

The Stirrup as a Revolutionary Device

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I decided that ... the footnotes had to be massive so that my readers, if they chose, could check my materials for themselves.

Lynn White, Jr. *Technology and Culture* 16(1975)525

The eighth century was a turning point in Western European civilization. It opened with the Arabs crossing over to Spain, in 711, sealing off Western Europe from the Mediterranean commercially and culturally; it would end with the Viking onslaught on Scottish monasteries, 793 and 794, congealing the frightened natives of northern Britain into forming a united front of Pict and Scot.

In the centre of this cyclonic swirl of invasion stood the Frankish kingdom. Charles Martel, ruler of this kingdom in the first half of the eighth century, when faced with pressing needs of defence against the Saracen advances in the south, promptly invented feudalism.

This, at least, is the time-honoured view of the origin of European feudalism, a view initially formulated in the nineteenth century and seconded in the twentieth by the late distinguished medieval scholar Lynn White Jr.¹ Professor White's thesis is presented in the context of an ancient world undergoing increased technological advances. We will look closely at his thesis and will, in particular, review the source material fundamental to its formulation.

A German legal historian, Paul Roth, published in 1850 a work that set out the basic concept of feudalism.² According to Roth, Charles Martel had combined the two existing institutions of 'vassalage' and 'benefice'—that is, a vassal swore allegiance to his lord in return for which he was given some kind of benefice, usually rent-free land. Moreover, said Roth, Charles Martel also began to confiscate vast holdings belonging to the Church, a move that was to embitter the Church and confuse the historians. Why, they would argue, would anyone alienate the church—the most powerful social institution in the country—by seizing from it large tracts of land?

Roth had no answer, but another historian, Heinrich Brunner, did. Brunner's analysis, published in 1887, has remained the definition of 'classical feudalism' ever since.³

Brunner took Roth's concept of feudalism, and added to it the proposition that feudalism was above all a military institution, 'a type of social organization designed to produce and support cavalry'. The benefices awarded to a lord's followers, his vassals, permitted them to be self-sufficient, and as well enabled them to expand the system by creating vassals of their own. Thus, a lord's following became pyramidal, from each of his own vassals he could count on a number of subvassals to follow him in battle. And the form of battle that Brunner envisaged was on horseback.

The reason that Charles took church property, said Brunner, was therefore to furnish this newly formed cavalry with the means of its own support. The income received

from this agriculturally-based economy provided each vassal with not only the means to live but also to cover the immense cost of housing a number of horses and paying for weaponry and armour.

Brunner then looked around for a reason for the fusion of vassalage and benefice, that is, to explain why cavalry became so important. He adopted the suggestion of another German, M. Jähns: the Muslim invasion of southern Francia in 732 showed Charles Martel the value of cavalry.⁴

Charles defeated the Muslims, near Poitiers, but realized at the time that the future of his kingdom (if one may use the word applied to a mayor of the palace) depended on getting his soldiers on horses. This idea, which Professor White called the 'weakest link in Brunner's chain of hypotheses' has nevertheless, again according to White, 'stood up remarkably well'.

Professor White pointed out that no evidence has been produced to undermine Brunner's conclusion that under the early Carolingians the striking force of the Frankish army came rapidly and increasingly to consist of mounted feudal knights.⁵ Then White updated the argument, incorporating the Spanish historian Sanchez-Albornoz's study that showed that the Muslims' military strength did not rely on a large cavalry. White also presented the opinion that Charles Martel's confiscation of church property actually preceded the Muslim invasion by one year.⁶ That is, said White, Charles was already in the process of converting his army from infantry to cavalry before the Muslims struck southern Francia. So what event propelled Charles Martel to adopt cavalry on such a large and sudden scale?

The stirrup. And the moment of the adoption of the stirrup can be traced through archaeology: "... that date may be placed in the first part of the eighth century, that is, in the time of Charles Martel."⁷

Professor White argued that Charles Martel quickly saw the military advantages of a heavily armoured horseman, equipped with lance and shield. Before the introduction of the stirrup this iron-clad chevalier would have been useless, for the unwieldy nature of the heavy armour would have prevented the knight from manoeuvring his steed, and once struck, the rider would be easily toppled, rendering him helpless. The stirrup provided the fulcrum, the pivot point of all the charging weight of man and horse, to be delivered through the point of a horizontally poised spear. Thus man, horse and lance became one unit, one extremely efficient weapon, and the stirrup made it all possible.

Charles Martel turned his new weapon on the enemies of his Frankish kingdom, and later William would bring the stirrup to Hastings, with great success.

Thus, Professor White attributed great feats of accomplishment to the mail-clad knight on his stirrumped war horse, making him eventually 'master of Europe'.

Professor White's article, although a mere thirty-eight pages in length, contains 217 footnotes and over eighteen pages of additional notes, complete with a vast array of references covering sources published in a dozen languages.⁸ The sheer weight of such literary, archaeological, philological, and historiographical evidence is impressive, and

lends much to the argument itself. Fortunately it is not necessary for the reader to be acquainted with any foreign language, for Professor White, rather than quoting directly, interpreted and integrated into his own argument the remarks of others. Also it will be seen that most of these references do not even figure in White's central argument, that is, that the stirrup was known to have existed in contiguous lands at the time of Charles Martel, and that he was therefore in a position to adopt it. But before the central argument is analyzed, a few examples of how Professor White used his sources may be of interest.

Two of White's English sources, from notable scholars, are of particular interest. Both are cited on page 37: footnote one on this page refers to W. G. Collingwood, *Northumbrian Crosses of the Pre-Norman Age* (London, 1927)172, fig. 211, which White indicates as showing 'an Anglo-Saxon relief of c.1000'. Collingwood actually wrote about an "interesting sculpture of two armies meeting" and goes on to relate its art-work to a Scandinavian motif, ending his remarks with the cautious observation that "this perhaps warns us against dating the stone much later than c1000.[p. 173]

A second slight variation from the original occurs in the very next note, p. 37, fn2, in which White uses G. W. S. Barrow to anchor his interpretation of Hastings. Barrow in fact tends to side with those who see the Norman cavalry as an important segment of tactical warfare, but not the main reason for their Hastings victory.⁹ The reader is urged to compare White's quote ("that Hastings was a decisive defeat of infantry by cavalry-with-archers") with Barrow, *Feudal Britain* (London, 1956)34-5.

These two examples, drawn from readily available and highly regarded works, only concern peripheral matters. However, they lead one to look a little closer at Professor White's method of argumentation. Still on the battle of Hastings, Professor White has several observations concerning the Bayeux Tapestry. For one thing, this unique testimony of William's invading army is purported to highlight the differences between the shields used by each side: "most of the Anglo-Saxons were equipped with round or oval shields" [p. 37], considered obsolete, while Normans used the more 'modern' kite-shaped shields, pointed at the bottom to protect the left leg.¹⁰ Furthermore, the manner in which the lance was used by the Normans is given as proof that the stirrup principally functioned as a pivot-point, and even though the javelin was 'still found' on the Tapestry, this is because the lance 'lacked the magnificence of gesture' of the sword (and presumably of the javelin as well).

Lefebvre des Noëttes remarks that the tapestry does, in effect, highlight the transition of old and new fighting methods, but dates this transition to the middle of the twelfth century, date of the tapestry itself.¹¹ He also notes that of the 'newer' sort of cavalry, these figure only in a third of the total. Yet no horse is ever seen without its stirrup; that is to say, the stirrup is universally employed, but not the fighting methods that were supposed to have called it into existence.

If one examines the Bayeux Tapestry, one will notice that, for those panels only concerned with the actual battle (numbers 51-58), a total of 28 shields are shown in Anglo-Saxon hands; one of these is oval, none is round, four are wedge-shaped, and 23 'kite-shaped', that is to say, virtually identical with the invaders' shields.¹² As for the manner of using the spear or lance, of the 31 invaders shown with this weapon, 23

are with arm upraised, as if to throw or jab it; six figures show a lance held down, in a possible ‘charging’ position, and two are impossible to determine.¹³ These numbers scarcely show that the Normans were employing a totally new concept of warfare, based on the revolutionary innovation of the stirrup.

These few examples of extant artifacts and Professor White’s interpretation of them lead one to turn to his principal argument, to look closely into the manner in which he has laid the foundation on which he subsequently builds his theory.

Despite the apparent enormity in the problem of sorting through several hundred references—in a dozen languages—the nucleus of White’s argument stems from a surprisingly short list of titles. After rejecting archaeological evidence (in the form of grave furnishings) as being of any help in tracing the western movement of the adoption of the stirrup, White then pronounces himself in agreement with ‘older Germanic archaeologists’ who dated the first appearance of the stirrup in the West at “some time in the early eighth century”. [p. 24] White gives the authors and titles of these sources, three in number. These three then form the nucleus of White’s entire argument: L. Lindenschmit, *Handbuch der deutschen Alterthümskunde I: Die Alterthümer der merovingischen Zeit* (Brunswick, 1880)288; J. Hampel, *Alterthümer des Frühen Mittelalters in Ungarn* (Brunswick, 1905)i, 217; E. Salin and A. France-Lanord, *Rhin et Orient, II: Le Fer à l’époque mérovingienne* (Paris, 1943)220.

Let us look then at each of these sources. Lindenschmit, after discussing ninth and tenth century discoveries, writes: “... in graves of the Merovingian period nowhere up to the present time have stirrup remnants been found.” He says nothing of eighth century finds but adds “.. the use of the stirrup [along with other trappings] was first given to the Germans in the eighth century through Byzantium.”

Joseph Hampel, whose work has recently been reprinted,¹⁴ has somewhat more to say on the subject. I quote the most significant paragraph (my translation):

Today one can be quite sure that the iron stirrup was introduced into Europe through the knights at the beginning of the Middle Ages. In Hungary we are positive about the appearance of the stirrup in the well dated grave of Szent-Endre. This grave belongs to the time when the Avars reigned in Hungary, that is to say, from the second half of the sixth century to the ninth century, and today still—after having taken into account the explored graves of the early Middle Ages with all their rich research material—the type represented by the stirrup of Szent-Endre is the one to consider.

According to these dates, we must consider it as the earliest. And if it is true, what Lindenschmit says (according to his findings of German graves of the so-called Merovingian period) that he has nowhere come across a stirrup in any so-called Merovingian grave and that the use of an iron stirrup was first handed to the Germans in the course of the eighth century, then it is very probable that the German noblemen got to learn about the iron stirrup while fighting the Avars.

Salin and France-Lanord have considerably less to say on the subject:

We know of no stirrup that can be attributed with certitude to the Merovingian period; that found near the mouth of the Thiele, in lake Biemme, is of doubtful age; those which make up part of the very curious find, which we will speak of later ..., do not seem tenable; it is therefore possible that the Merovingian period, like the Greco-Roman age, did not have the stirrup and it would be of interest to clear up definitively this point. Recall that the first stirrups found up to now come from Sarmatian tombs. ...

These authors also note (footnote 3) that “it was the Hungarians who, after the sixth century invasion, spread its use in the West.” They therefore follow Hampel’s lead.

This then is the total evidence for the introduction of the stirrup in the West in time for Charles Martel to adopt and transform it into a feudal war weapon. It is agreed by all three that the stirrup was probably introduced after the Merovingian period came to a close, that is, after roughly 700 AD. Beyond this date none of the above writers ventures an opinion. Yet Professor White sees the lack of evidence before 700 as proof of evidence soon after 700.

It is also seen that rather than three independent authorities arriving at the same conclusion, Hampel relies on Lindenschmit while Salin and France-Lanord base their conclusion, at least in part, on Hampel.

If this were not enough to shake our confidence in Professor White’s theory, we have his curious use of Hampel’s testimony to consider. For if White not only accepts Hampel as one of the three key sources, but even uses him as a connecting bridge between the other two, what are we to think of White’s previous instructions on this source? On page 21 of Professor White’s paper, he rejects Hampel’s evidence of having ‘well dated’ stirrups from Szent-Endre, insisting that this grave ‘cannot be sixth-century’, and then concluding that the grave findings cannot be used to show that the Avars had stirrups by 620-30. Hampel, it will be recalled, placed the date of Szent-Endre at anywhere from the second half of the sixth century to the ninth, such a wide period that even though it may be ‘well dated’ from an archaeological point of view, it is useless from the historical aspect. Nevertheless, three pages further Hampel is invoked as one of the three best sources for an eighth century appearance!

What do recent investigations tell us about the dating of the arrival of the stirrup in the West? A great deal of archaeological activity has occurred since Lindenschmit and Hampel; even Salin and France-Lanord’s work is now obsolete. Very little has appeared in print on the advent of the stirrup, but one article in particular deserves some consideration. In 1955 A. D. H. Bivar wrote a short article entitled “The Stirrup and its Origins”¹⁵ in which the use of the stirrup in the east is reviewed, then followed across Central Asia and on into Europe with the advent of the Avars along the Danube sometime in the late sixth century.

Bivar considers that the stirrup evolved among the nomads of Central Asia and Siberia sometime in the fifth century. By the late eighth century these stirrugged nomads of Central Asia were being visited by the Norsemen; Bivar believes that use of the stirrup was taken up by these Vikings and eventually introduced into Europe by their Norman descendants. It is an attractive theory that archaeology, at present, cannot contradict. It is a pity that White saw no need to refute Bivar; indeed, he does not even mention this author's argument, although including the title amongst all the others.¹⁶

As the reader can see, a great deal of controversy still exists over the dating of the stirrup's introduction in the West. If Professor White's theory is to be taken seriously, the intrusive opinions of Bivar and Lefebvre des Noëttes must somehow be refuted. However, it is in the study of direct archaeological evidence that Professor White's theory becomes most vulnerable. If the attempt to place the stirrup's arrival in the West sometime in the early eighth century falls short of being entirely convincing, recent excavations have raised more problems. Direct evidence that would cast doubt on White's argument, that is, show that Charles Martel did not widely use the stirrup, would be difficult to obtain in sufficient quantity to please everyone. A negative proposition can only be considered true if enough time has elapsed to shed sufficient doubt on the validity of its contradictory. In our case, the universal negative proposition: "no stirrups were used in Charles Martel's cavalry in sufficient numbers to constitute a military reorganization" can only be accepted if, after a number of archaeological excavations, not enough stirrups are found to justify their importance.

Later studies might supply this kind of necessary negative finding. Professor Bernard S. Bachrach has looked closely at White's ideas and in a paper entitled "Charles Martel, Mounted Shock Combat, the Stirrup, and Feudalism"¹⁷ he offers a rather strong refutation. Bachrach uses several means to dispute White's thesis, including linguistic, pictorial, and literary analyses, but for our purposes the archaeological data he discusses is of most importance.

In 1967 a catalogue published in Germany contained accoutrements of battle from 704 warriors found buried throughout eastern Francia, dated from the late seventh to the early ninth centuries. Of the 704 warriors 135 were equestrian (85 definitely and 50 probably). Of these equestrians only thirteen had stirrups (4 certain, 9 probable). Thus less than one percent of the cavalry represented in these grave finds had stirrups.¹⁸ Bachrach concludes his analysis by only lightly relying on this archaeological data, preferring to stress the literary, pictorial, and linguistic evidence; the sum total of his work resulted in the conclusion that "the stirrup was little appreciated and little used by the Carolingians during the eighth and ninth centuries."¹⁹

If Charles Martel did not appreciate the potentialities of the stirrup, why did he appropriate land from the church? For, it will be recalled, it was this action that became interpreted as providing the funds with which to pay for a well-equipped cavalry. But church land had been appropriated by the crown (and by the aristocracy) long before the Carolingians. Saint Boniface complained of the 'dissipation' of church property for 'not less than 60 or 70 years'; this letter²⁰ was written in 743, which means that from at least the 680s the churches were losing their lands.

This was a period of Frankish history²¹ dominated by the rivalries of two Frankish states, Neustria and Austrasia, and the emerging strength of the mayors of the palace following the assassination of Childeric II in 675, at the age of 25. He was the last of the Merovingians who tried to reign as an effective king. Eventually the mayor of the palace of Austrasia—Pepin II—defeated the Neustrians in 687, issuing in the Carolingian period.

Throughout this period influential families employed their own private armies. During the struggle for power, the more followers the better. Rulers and pretenders bought support with the wealth obtained by confiscating the lands and goods of others, both laymen and ecclesiastics. Not that Pepin, who eventually emerged on top, was particularly anti-ecclesiastic; he even had built a monastery on a Rhenish island for an Anglo-Saxon missionary (Suitbert), and in the struggle for power, Pepin had had the backing of the church, traditionally one of the influential arms of the aristocracy. But at his death, in 715, this aristocracy tried to rid itself of the mayors of the palace and assume control directly. The illegitimate son of Pepin, Charles Martel, after a two-year fight, defeated these magnates and assumed title of mayor of the palaces of all of Francia. One of the first steps taken by Charles was to depose the Bishop of Reims, who had opposed him.

Many of the church leaders had reason to be apprehensive of Charles, whom they had vigorously opposed. Moreover, it is possible that Charles saw the church as a most convenient source of wealth. Whether Charles regarded the economic advantages of seizing church holdings as of primary importance or not, he was not predisposed to leaving the powerful bishops who opposed him in control of so much military purchasing-power. Just as he had relieved recalcitrant nobles of their domains, giving them to more faithful folk, so he did the same with religious domains, a prudent manoeuvre and a financially rewarding one as well.

Thus Charles could have turned to the expropriation of church lands for several reasons, with political security and a general source of income being the two most probable. There are undoubtedly other reasons, and the stirrup may have played a part. Its full significance, however, cannot yet be appreciated, given present day evidence. It may well be determined that not until the onset of the Crusades and the later battles of the twelfth and thirteenth centuries that the 'mounted shock troops' came into their own. The stirrup, already around for several hundred years, would become a virtual mainstay for the well-appointed knight of the twelfth century, dawn of the Age of Chivalry.

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Notes and References

1. White, Lynn, Jr., *Medieval Technology and Social Change* (Oxford, 1964)1-38.
2. C. Stevenson, "The origin and significance of feudalism" *AHR* 46(1941)788, fn.2.
3. "Der reiterdienst und die Anfänge des Lehnwesens," *Zeitschrift der Savigny-Stiftung für Rechtsgeschichte, Germanistische Abteilung* 8(1887)1-38.
4. M. Jähns, *Roß und Reiter*, Leipzig, 1872.
5. White, *op. cit.* p. 6.
6. White bases this conclusion on a dating of the battle of Poitiers of 733, not a date accepted universally. See White, p. 3, fn.3.
7. *Ibid*, 27. White traces this introduction via the Muslim armies who encountered the stirrup in 694 AD in North Iran while fighting Turkestanian hordes.
8. English, German, French, Flemish, Danish, Arabian, Hungarian, Italian, Latin, Spanish, Swedish, Russian.
9. For other interpretations of the battle, see R. L. C. Ritchie, *The Normans in Scotland* (Edinburgh, 1954)36; R. F. Treharne, "The Battle of Hastings," *Encyclopædia Britannica* (1970 ed.)vol. 11, 155-6; *AHR* 66(1961)655, fn. 78.
10. White, "Technological Progress in Western Middle Ages" in A. C. Crombie (ed.) *Scientific Progress* (London, 1963)278.
11. R. Lefebvre des Noëttes, "L'Etrier à travers les ages" *Larousse Mensuel*, no. 227, Jan. 1926, pp. 11-14.
12. Thirteen at midpoint of panels 51-52, three at panel 54, three at 56, and two at 57 are all 'kite-shaped'; one oval shield appears at panel 56, and three wedge-shaped shields are on panels 57-58.
13. Beginning with panel 51, the dark horse between two banner carriers, to panel 58.
14. In 1971; Westmead, Farnborough, Hants., England.
15. *Oriental Art* 1(1955)61-65.
16. Page 14, note 3 and p. 16, note 6 of White's article contain desultory references to Bihar, however at note 1, p. 135, White instructs the reader to consult Bihar 'for the total problem' concerning the stirrup, a curious remark considering that White's hypothesis is at complete variance with Bihar's.
17. *Studies in Medieval and Renaissance History*, vol. VII (Univ. of Nebraska, 1970)49-75.
18. *Ibid*, 63.
19. *Ibid*, 65-66.
20. *Epistola No. 50*, quoted in part in Bachrach, p. 69.
21. Well described in Ferdinand Lot, *The End of the Ancient World and the Beginnings of the Middle Ages* (New York, 1961)337-364.