glimpse of King Richard III](#), along with a brief overview of the Wars of the Roses, [A Glimpse of the Wars of the Roses](#). Matt's has two novels available too; [Loyalty](#), the story of King Richard III's life, and [Honour](#), which follows Francis, Lord Lovell in the aftermath of Bosworth. The Richard III Podcast and the Wars of the Roses Podcast can be subscribed to via [iTunes](#) or on [YouTube](#). Matt can also be found on Twitter [@matlewisauthor](#).

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