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VIKING AGE ARMS AND ARMOR ORIGINATING IN THE FRANKISH KINGDOM

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The export of Carolingian arms and armor to Northern regions outside the Frankish Empire from the 9th and early 10th century is a subject which has seen a gradual increase of interest among archaeologists and historians alike. Recent research has shown that the Vikings of this period bore Frankish arms, particularly swords, received either through trade or by *spolia* that is plunder.¹ In the examination of material remains, illustrations, and capitularies, the reason why Carolingian arms and armor were prized amongst the Viking nations can be ascertained and evidence found as to how the Vikings came to possess such valued items.

The material remains come from a variety of archaeological sites, which have yielded arms and sometimes even well preserved armor. These artifacts are usually found in three types of sites. Bog deposits have the best-preserved weapons and armor because of the protective peat surrounding the object. Many solitary items, in various conditions, have been discovered in rivers. Most of the material remains, however, have been found in gravesites.

Literary records verify that swords and other weapons and arms passed to neighboring regions through gift-exchange. The *Frankish Royal Annals* show such gift giving relations between the Anglo-Saxons and the Franks. In the *Annals*, Charlemagne gave King Offa an Avar sword.² Notice that the Franks gave away not their own prized swords, but foreign ones, which were acquired by Charlemagne's son, Carloman, from the Avars. These exotic swords were depicted only as ceremonial or show pieces, hence they were not held in as high a regard by the Carolingians as were their own swords. The *Gesta Karoli Magni* mentions that Frankish arms and armor were exported widely.³ Evidence found in the Baltic region and beyond indicates such exports in the mid-ninth century.⁴ The monk of St Gall mentions the appearance

1 S. Blowney, "Petersen's Type H-I Swords, a Gazetteer of Sources" (paper presented at the Medieval Congress, Kalamazoo, Michigan, Session 461 on Saturday May 7, 2005).

2 *The Royal Frankish Annals' in Charlemagne*, trans. P.D. King (Kendal, 1987).

3 Notker Balbulus, *Gesta Karoli Magni* 2.17, in ed. and trans. H. F. Haefele, *Scriptores rerum Germanicarum*, (MGH, *Nova Series* 12, 1959).

4 S. Coupland, 'Carolingian Arms and Armor in the Ninth Century', *Viator: Medieval and Renaissance Studies* 21 (1990), 29-50. <http://www.deremilitari.org/RESOURCES/ARTICLES/coupland.htm>.

5 Ibid.

of Vikings intending to purchase superior swords at the court of Louis the German,⁵ which denotes a peaceful trade system.

Restrictions on trade became authorized in many Frankish capitularies.⁶⁷ Carolingian rulers fashioned these laws to stem the flow of arms, especially swords, to outside regions by condemning their export. The situation had not improved; therefore, in 864 A.D, Charles the Bald threatened death to anyone caught supplying Vikings with arms.⁸ A passage in the *Annales Bertiniani* in 869 A.D. asserts that the Saracens demanded one hundred and fifty Carolingian swords as part of the ransom for Archbishop Rotland of Arles⁹; apparently, the Saracens recognized the quality of these swords and could not obtain them as a consequence of the increasingly enforced Frankish laws.

Certain types of armor were also forbidden to be exported from the Frankish Kingdom, the *brunia*, which are chainmaille shirts, in particular. Charlemagne prohibited the sale of *bruniae* and *baugae*, or armguards, outside of his realm in 803 A.D, knowing that this was the only way to protect his men from facing an opponent equally armored.¹⁰ Also written in the *Capitulary of Boulogne*, in October 811 A.D, article 10:

It has been decreed that no bishop or abbot or abbess or any rector or custodian of a church is to presume to give or to sell a *brunia* or a sword to any outsider without our permission; he may bestow these only on his own vassals. And should it happen that there are more *bruniae* in a particular church or holy place than are needed for the people of the said church's rector, then let the said rector of the church inquire of the prince what ought to be done concerning them.¹¹

Given that the Carolingians mandated these laws, the practice of selling these items to foreigners must have been prevalent. The replicated laws in the capitularies over the years also suggest a need to reinforce them. These laws were enforced by increasingly severe repercussions, which made Carolingian swords and armor hard to come by for foreigners. After which the Vikings had grown discontented with limited trading with the Frankish Empire

6 *Capitulare missorum in Theodonis villa datum secundum, generale c. 7*, in ed. A. Boretius, *Capitularia regum Francorum* (MGH, Cap. 1.123, 1883).

7 *Capitulare Bononiense, Karoli Magni capitularia c. 10*, in ed. A. Boretius, *Capitularia regum Francorum* (MGH, Cap. 1.167, 1883).

8 *Capitulare Bononiense, Karoli Magni capitularia c. 10*, in ed. A. Boretius, *Capitularia regum Francorum* (MGH, Cap. 1.167, 1883).

9 Charles the Bald, *Edictum Pistense*, in ed. A. Boretius and V. Krause, *Capitularia regum Francorum* 25 (MGH, Cap. 2.321, 1897).

10 *Annales Bertiniani*, in ed. F. Grat, J. Vielliard, and S. Clemencet, *Annales de Saint-Bertin* (Paris, 1964).

11 *Capitulare Bononiense*.

and resorted to raiding the coastlines.

Changes in trade patterns, as Hodges and Whitehouse theorized,¹² may also have initiated the outward movement of peoples and traders from Norse lands. New trade routes and emporia presented the Viking people with wealth and crafted materials from foreign regions and revealed the benefits of raiding outside their own homeland. In the late 8th to early 9th centuries, Norse merchants traded eagerly at Frankish emporia. By the mid to late 9th century, at the same time Charles the Bald was reinforcing the old laws on exports with stricter consequences, the Vikings began raiding the Frankish Kingdom. Between 834-839 A.D, Viking raiders frequently besieged emporia in Frisia, particularly Dorestad.¹³ Raids increased as more restrictions were placed on exports.

Weapons were taken from smithies as well as from opposing fighters. Ewart Oakeshott mentions that swords, in particular, were sought after and taken as a symbol of power after vanquishing an esteemed enemy.¹⁴ Occasionally, however, the Franks won a battle against the raiders.¹⁵ Since the Vikings attacked by the shore, leaving their ships at anchor, the victorious Carolingians could then profit from any *spolia* held on the ships, and many times redistributed Frankish weapons and trophies.¹⁶ The *Annales Fuldenses*, in 885 A.D, describes a clan of Frisians having defeated Viking raiders in order to commandeer the riches that the Vikings stole from their previous raids.¹⁷

Carolingian armor, like swords, were purchased in trade or taken as *spolia* by Viking merchants and raiders respectively. The most common pieces of armor sought after were the Frankish *brunia* and helms.¹⁸ The *brunia* was a coat of maille similar in design to a modern t-shirt. In St. Olaf's Saga, a chieftain returning to the North "has on his ship one hundred men, and they had on coats of maille and foreign helmets".¹⁹ More affluent royal vassals were obligated to own a *brunia*.²⁰ The *Capitulary of Aachen* "made it obligatory for counts to have *brumae* and helmets in reserve in order to equip horsemen

12 R. Hughes and D. Whitehouse, *Mohammed, Charlemagne and the Origins of Europe*, (Cornell, 1983).

13 Coupland.

14 R. E. Oakeshott, *Records of the medieval sword* (Suffolk; Rochester, 1991).

15 *The Royal Frankish Annals' in Charlemagne*.

16 P. H. Sawyer, *The age of the Vikings*, (New York, 1972).

17 *Annales Fuldenses*, ed. T. Reuter, *The Annals of Fulda*, (Manchester, 1992).

18 Coupland.

19 Snorri Sturluson, "St Olaf's Saga" in *Heimskringla* trans. and ed. by M. Erlingsson.

<http://www.blackmask.com/acrobok/heimskringla.pdf#search='St%20Olaf%20Saga'> (Date accessed 3-15-10).

20 Coupland. 21 F. L. Ganshof, "A propos de la cavalerie dans les armées de Charlemagne," *Comptes-rendus de l'Académie des inscriptions et belles-lettres* (1952) 57-68.

destined to be armored knights".²¹ However, infantry and cavalry men were not required to possess body armor.²² Churches and monasteries owned reserve armor to equip their *milites*.

Frankish shields are also found outside the Carolingian borders. The shields in 9th century manuscript illustrations depict a round shield with a distinct rim, firmly fixed by rivets. Some images reveal latticework mounts fastened to the shield inside the rim.²³ Mounts of this type have been excavated in the Swedish ship burials of Valsgarde.²⁴

In the Danish Vimose bog deposit sixty-seven swords were found, along with one thousand spears, five with ash shafts as described in sagas. Fine maille was also found in this site.²⁵ The Nydam bog, famous for the excavation of four Viking ships,²⁶ held one hundred and six double-edged swords (ninety-three of them pattern welded) and five hundred and fifty-two spears.²⁷ The spear and lance was the most common weapon of the Carolingians. A shield and lance bought together cost only two *solidi*, as listed in the *Lex Ribuara*.²⁸ In 792/93 A.D, the *Capitulare missorum* required cavalry to possess a shield and lance.²⁹ By 802/3 A.D, the *Capitulary of Aachen* made infantry equipped with lance.³⁰ A letter Charlemagne sent to Abbot Fulrad in 806 A.D,³¹ added a sword to the requirements.

Knives and daggers were also common weapons. There were three hundred daggers found in Coppergate, Jorvik, England alone. The large numbers of daggers found in the graves of women and children in addition to men indicate that these were commonplace. The relatively cheap manufacture of daggers and knives and their common usage would indicate that they were made locally and not as widely exported as the sought after swords.

There have been fewer Frankish swords found in Viking excavated

21 F. L. Ganshof, "A propos de la cavalerie dans les armées de Charlemagne," *Comptes rendus de l'Académie des inscriptions et belles-lettres* (1952) 57-68.

22 Coupland.

23 Coupland.

24 G. Arwidsson, *Valsgarde 8*, in *Die Graberfunde von Valsgarde 2*, (Uppsala, 1954) pls. 10, 11.

25 Oakeshott.

26 P. Åkesson, *The Nydam Boats*, (March 1998, rev. 2005) <http://www.abc.se/~m10354/uwa/nydam-e.htm> (Date accessed 3-15-10).

27 Oakeshott.

28 *Lex Ribuaria* 40.11, ed. R. Sohm, *Leges nationum Germanicarum*, (MGH, 3.2.94, 1883).

29 *Capitulare missorum* c. 4, in ed. A. Boretius, *Capitularia regum Francorum* (MGH, 1.67, 1883).

30 *Capitulare Aquisgranense* c. 9, in ed. A. Boretius, *Capitularia regum Francorum* (MGH, Cap. 1. 171, 1883).

31 *Karoli ad Fulradum abbatum epistola*, in ed. A. Boretius, *Capitularia regum Francorum* (MGH, Cap. 1.168, 1883).

sites then there have been of other arms and armor. This was due not to the lack of Carolingian swords in the area, but to the practice of keeping swords to be used even after the death of the owner. The price of a sword during the reign of Charlemagne was three *solidi*; with a scabbard it sold as seven *solidi*,³² or whereas later, during Charles the Bald's reign, the sword was valued at five *solidi*.³³ The *Laxdæla Saga* mentions that a sword was the price of half a crown, equal to the value of sixteen milk cows.³⁴ Swords were expensive and even through plunder these elite weapons would have been hard to come by.

Frankish swords were sought after for their superior quality and may have been used by multiple owners. The fact that few swords have been found in graves does not necessarily imply that they were not used. Conversely, this probably meant that they were considered too valuable to be buried. These swords were doubtlessly passed down for generations as inheritances.³⁵

In order to be worn, the sword would have been attached to a sword-belt by mounts and clasps. There are no complete finds where the sword is preserved *in situ* with the *cinguli*, sword belt; the straps and mounts have usually been found separate, sometimes with the sword but not attached to the sword. Nevertheless, the arrangement has been reconstructed with the aid of illustrations in such sources as the *Stuttgart Psalter*,³⁶ which depicts accurate pictures from the same time period as the archaeological finds. Thus, the use of *cinguli* to hold the sword is a contemporary portrayal. In the pictures, the sword is suspended from the belt by two converging straps. The purpose of the trefoil mounts is not discernible; they were likely used to attach the two straps to the sword belt. The *Saint Emmeram Gospels** has an illustration showing a buckle and a long strapend, which held the belt's ends together.³⁷ The illustrations in these two manuscripts, taken together, account for the full set of fixtures: straps, mounts, strapends, and buckles. Similar mounts are also found in Scandinavian silver hoards.³⁸ In Ladby, a ship-grave revealed a burial of a man with personal belongings that included a large Carolingian gilt silver belt-buckle which would have been used as a sword-clasp.³⁹ In the exhibit *Viking*

32 *Lex Ribuaria* 40.11.

33 *Gesta ranctorum Rotonensium* 1.6, in ed. by C. Brett, Ph.D. diss. (Cambridge, 1986); F. Lot, *Melanges d'histoire bretonne*, (Paris, 1907), 10.

34 *Laxdæla saga*, ed. M. Magnusson and H. Pálsson, (London: 1969).

35 F. Wilkinson, *Arms and Armour* (London, 1978).

36 Stuttgart, Württembergische Landesbibliothek, Biblia fol. 23: *Der Stuttgarter Bilderpsalter*, 2 vols. (Stuttgart, 1965-1968), fols. 13, 158v.

37 *St. Emmeram Gospels*, Munich Staatsbib., Clm. 14000, fol. 5v.

38 E. Wamers, "Ein karolingischer Prunkbeschlag aus dem Römisch-Germanischen Museum Köln," in *Zeitschrift für Archäologie des Mittelalters* 9 (Köln, 1981), 91-128.

39 R. Schuster, *Ladby. A compilation of various ship finds, their contents, and various other items of interest*, <http://www.missouri.edu/~rls555/SCA/research/ships/ships.htm> (Columbia, Date accessed 1-15-05).

Age Artefacts at the Museum of Archaeology and Anthropology, Cambridge, a trefoil brooch of Scandinavian origin imitates the Carolingian-style trefoil-shaped mounts.⁴⁰ A similar brooch is in the British Museum, discovered at Roskilde, Denmark, and made of a copper alloy decorated in a Borre style animal motif.⁴¹ Modern scholars theorize that the brooch would have been developed to symbolize the "Viking prowess of the man who presented the gift".⁴² The plethora of mounts and clasps, and the fact that replica brooches were made from the designs of Carolingian clasps, leads one to believe that the swords were simply too valuable to be buried. The numerous finds in Scandinavia suggest again that the Vikings managed to obtain Frankish swords in relatively large numbers either through trade or through plunder.

A *Manuscript of St. Gall*,⁴³ from the early tenth century, and an illustration of a battle scene from the *Book of Maccabees* in the *Codex Periconi 17*,⁴⁴ both show the Frankish swords to be of the same type as have been found in many Viking graves. Ibn Fadlan, an early tenth century Arab, stated that the Rus Vikings carried swords of Carolingian type in his writing, *Risala*. "§ 81. Each man has an axe, a sword, and a knife and keeps each by him at all times. The swords are broad and grooved, of Frankish sort."⁴⁵

The wide distribution of Frankish weapons in the Viking Northern lands demonstrates that the Vikings valued Frankish swords in particular. The difference between a Viking sword and a Frankish sword must have been significant enough to warrant extreme measures of obtaining them, such as raiding Frankish coast lines. The main difference must have been in the type and quality of the metal itself and how the smith worked the metal to form the blade.⁴⁶

New iron mines were opened in the Carolingian Age,⁴⁷ making the

40 K. Milek, Trefoil Brooch, *Viking Age Artefacts at the Museum of Archaeology and Anthropology, Cambridge*. http://www.arch.cam.ac.uk/~kbm20/extras/Museum_Artefacts.pdf#search='Milek%2C%20Trefoil%20Brooch%2C%20Viking%20Age%20Artefacts' (Cambridge, Date accessed 1-15-05).

41 The British Museum Compass Collections Online, (Date accessed 1-15-10). http://www.britishmuseum.org/explore/highlights/highlight_objects/pe_mla/t/trefoil_brooch.aspx.

42 Milek.

43 St. Gall, Stiftsbibliothek MS 22.

44 *Book of Maccabees* in Leiden, Bibliotheek der Rijksuniversiteit MS Perizoni 17.

45 H. M. Smyser, "Ibn Fadlan's Account of the Rus with Some Commentary and Some Allusions to Beowulf," in J. B. Bessinger Jr. and R. P. Creed (eds.), *Franciplegius: Medieval and Linguistic Studies in Honor of Francis Peabody Magoun, Jr.* (New York: 1965), 92-119.

46 D. Edge and J. Paddock, *Arms and Armor of the Medieval Knight* (New York, 1988); Petersen, op. cit. in note xlix.

47 J. Selmer, Technology and the Advancement of Medieval Arms and Armour, Part 1, http://filebox.vt.edu/users/jselmer/technology_article.htm, (Date accessed 3-15-10).

metal cheap and more available than it had been. While iron was used frequently on the continent, the Vikings had little metal to work with in their own lands.⁴⁸ Most early weapons were forged from bog iron and, when opportunity arose, from meteorite iron.⁴⁹ These two forms of metal were the best available because of their high nickel content; however, pieces of these metals large enough to make a sword were difficult to find.⁵⁰ When possible, Carolingian alloys were pattern welded to form the blade of a Viking weapon.⁵¹ The earliest high-quality blades were created using pattern welding, a special method, which allowed the smith to use both low and high-quality iron. Pattern welding used steel blanks, welding two or more blanks together.

Shortly before the tenth century, a new technique of blade forging was developed in the Rhineland. With this new innovation, Frankish smiths improved the strength of the blade while also enhancing its maneuverability. The new Frankish sword became highly sought after by the Northmen as well as by the Saracens to the south. This new technique created hard-elastic steel, which were entirely steel. Differing from the pattern-welded iron, mentioned above, they did not need to be hardened with iron and strengthened by woven steel into an iron base. This sword was the paramount Viking Age sword. The first swords of this model bear the inscription ULFBERHT inlaid into the steel with iron, with crosses etched before and after the name.⁵² Since this name is produced on many swords from a long time span, it is thought that Ulfberht was the name of a family that owned the smithy which produced the swords.⁵³ Foreigners discerned that these swords were superior to the pattern-welded ones they were accustomed to using. Although the new method was better than previous techniques, pattern-welding was not discontinued. An examination of the carbon differences in pattern-welded compared to ULFBERHT swords shows that the pattern-welded swords contained 0.4-0.52% carbon while the ULFBERHT swords contained 0.75%.⁵⁴ In this case, modern science has provided evidence for why the Northmen desired Frankish swords.

The wide distribution of ULFBERHT blades reveals the huge impact this sword type had on the trading and pillaging of Frankish arms. Two blades have been discovered in Ireland at Kilmainham and Ballinderry Crannog.⁵⁵ Shifford and London, England also held important finds of ULFBERHT swords.⁵⁶ These sword types have been discovered from as far away as Iceland

48 S. Modin, T. Hansson, L. Thalin, and J. Tomtlund, *A Metallographic Examination of Some Iron Findings with a High Nickel and Cobalt Content*, (Uppsala, 1973).

49 M. Harrison, *Viking Hersir*, (Oxford, 1993).

50 Modin, Hansson, Thalin, Tomtlund.

51 Ibid.

52 Oakeshott.

53 Oakeshott and Peirce.

54 Oakeshott.

55 Ibid.

56 Ibid.

and modern day Russia.⁵⁷

In 1919, Jan Petersen classified Viking Age swords into twenty-six types on the basis of their sword hilts. Petersen displayed a chronological arrangement of the swords, labeling them A to X.⁵⁸ Petersen's type K swords are considered to be among the earliest of the Viking Age types and also as being native to the Frankish Kingdom. They are distributed across most of Europe, with many finds in Scandinavia, particularly Norway.

Another early style, Type H was well distributed across the Scandinavia and the northern regions on the continent. These swords have mostly been discovered in coastal areas of north Europe, indicating that they were imported. Many have been found in Sweden, Finland, and Russia.⁵⁹ Many of these swords are pattern-welded; yet two of them are high-quality ULFBERT swords. Petersen holds that H-type swords were derived from type B swords, the transitional early model from the Frankish Kingdom. The blade of the ULFBERT sword may have been made in the Frankish Kingdom, and then possibly refitted with the Viking style of hilt and pommel.⁶⁰

Using Peterson's classification, Sir Mortimer Wheeler condensed Petersen's twenty-six types into seven similar styles and Oakeshott added two more styles to Wheeler's seven.⁶¹ Wheeler divided the swords according to the styles of pommel and upper guard.⁶² The first two types, according to Oakeshott's classification, are clearly Scandinavian in origin and thought to be developed from continental prototypes, as are the fifth, sixth, and ninth types. Type III has a three lobed pommel, its central lobe larger than the side two. Sometimes this sword features zoomorphic ends and straight guards. These swords come from Northwest Europe around the 9th to 10th centuries.⁶³ Type III swords are rarely found in the British Isles outside of Scotland and Dublin. A full-page illustration of the king's enthronement in the *Codex Aureus of St Emmeran 870 A.D.* shows the royal armor-bearer for Charles the Bald holding a type III sword.⁶⁴ The type IV sword is also generally held by Wheeler and Oakeshott to be Frankish in origin. With a wide distribution to Norway, Ireland, London, and throughout Gaul, this is the most popular of the Frankish swords.⁶⁵ This sword has a nearly flat pommel with five lobes of the same size

57 Ibid.

58 Ibid.

59 Nationalmuseet Collection, Copenhagen.

60 C. Johnson, *Some Aspects of the Metallurgy and Production of European Armor*, in the Armored Proceedings Symposium Notes, The Oakeshott Institute (Minneapolis, 2002) <http://www.oakeshott.org/metal.html>, (Date accessed 3-15-10).

61 Oakeshott and Peirce.

62 Oakeshott

63 Ibid.

64 Ibid.

65 Oakeshott and Peirce.

and straight guards. These blades are double-edged, with remarkable ornamentation on hilts and pommels, and a few of the swords are pattern-welded.⁶⁶ It is safe to surmise that the blades of type IV swords also were of Frankish origin since many of the swords bare the name ULFBERT inlaid into the sword, they are double-edged, and few are pattern welded. Type VII swords have an “almost semi-circular, flattish pommel”.⁶⁷ The pommel is divided into three parts with grooves or beaded lines. This type of sword is distributed throughout Scandinavia and in the western regions of Gaul.⁶⁸ These three categories demonstrate which types of swords likely originated on the continent and can then be used to identify the distribution areas and flow of export.

Frankish swords and armor were superior to anything the Vikings could produce. Spears and axes were not commonly exported from the Rhineland because they used little iron and were affordable for the Northmen to manufacture. Armor such as the Frankish *burnia* and *bauga* were much sought after by the Northmen, because they did not make these items themselves.

Even though the *burnia* and *bauga* were prized items, the Carolingian sword was the most sought commodity of arms and armor as indicated by the stress placed on swords in capitularies.⁶⁹ Frankish swords from the 9th century were considerably stronger and more maneuverable than their antecedents. These weapons were probably first brought to the attention of the Vikings by means of trade,⁷⁰ and later, when trade was prohibited,⁷¹ through plunder.⁷² Throughout the era of Viking expansion, these weapons were most centralized in Scandinavia and distributed through the Hebrides, to Iceland, and the Rus. This wide distribution shows the great importance the Frankish swords were to the Northmen.

Trefoil brooches are one example of how adept the Vikings were at recreating metal objects into designs, which suited them better. They did the same with Carolingian swords, sometimes even re-fitting a Frankish all steel blade which could not be found in their own lands with a pommel and hilt. The irony is that these high-quality Frankish swords are today called Viking swords.

66 Ibid.

67 Oakeshott.

68 Ibid.

69 *The Royal Frankish Annals*; Notker Balbulus; *Capitulare missorum*; *Capitulare Bononiense*; *Edictum Pistense*; *Annales Bertinian*; *Capitulare missorum*.

70 Notker Balbulus.

71 *Capitulare missorum*; *Capitulare Bononiense*; *Edictum Pistense*.

72 Oakeshott.