Significance of the Stirrup in Medieval Warfare
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The medieval adoption of the stirrup, a piece of equipment unknown to the ancient world, is commonly held to have caused a revolution in the use of the horse for war, a revolution which led to the feudal age and the dominance of the armoured knight mounted on a great warhorse. It is certainly true that the feudal period ought to be rightly regarded as the 'age of the horse', but the use of the stirrup by medieval horseman was not the cause of the predominance of the mounted knight, as is so commonly asserted, nor was the armoured knight an 'invincible force.' The prominent role of cavalry in the medieval period was due to the unique nature of medieval warfare and specifically the strategic importance of mobility.

The 'stirrup thesis' is, however, a very common interpretation. David Black states the case explicitly when he writes: "The medieval knight in armour did not become a fighting force with which to be reckoned until the introduction of stirrups... Their adoption was revolutionary, for it enabled a heavily armoured horseman to retain his balance in the saddle whilst using a weighty spear, sword or lance" (Seth-Smith, p 28)

One of the earliest expressions of this "revolution" thesis was published in 1887 by the German medievalist Heinrich Brunner. His view was more recently explained and defended by Lynn White in Medieval Technology and Social Change (1962). According to White, Brunner argued that the use of the stirrup in Western Europe can be reliably dated to the eighth century, and claimed that the innovation was linked with certain military reforms carried out by Charles Martel. Linguistic and archaeological evidence indicates very clearly that "under Charles Martel and his sons the meaning of the stirrup for shock combat was being realized" (White, p 28) This innovation was the motivation for Martel's confiscation of church lands, an action for which there is abundant evidence. Martel's confiscation of church lands, according to Brunner, represents the origin of feudalism.

Not surprisingly, Brunner's original hypothesis has been the subject of considerable debate since it was first published. One of the most recent rejections of the view appears in the French historian Philippe Contamine's work, La Guerre au Moyen Age. (1980) Contamine summarises Brunner's original thesis and White's later modifications, then discusses the principal arguments that have been advanced against this interpretation. In Contamine's opinion, the adoption of the stirrup was more likely to have been a matter of slow evolution rather than sudden and momentous revolution.

Whether it was a sudden revolution or a slow evolution, it is clear that the adoption of the stirrup would have given the mounted warrior a more secure seat. What further military significance, however, can we infer? Was it really the stirrup that made the medieval knight a fighting force with which to be reckoned, as so many writers argue?

A new style of fighting?

It is commonly argued that the stirrup enabled mounted warriors to use a couched lance - that is, a lance held rigidly under the armpit. Held in this way, the warrior

bears down on his target and uses the weight of horse and armour to crush anything in his path. Rupert Furneaux describes the "true knight" of the thirteenth century as:

"The plate armoured, faceless horseman, ... symbol of aristocratic wealth and power, charged knee to knee, with lance couched, galloping in a thundering unwavering wall of steel-clad men and horses, .. crashing through the enemy lines by force of impact.". (Furneaux, p. 145)

Before the use of the stirrup, it has been argued, mounted warriors were confined to throwing or thrusting with their lances. (Gordon, 1975) The use of the couched lance made cavalry forces invincible on the battlefield and rendered infantry forces powerless until the adoption of the pike and longbow. According to this argument, the knights became the only element that mattered in a medieval army, and this was because the new weapons made them so effective.

There are a number of problems with this view. In the first place, there is a chronological gap in the argument. If we accept that the stirrup comes into general use in the early part of the eighth century, then we can expect the use of the couched lance to occur some time soon after that date. There is almost no evidence for the first use of a couched lance. There is, however, some very good evidence for the continued use of throwing and thrusting techniques as much as two hundred years later! A careful examination of the eleventh century Bayeux tapestry clearly shows Norman warriors using their lances to throw and to thrust. The Norman "knights" of 1066 do not make general use of the couched lance, even though the stirrup was undoubtedly known in Western Europe for perhaps two centuries.

Interestingly enough, even the assumption that the adoption of the couched lance gave the cavalry a new advantage is not unchallenged. Bradford attributes the victories of the First Crusade to an older weapon - "The success of the First Crusade must be seen as stemming largely from one instrument - the sword" (Bradford, 95)

The "large horse" theory

The image of steel-clad men and horses crashing through the enemy lines by force of impact makes certain assumptions about the capability of the horse on the battlefield. Did the weight of armour result in the use of increasingly larger, heavier animals, ancestors of the modern Shire horse? Did these heavily armoured horses crash headlong into their opposition?

Let us examine the idea that the weight of armour worn by the knights required very large horses, and that this weight prevented the horse from moving fast. Simmons is clearly of this opinion:

"In Europe, ... the soldier who rode upon horseback grew heavier and heavier as his personal armour increased in size and weight; with the introduction of horse armour, the burden borne by each individual beast was enormous. The development of heavier, stronger horses was essential to take the weight of the heavy panoply of mail .." (Pp 22,23)

Is there any evidence to support such a view? According to White (p 138), excavations of horse skulls at Newstead fort, near Melrose, yielded evidence of a

variety of horse "much like the modern Shire breed of heavy horse" The problem with this evidence, clearly, is that it dates from the Roman period. It has no relevance to the view that medieval horses increased in size as the weight of armour increased.

In the absence of any archaeological evidence, we must turn to representations of horses in medieval art. Here, we find that there is very little to support the "large horse" theory. There is, in fact, only one isolated example of a large horse in the work of late medieval art. One of Mantegna's frescoes in the Palazzio Ducali in Mantua depicts a horse of exceptional size.

On the other hand, illustrations of horses in manuscripts, the Bayeux tapestry, and in late medieval/Renaissance art works do not support the "large horse" theory. The horses depicted in any number of scenes showing knights in action, from any period, do not show particularly large animals. Lorenzo de Medici is shown riding a horse of some 15hh. Botticelli's "Discovery of the murder of Holofernes" depicts a moderate sized warhorse and rider peering through the tent flap at the headless corpse. Donatello's famous bronze statue in Padua of the renowned condottiere Gattemelata rides a horse of average proportions which, although a heavy set animal, bears a strong resemblance to the statue of Marcus Aurelius on horseback in Rome. Neither Donatello's horse in Padua nor the inspirations for it are large enough to fit the theory of the 'enormous beast' It seems unlikely that an artist would not attempt to show true proportions, especially if war horses were so considerably larger than other horses. Artistic licence? Written evidence of horse size is scanty, but Jean de Joinville's memoirs from the thirteenth century contain several surprising references to the size of the knights' horses. He tells us that the Comte Pierre de Bretagne was 'mounted on a very handsome pony' (Shaw, p 224) and he refers several times to his "sturdy little cob" (Shaw, p 224).

There is, in fact, definite physical evidence to demonstrate that late medieval warhorses were not exceptionally large. The existing horse armours in the Tower of London Armoury, dating mostly from the fifteenth and sixteenth centuries, would fit a horse of moderate size, and are displayed on models that measure a mere 15hh. These actual items of armour, made to be worn by the warhorses of the age, do not support the large horse theory. This would seem to be fairly conclusive evidence. There is simply no reason to believe that the medieval warhorse was exceptionally large. Indeed, the evidence from the late medieval period suggests that they were not.

In any case, it does not automatically follow that armoured men needed large horses. We should not underestimate the carrying power of a horse, even a small horse. Most horses are capable of carrying a considerable weight without difficulty for a short time, although their endurance may be shortened. The likely total weight of rider, armour, and accoutrements is not such a daunting load. Any horse of reasonable size would be capable of carrying a fully equipped knight. Ann Hyland, discussing the introduction of cataphracts into the Roman army of Hadrian's day, takes this view:

"It is a fallacy that only large and tall horses can cope with armour barding. .... an animal 15hh plus and of substantial build would have had no problem in coping with the weight of an armed and armoured trooper, as well as its own armour. Katchina, at 14.3 hh and getting on in years had no trouble when unfit carrying me, at 143 lb, and accoutred with mail cuirass, weapons and saddlery with a total weight of 230 lb." (Hyland,p 85)

Bradford agrees. He argues "the horses used by the knights were not, as is sometimes supposed, heavy and ponderous like cart-horses. Chain mail was not all that heavy and, even after plate armour came in, a full suit of it might weigh little more than 60 lb. Tests conducted at the New York Metropolitan Museum have shown that a plate-armoured man can run, jump, and even leap into the saddle without much difficulty." (Bradford, p 104)

Fallacy of the ' irresistible charge '

Nevertheless, the notion of an irresistible mounted charge - the horse and its armoured rider crushing any enemy who got in the way, like a medieval bulldozer - is clearly based on the weight factor, and is an attractive image to many writers. Bradford, in describing the battle of Arsuf in 1191, attributes the victory to a mounted charge, and sees it as confirmation of the irresistible weight and momentum of knight and horse:

"a charge of the mounted knights, led by the Templars, proved once again that on suitable terrain... nothing could stand against the weight of a heavy cavalry charge" (p 159)

In fact, it does not prove anything of the sort. Bradford's own account contains a clue to the real situation. His statement is unwittingly qualified by a contemporary source, which he quotes immediately after. "These brave men attacked the Turks with so much vigour that every one of them killed his man, drove his lance through his body and lifted him out of the saddle " (my italics). The target of the Templar's charge is shown to be other cavalry: Their victory does not demonstrate that "nothing" could withstand a heavy cavalry charge, merely the more lightly armoured and mounted Turks.

Contemporary manuscript illustrations always show mounted knights fighting other cavalry. On the other hand, there are no manuscript illuminations showing knights riding into massed infantry. This is significant. Indeed, the only illustrated source that does show mounted forces charging foot is the Tapestry. The Bayeux Tapestry not only shows William's repeated charges against the English foot, but it also shows the mounted Normans being repulsed for most of the battle. It is only at the final stage, when the English line had broken, that the knights are shown fighting amongst the opposing infantry. The tapestry's version of events is largely confirmed by the written sources.

The events at Hastings help to explain the true effectiveness of mounted troops in this period. Against a scattered or disordered enemy on foot, or against other mounted opponents, a charge by mounted troops would be very effective. Lance and armour would give considerable advantage in these situations, and the power of the horse's momentum would be important. An individual on foot is vulnerable to the horse's size and weight, a truth which is obvious even today when mounted police are called upon to control a crowd.

If, however, a mass of individuals are drawn up in a close formation, perhaps six to eight ranks deep, with their shields locked together into a solid shieldwall, it is a different matter. The Frankish army at Poitiers, AD732, for example, was described by a contemporary writer as "rigid as a wall... like a belt of ice frozen solidly

together.." (White, 3). It is scarcely likely that horses could be induced to hurl themselves against such a solid obstacle. Modern show jumpers will often baulk at a jump that is too high, a behaviour known technically as "refusing." No modern rider could force their mount to crash headlong into a paling fence, and medieval horses would surely baulk at a solid barrier of shields, bristling with spear points and backed by a seething mass of men who are shouting and throwing missiles. It is difficult to believe that a mounted charge could have any effect on such an enemy, as long as the wall of shields held firm.

We are reminded of the true nature of a cavalry formation by the words of Arrian himself, quoted in Hyland:

"one horse cannot push against another in the way that infantry push on with their shoulders and flanks, nor when they are contiguous with those drawn up in front do they constitute a single massed weight for the whole body of troops; on the contrary, if they mass and press against each other, they rather cause the horses to panic" (Arrian, Ars Tactica, 16,1, in Hyland, p 71)

It is wrong to think of a cavalry unit as a giant battering ram or steamroller. This view entirely ignores the true nature of the horse. If mounted warriors attempted to crash through a solid infantry shieldwall, the horses would inevitably pull up short against the barrier, not crash through it. The troopers could only thrust with their lances across the barrier of shields, or throw missiles into the mass, and would all the time be very vulnerable themselves to missiles thrown by the infantry. In this situation, the mounted charge cannot have been effective at all, provided of course that the infantry held their ground and maintained a solid formation.

Against a scattered enemy, on the other hand, a mounted charge would be devastating. Individuals on foot would be extremely vulnerable to the speed and weight of the horse, and the long reach of the rider's lance. This would be particularly true if the foot soldiers were fleeing. They could not escape the speed of the horse, and they would be an easy target as they ran with their backs to the pursuing horsemen.

For the same reason, a cavalry charge would be effective against another cavalry unit, since neither mounted unit would represent a solid barrier. If cavalry charged another mounted unit, it is unlikely that their horses would have crashed into each other, at least, not intentionally. A high-speed collision between two horses at a mounted police display in Western Australia in September 1996 resulted in the death of both animals from broken necks, and back injuries to one of the riders. The object of a mounted charge against other cavalry was not to crash into the enemy but to penetrate their formation and kill the enemy troopers with lance or sword. The lance is initially a useful weapon since it gives the user a long reach, long enough to strike opposing horsemen and topple him from the saddle.

The nature of medieval warfare and the true role of cavalry

If the knights and their lances were only really effective against a scattered enemy, or another mounted unit, why did cavalry come to be so important in medieval warfare?

The answer is simple enough. It was the role of cavalry that became important in this period. In other words, it was mobility that mattered above all else. Cavalry action is

in fact the only way in which enemy cavalry units can be engaged. Infantry may be able to defend territory, but they cannot force a mounted unit to fight in close combat. The mobility of the horse prevents them. Enemy cavalry units can only be engaged by other cavalry. This was presumably the dilemma that faced the late Roman army - the Ostrogoths, Parthians, Sarmatians, Massagetae, Huns, Avars and Alans all made extensive use of mounted forces and were presumably difficult to pin down. The increased emphasis on cavalry in the Roman army of the late Empire reflects this change in the nature of warfare and the increased importance of a mobile reaction force to counter a highly mobile enemy. Toynbee argues that this was certainly the case in the tenth century, where:

"The penetration of the interior of the Empire by invaders, many of whom were mounted, constrained the Empire to build up a strong arm of considerable mobility, for defence.... From then on, the ascendancy of the cavalry arm in the Roman army was taken as a matter of course" (Toynbee, p 283)

Runciman claims that the East Roman Empire had a force of sixty thousand cavalry stationed on the Syrian frontier during the first half of the eleventh century. (Runciman, p 62)

Mobility was also a characteristic which suited the essential raiding nature of warfare in the medieval period, described accurately as "above all made up of pillaging, often of sieges, sometimes of battles" (Contamine, p 219) He argues for the "relative rarity of true battles" because of the very high casualty rates that accompanied them. (p 258) There is considerable evidence to support this view. The chronicle of Geoffrey Plantagenet's military campaigns mentions only skirmishing, raiding, and siege. In nineteen years of civil war in England between Stephen and Matilda, Henry of Huntington's History mentions only two actual battles, at Northallerton and Lincoln, compared with twenty four accounts of siege and constant references to 'harrying with fire and sword'. In the eighty-year period from 1136 to 1216 there are only four pitched battles, one of which took place during the Third Crusade. The battle of Arsuf was the only set piece battle, as distinct from siege and skirmish, that Richard the Lionheart actually fought.

Warfare in the medieval period is thus unlike our notion of war between nation states or large-scale societies. It is more in the nature of 'feuding' or guerre guerroyante. (Contamine,p 219) The armed forces of the Roman state, of the Byzantine empire, and of the nation states of Europe from c. 1500 until the present day are the opposite to a medieval host. They had (or have) a unified central command, paid regular units of all arms, a systematic program of training, and a hierarchical command staff. By comparison, a medieval army was an ad hoc gathering of warriors led by an hereditary aristocracy and lacking any notion of national loyalty. A gathering such as this was unsuitable for a protracted military campaign in the modern sense. The mounted warrior, however, was strategically superior to other arms in the skirmishing and raiding warfare of the period because of his ability to cover distance rapidly, and to pursue effectively.

Cavalry was not, however, inherently superior to infantry forces in all situations, despite the use of stirrup, lance and armour. On the battlefield, the ability of infantry forces to seize and hold ground was still a significant tactical advantage. This can easily be demonstrated by examining those occasions when a general engagement of

forces took place - that is, in a pitched battle. In spite of social bias in favour of the mounted aristocracy, it is clear that infantry continued to dominate the battlefield.

Battles were rare in the medieval period, as we have already argued. Georges Duby likens them to the legal process of Trial by Combat. A battle, he says, was seen as a final appeal to the judgement of God, who would give victory to the right cause. . A battle was the business of elders. It was a duel between kings, who symbolised the community as a whole. It was the opposite to raids, skirmishes and tournaments, activities that were the realm of brash youth, who sought to prove their prowess and win patronage. There was, he argues, a sacred aspect to battle not unlike a religious ritual. The time and place of battle was agreed by the heralds. Both leaders spent the night in prayer. The sources usually contrast one side as sober and meditative before the conflict, while those who are destined to lose are usually portrayed as spending the night in gaming and debauchery. A battle was generally politically decisive, the culmination of a conflict rather than one stage in a more general campaign. It was the last word.

One particular aspect of a battle is quite striking. The number of infantry in a set battle is always greater than the number of cavalry, and greater by a considerable degree. Runciman, for example, argues that the proportion of cavalry to infantry in the army of the First Crusade was probably one in seven, and the total force was likely to have been four and a half thousand cavalry and fifteen thousand infantry. (p 336) Duby claims that the combatants at Bouvines probably numbered some four thousand cavalry (knights as well as sergeants) and twelve thousand infantry, a proportion of one in four. (p 63) Green's analysis of twenty-three medieval battles, admittedly mostly from the later medieval period, shows that the infantry component considerably outnumbered the cavalry in every case.

Green's work also shows that the cavalry are almost without exception held as a reserve force, and that many of the knights usually dismounted to fight. This is the case with all twenty-three battles he discusses. Poole, discussing the twelfth and thirteenth centuries, claims that the mounted knights formed the core of a medieval army, but that the emphasis on cavalry fighting has been exaggerated. (p 23) There is abundant evidence that knights throughout the medieval period often dismounted to fight in a pitched battle. This is stated quite explicitly in a contemporary account of the battle of the Standard in 1138. According to Henry of Huntingdon, King Stephen and his knights dismounted and took up position in the centre of the line at the battle of Lincoln, 1141 (Hallam, p 172). John Beeler (1971), writing about the period AD700-1200, says:

"..to insist that the frontal cavalry charge was the sole tactical expedient of feudal generals is to ignore the evidence that can be found about literally scores of engagements" (p 251)

Dismounting was without doubt the usual practise in the late fourteenth and fifteenth centuries, although by then the whole nature of "feudal" warfare and military organisation had changed.

The true role of mounted troops in the medieval period must be understood in the light of the essential principles of war, principles which apply to all times and places. The single most important characteristic of the mounted arm is its mobility. The

ability to undertake rapid and long-range movement gives cavalry a superiority in reconnaissance, deployment and pursuit. Mounted troops have always been employed on the flanks, as a reserve, and as a force available for rapid raids into enemy positions. This was how they were employed even in the medieval period. The role of cavalry on the medieval battlefield was no different than the role of cavalry throughout history, regardless of the impact of the stirrup.

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