

# Haberget: A Medieval Textile Conundrum

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THE SOCIETY for Medieval Archaeology has always sought to encourage collaboration between those trained in the discipline called archaeology—that branch of historical study which is concerned with the discovery and interpretation of the material remains of the past—and those schooled primarily in the study of written records. Such collaboration has long been taken as a matter of course by students of the early middle ages, where written records are scarce, but it has not so readily been accepted by those working on the later middle ages, where the abundance of written records has tended to deter archaeologists from considering their evidence and has often caused historians interested primarily in documents to be absorbed in them to the exclusion of all else. Yet here too cooperation can prove very valuable, as enterprises like that of the Deserted Medieval Village Research Group have shown. My own small essay in collaboration today is an attempt to solve a medieval textile conundrum. By bringing together all the available evidence—documentary, philological and archaeological—it seeks to discover the character of a famous, but mysterious, woollen textile of the 12th and 13th century, ‘haberget’, and in doing so it opens up problems of wider significance than the meaning of a single word.

The argument that follows is in a very real sense a cooperative effort. It owes an immense debt to discussions with archaeologists in England and abroad, especially to Dr. Marta Hoffmann of Oslo, whose major work on the warp-weighted loom was in progress when our discussions began some ten years ago. It owes no less to a philologist, Professor Brian Woledge of University College, London, who at that same time was investigating the meaning of ‘haberget’, which he had encountered, in its French forms, in Old French literature. With great generosity he has put his notes entirely at my disposal; hence the etymological argument is virtually his own.

The term ‘haberget’ has baffled the dictionary makers all down the ages, so much so that the New Oxford English Dictionary takes refuge in defining it merely as ‘a kind of cloth’. Yet haberget was one of only three kinds of cloth specifically singled out for mention in Magna Carta, which prescribed its width; it was named as the speciality of Stamford in a 13th-century list of English towns; and it was used for the clothing of kings and queens. Surely then we ought not to rest content to know nothing at all about what it was like.

<sup>1</sup> This article is a slightly expanded version of a Presidential paper read to the Society in December 1968.

In seeking a solution to the conundrum let us begin with the documents. Looking first at such instances as have come to light in Old French sources we find our word in three poems and one deed, all of them written almost certainly between the mid 12th and the mid 13th century.

i. The earliest instance comes in the Life of Thomas Becket by Guernes de Pont-Sainte-Maxence, which was finished in 1174, only four years after Becket's murder. Here the author relates how once, when Becket, then chancellor, was staying at Stoke-on-Trent, his host, suspecting him of an affair with one of the king's mistresses, entered his room in the middle of the night; he found the bed undisturbed and Becket asleep on the floor covered with 'a mantel of fine *haubergié*' (*un mantel de menu haubergié*). He had fallen asleep tired with praying:

Lez le lit a la tere jut Thomas li senez.  
 Cuvert ert d'un mantel de menu haubergié,  
 Et descouvert li erent les jambes et li pié.  
 En ureisuns aveit sun cors mult travaillié;  
 De dreite lasseté s'a a tere culchié,  
 Et dormi fermement, pur ceo k'ot tant veillié.<sup>2</sup>

Here *haubergié* is clearly a noun, designating a kind of cloth, and the noun appears to have originated as the past participle of a verb *haubergier*.

ii. A second French example occurs in a pastoral poem by Guillaume le Vinier, a lyrical poet of Arras, who died in 1245. This describes how at a festive gathering of shepherds and shepherdesses those from the Avesnes district came in crowds into a great meadow; there everyone danced, and the lovers and their loves had gloves, smocks, and 'little gowns *haubergies*' (*coteles haubergies*):

Cil d'Avaines les parties  
 Vinrent a grans gens rengies,  
 En unes grans praeries,  
 En loges et en foillies;  
 Chascuns kerola.  
 Li ami et les amies  
 Orent gans et sorkenies  
 Et coteles haubergies  
 Et coifes a dens pincies.  
 Chascuns s'atiga.<sup>3</sup>

Here again we have what appears to be the past participle of a verb *haubergier*, used this time as an adjective, in a dialectal form in which the feminine *iées* is reduced to *ies*.

iii. The third French example is in a metrical list of English places dating probably from somewhere about the middle of the 13th century. Over a hundred places are listed, each with some characteristic product or other distinguishing feature for which it is celebrated. As Dover, for instance, is there noted for its castle, Oxford for its 'schools', Bridport for its rope, and Yarmouth for its herrings, so Stamford appears in a group of five clothmaking towns as famous for its 'haubergé' (*Haubergé de Estanford*):

Escarlet de Nichole.  
 Haubergé de Estanford.

<sup>2</sup> Guernes de Pont-Sainte-Maxence, *La vie de Saint Thomas le Martyr*, ed. E. Walberg (Lund, 1922), lines 325-30 and fn. p. 223. This life was derived mainly, but not entirely, from Latin sources which are still extant, including William of Canterbury's life of Becket. William mentions the incident, but not the detail that concerns us here; Guernes presumably got this from some other source locally when he came over to England and visited Canterbury while he was compiling the Life. This, with the following reference, was brought to my attention by Professor Brian Woledge.

<sup>3</sup> *Altfranzösische Romanzen und Pastouellen*, ed. K. Bartsch (Leipzig, 1870), p. 273.

Blaunket de Blye.  
Burnet de Beverlé.  
Russet de Colcestr'.<sup>4</sup>

Here, as in the first example, our word is used as a noun.

iv. The French word appears also in a deed, probably of the mid 13th century. This records that Henry Anglicus and Ralph his son have granted Richard Beaufiz 10½ acres of land, with appurtenances, at a rent of 6d. a year, in return for which grant Richard has given 20s. with 'a supertunic of *hauberge* furred' for Henry (*unam supertunicam de hauberge furrata*) and 'a tunic of *hauberge*' for Ralph (*unam tunicam de hauberge*). This lease, which is all in Latin except for our word, survives only in an early 16th-century copy in a cartulary of St. Thomas's Hospital, Southwark.<sup>5</sup> Here again our word is used as a noun.

Summing up the Old French documentary evidence we see that the past participle of a verb *haubergier* was applied to cloth, probably in the first instance as an adjective, but at least by 1174 as a noun, and that the word was current at any rate from the mid 12th to the mid 13th century. It clearly denoted a cloth that could be made in several different qualities—for Becket's cloak was made of 'fine' *haubergié*; that was worn by people of very different rank socially—from a king's chancellor down to shepherds and shepherdesses on holiday; and that was manufactured especially at Stamford—for it could be regarded as the typical Stamford product. So far the French sources take us.

Looking next at the corresponding Latin word as it appears in medieval records we find *haubergetum* (alternatively *halbergetum*, *haubergettum*, *halbergettum*, *albergetum*, *haubergium*, *halbergeum*) occurring more frequently than its French counterpart. Twenty-three examples have so far come to light. All of them, like the French examples, date from the mid 12th to the mid 13th century, except for two confirmations of Magna Carta from the end of the century. They appear in non-literary sources such as royal ordinances, household accounts, private charters and records of legal proceedings. Before discussing their significance it may be well to set them out briefly for easy reference. Though all may be found in printed sources each has been collated<sup>6</sup> with the original, and amended where necessary.

1. 1147–89. Geoffrey de Brachecourt gives all his possessions to the abbey of Vaudey in Lincolnshire on condition that the monks maintain him and his wife for the rest of their lives and provide clothing for himself '*de griseng vel haberget et pellibus agninis*' (of 'griseng' or haberget, furred with lamb), and for his wife '*ad carius bluet et pellibus similiter agninis*' (at least of bluet similarly furred with lamb).<sup>7</sup>

<sup>4</sup> Bodleian MS. Douce 98, ff. 195–6. Printed by J. E. Thorold Rogers in *Notes and Queries*, 6th ser., viii (1883), 223, where '*hauberge*' is interpreted as 'inns', and by C. Bonnier in *Engl. Hist. Review*, xvi (1901), 501–3; see also Thorold Rogers, *Six Centuries of Work and Wages* (1884), p. 105. Rogers discusses the dating evidence and considers the list to have been drawn up 'a little after the middle of the century', but the MS. to be of the close of the century; the Bodleian catalogue puts the MS. at 1320–30.

<sup>5</sup> B. M. Stowe MS. 942, f. 176 v.; see *Cartulary of the Hospital of St. Thomas the Martyr, Southwark (1213–1525)*, trans. L. Drucker (1932), no. 501.

<sup>6</sup> Except in the example from Dugdale (no. 1), where reference back is now impossible.

<sup>7</sup> Sir William Dugdale, *Monasticon Anglicanum*, v (1846), 490. The charter is undated, but appears to be soon after the foundation of the abbey in 1147, and in any case earlier than the accession of Richard I. 'Griseng' or 'grise' (grey) was a cheap undyed cloth often worn by the poor; it was regularly bought for the royal almsgiving, and was adopted by the Franciscans—hence called the Grey Friars. 'Bluet' was one of the cheaper blue cloths.

2. 1190-1. Account of purchases for the king of:  
  - 1 panno de xxxiii ulnis tincto in grein ad opus domini R. £7 8s.;
  - 1 haubergio de xxxiii ulnis ad opus R. £6 11s.;
  - 2 scarletis qui fuerunt empti a Roberto Chau, et missi domini R. contra Pasch. £17.<sup>8</sup>
3. 1193-4. Account of purchases for the king of:  
scarlatis et pannis de virid' et halbergeis.<sup>9</sup>
4. 1196-7. Account of purchases for the king of:  
xxxii ulnis halbergetti tincti in grana £6 12d.;  
xl ulnis halbergetti virid' et xxxi ulnis et dim. de halbergetto de poumaz £10 17s. 8d.  
(32 yards of halberget dyed in grain; 40 yards of green halberget and 31½ yards of poumaz halberget.)<sup>10</sup>
5. 1200. Payment by the prior of Repton to Alard son of Ralf, in settlement of a quit claim and final concord, of 60s. sterling and *unam robam de halberget'* (a robe of halberget).<sup>11</sup>
6. 1202-3. Purchases of goods stolen by a notorious robber in the region round Stamford, Northampton and beyond include *xv ulnas haubergel'* taken from a cart, and *i pallium haubergel' tinctum in burneto* (a cloak of haubergel dyed in burnet).<sup>12</sup>
7. 1202-3. Purchase by a man of Peterborough of goods stolen by the same robber include *i robam de haubergeto sc. tunicam, supertunicam et pallium*.<sup>13</sup>
8. 1203. Theft of, *inter alia, i pallium de haubergeto*.<sup>14</sup>
9. 1205. Licence to ship various goods from England to Flanders, including *duos pecias albergeti*.<sup>15</sup>
10. 1205-21. Grant of a corrody by Osney Abbey to Robert de Gay, lord of Hampton Gay [Oxon.], his wife and two sons, in return for the gift of his manor of Hampton Gay and other benefits conferred on the abbey by Robert and his ancestors. Robert is to receive, for his clothing, each year at Michaelmas a robe of cloth price 12d. a yard, viz. cape, tunic, and supertunic with sleeves, the supertunic furred with white lamb, and at Easter a *tunicam et supertunicam de habergero*, price 10d. a yard.<sup>16</sup>
11. 1208. Payment by the parson of Sancton [Yorks. East Riding] to Cicely, daughter of Robert, for a grant of 2 bovates of land, of 20s. and *unam tunicam de habergeto et unum pallium de burneta furratum cum cuniculis* (a tunic of haberget and a cloak of burnet furred with rabbit).<sup>17</sup>

<sup>8</sup> Pipe Roll 2 Richard I; Pipe Roll Soc. vol. 39 (n.s. 1, 1925), 3.

<sup>9</sup> Pipe Roll 5 Richard I; Pipe Roll Soc. vol. 41 (n.s. 3, 1927), 158. The printed version has *scarletis*.

<sup>10</sup> Pipe Roll 8 Richard I; Pipe Roll Soc. vol. 45 (n.s. 7, 1930), 18. For *poumaz* see *infra*, note 30.

<sup>11</sup> *Pleas before the King or his Justices 1198-1202*, ed. D. M. Stenton (Selden Soc. vol. 67, 1953), p. 27.

<sup>12</sup> *The Earliest Northamptonshire Assize Rolls A.D. 1202 and 1203*, ed. D. M. Stenton (Northants Record Soc. vol. 5, 1930), p. 113, nos. 694, 695.

<sup>13</sup> *Ibid.*, p. 113, no. 689.

<sup>14</sup> *Curia Regis Rolls preserved in the Public Record Office*, II (P.R.O. Texts and Calendars, 1925), p. 180.

<sup>15</sup> *Rotuli litterarum patentium 1201-1206*, ed. T. Duffus Hardy (Record Commission, 1835), p. 52b.

<sup>16</sup> *Cartulary of Osney Abbey*, ed. H. E. Salter (Oxford Historical Soc. vol. 91), III (1931), 55; original in B.M. Cott. MS. Vit. E. xv, f. 197r.

<sup>17</sup> *Yorkshire Feet of Fines 1199-1214*, ed. W. Brown (Surtees Soc. vol. 94, 1897), p. 150, no. 410.

12. 1212-13. Account of purchase for the king at the fair of St. Ives of:  
*MMM et xliiii ulnis de halberg'o albo* (3,043 yards of white haberget);  
*MM et DCCCC et quater xx et xliiii ulnis de pannis tinctis*;  
*M et CCCC ulnis de scarlate*;  
*CC et xliiii ulnis de blanchetto tincto in grana.*<sup>18</sup>
13. 1215. Magna Carta, article 35. *Una mensura vini sit per totum regnum nostrum . . . et una latitudo pannorum tinctorum et russetorum et halbergettorum scilicet due ulne infra listas.*<sup>19</sup>
14. 1216. First reissue of Magna Carta; as no. 13, with the spelling *haubergetorum.*<sup>20</sup>
15. 1217. Second reissue of Magna Carta; with spelling *haubergetorum.*<sup>21</sup>
16. 1218. Order, in enforcement of the above provision of Magna Carta, to the sheriffs of Lincoln, Oxford, Northamptonshire & London to make proclamation that no merchant, on pain of forfeiture, shall sell anywhere any *pannum tinctum vel russetum vel haubergetum* that is not 2 yards wide within the lists.<sup>22</sup>
17. 1218. Proclamation at Worcester fair that no *pannum tinctum sive russetum sive haubergetum* is to be sold unless it is 2 yards wide within the lists.<sup>23</sup>
18. 1225. Third reissue of Magna Carta; with spelling *haubergetorum.*<sup>24</sup>
19. 1225. Order that Londoners who cause burels to be made or sell them are not to be vexed by the ordinance *de russettis et haubergettis et aliis pannis tinctis.*<sup>25</sup>
20. 1228. Order to the sheriff of York to render an account of the price of all the goods bought by men of York and others from a ship taken into Hull, after all the merchants of the ship had been killed off Sandwich; the schedule includes *precium sex ulnarum de grosso halbergetto, scilicet xxxiii d.* (the price of 6 yards of coarse haberget, i.e. 33d.).<sup>26</sup>
21. 1235. Order from the king to Hugh son of Reyner of Stamford to have made with all possible haste *tres bonas blaunchettas et tres bonos haubergett'* and, when they have been made, to have them well dyed in grain. Similar order to Walter de Tykincote of Stamford *de tribus bonis haubergett' et tribus bonis blanchett'*; to Robert son of Richard of Northampton *de quatuor blaunchett'*; and to Henry de Tykincot' *de tribus blaunchett' et tribus haubergett' bonis.*<sup>27</sup>
- 22, 23. 1297 and 1300. Confirmations of Magna Carta by Edward I, with spelling *haubergettorum.*<sup>28</sup>

These Latin documents, while confirming what the Old French sources

<sup>18</sup> Pipe Roll 14 John; Pipe Roll Soc. vol. 68 (n.s. 30, 1955), 43. The original gives not *halbergeso*, as in the printed version, but *halbergo*, with a contraction mark over the *o* which could be variously interpreted.

<sup>19</sup> Magna Carta, article 35; W. Stubbs, *Select Charters*, 9th edition (1913), p. 297, quoting B. M. Cott. MS. Aug. ii, 36. W. S. McKechnie (*Magna Carta*, 1914) wrongly gives *halbergetorum*.

<sup>20</sup> First reissue of Magna Carta, art. 28; as no. 13, but with the spelling *haubergetorum*. *Statutes of the Realm*, I (1810), 14-16.

<sup>21</sup> Second reissue of Magna Carta, art. 31; as no. 14; *ibid.*, 17-19.

<sup>22</sup> *Rot. litt. claus.*, ed. T. Duffus Hardy, I, 1204-24 (Record Commission, 1833), 378b.

<sup>23</sup> *Patent Rolls, Henry III, i, 1216-25* (P.R.O. Texts and Calendars, 1901), p. 153.

<sup>24</sup> J. C. Holt, *Magna Carta* (1965), p. 354.

<sup>25</sup> *Patent Rolls, ut supra* in note 23, p. 523; cf. p. 155 for a similar order in 1218, with spelling *halbergettis*.

<sup>26</sup> *Close Rolls, Henry III, i, 1227-31* (P.R.O. Texts and Calendars, 1902), p. 89.

<sup>27</sup> *Close Rolls, Henry III, iii, 1234-37* (P.R.O. id., 1908), p. 73.

<sup>28</sup> C. Bémont, *Chartes des libertés anglaises* (Paris, 1892), p. 90.

suggest, take us further in our quest, revealing much about the character of haberget and the uses to which it was put. In the following summary of their evidence figures in brackets refer to the Latin extracts as set out above or, if with the prefix O.F., to the Old French extracts.

Haberget was clearly the recognized name for a type of woollen cloth<sup>29</sup> that was sufficiently important early in the 13th century for it to be mentioned in the regulations about measures in Magna Carta and its reissues (13, 14, 15, 18); it appears there and in subsequent enforcement orders (16, 17) as one of three categories of cloth on sale in England—'cloths dyed and russet and haberget' (alternatively 'dyed cloths, russets, and habergets')—whose width was prescribed by law as 2 yards between the lists. Thus it was a double-width cloth, statutorily at least, and it was woven in pieces up to as much as 33 yards long (2). It was in use in England certainly from about the middle of the 12th century (1, cf. O.F. i) until towards the middle of the 13th century (21). How much earlier, if at all, it was on the market cannot now be determined, for written records before the mid 12th century are relatively scarce, and trade names for any kinds of cloth are until then rare, and indeed almost non-existent; hence haberget may in fact have existed earlier, even though we have no record of it. But if the *terminus a quo* is uncertain the *terminus ad quem* is less so, for in the wealth of documentation, including accounts of royal purchases, from the mid 13th century onwards no mention of it has yet been found, other than in the formal confirmations of Magna Carta by Edward I (22, 23). If haberget was still made, it cannot have been in general demand on the open market, unless indeed it continued to be sold under a different name.

All references to it so far discovered except one (O.F. ii) concern England; on at least one occasion it was exported from England (9), and in England it was manufactured at Stamford (21) and seems to have been regarded as the typical Stamford product (O.F. iii), though this does not, of course, preclude its having been made elsewhere also.

It was used as material for the ordinary lay clothing of the period, i.e. for tunics, supertunics, and cloaks (*pallia*) (6, 8, 10, 11, cf. O.F. iv), and sometimes complete suits, or 'robes', consisting of all these three garments, were made of it (7, cf. 5).

Demand for haberget came from various social classes from royalty downwards. It was bought in considerable quantities for the use of three successive kings of England—Richard I (2, 4), John (12), Henry III (21), and it was sometimes manufactured specially to their order (21). Becket used a cloak made of it when he was chancellor, according to a contemporary biography (O.F. i); a prior gave some to a knight in part settlement of a claim (5); it was worn by knights, at least when in retirement (1, 10), and shepherds and shepherdesses at a festival were described in a French song as being dressed in it (O.F. ii).

As this varied clientele suggests, it was made in various qualities. Some was

<sup>29</sup> Haberget is clearly a woollen cloth, for it is frequently listed alongside other woollen cloths, as seen above; in (1) it is regarded as equivalent to 'grise'—a coarse grey woollen, and clothing made of it is often furred, as linen would never be.

described as fine (*menu*), like the haberget of Becket's cloak (O.F.i), or good (*bonum*), like the habergets ordered from Stamford for Henry III (21). Some, on the contrary, was coarse (*grossum*) (20); such must have been the haberget that was prescribed as an alternative to the cheap cloth *griseng*—a cloth worn by the poor (1).

It could be obtained in many different colours, as for example green (*virid'*) (4), 'peacock' (*de pounaz*) (4),<sup>30</sup> dark brown (*in burneto*) (6), and in grain (*in grein, in grana*) (4, cf. 2),<sup>31</sup> i.e. in the choicest of all dyes, and it could also be white (*albus*) (12). Since there are references to habergets being dyed in the piece, after weaving (21), some of them at least must have been one-colour cloths, so that the distinguishing feature of the material could not have been stripes or other patterns of more than one colour. Yet it was clearly different from the ordinary dyed cloths—*panni tincti* (12, 13 ff.), and from scarlets (*scarlati, scarleti*) (2, 3, 12).

With so great a variety in the quality of the cloth and the costliness of its dye, haberget ranged very widely in price, from almost the lowest price recorded for any cloth at that time to a price that put it in the luxury class. Thus it was once valued at only about 5½d. a yard (though this may have been a salvage price) (20) and it could evidently be bought early in the 13th century at 10d. a yard (10), while on the other hand, when it was of good quality and dyed in the most costly of all dyes, grain, it might in the late 12th century fetch nearly 4s. a yard (4).

The documentary evidence, then, shows clearly that it was no peculiarity of size, colour, quality, or usage that distinguished habergets from other cloths. They were made to the same measurements as ordinary dyed cloth (*pannum tinctum*), they could be bought in white and also in many different colours, and they varied so widely in quality that while the finest made robes for royalty the coarsest might be worn by the poor.

The distinctive feature of this fabric must then surely lie in its texture. About this, however, the documents give no clue, unless it be through speculation about the derivation of the word itself. Here we must seek guidance from the philologists, and what follows I owe to Professor Woledge.

Etymologically there seems good reason to accept the suggestion of the Oxford English Dictionary that the word haberget is 'apparently related to Hauberk and Habergeon'. The Old French *hauberc* (derived from the Frankish *halsberg*, meaning originally 'protection for the neck') is attested many thousands of times from about 1100 onwards signifying a defensive covering of the body. From it, when a verb was needed, came *haubergier*, used mostly as a reflexive verb—*se haubergier* 'to put on one's hauberc', so that the past participle *haubergié* meant 'hauberkerd' or 'wearing a hauberk'. This past participle was, as we have seen, applied in the 12th century to a kind of cloth, first probably as an adjective and then (at least as early as 1156–62 when Becket was chancellor) as a noun (O.F.ii, i).<sup>32</sup>

<sup>30</sup> Latin *poenacius*, i.e. peacock; perhaps a brilliant blue or purple.

<sup>31</sup> The dye 'kermes' made from the dried bodies of the grain-like insect *coccus ilicis* found on a species of oak which flourishes especially in Mediterranean lands, very comparable to the cochineal brought later from the Indies.

<sup>32</sup> Such transformations of participles to adjectives and adjectives to nouns are quite common in Old French, as in other languages.

Most probably it was from this that the Latin word was derived, presumably some time in the 12th century. Since the French vocalic ending *ié* was unLatin and was unsuitable as a base for inflexions, those writers who devised a Latin equivalent made a new ending. Some changed *ié* into *ium* or *eum*, thus forging a neuter noun *haubergium* or *haubergeum* (2, 3), but others supplied a consonant, choosing *t* because of its frequent occurrence before the *-us* or *-um* of nouns and participles and forging *haubergetum*; this was also an obvious choice since *-etum* was a common ending for names of fabrics in medieval Latin and had the further advantage of recalling the diphthong *ié* of the French word.<sup>33</sup> This second method of Latinizing the French word seems generally to have been preferred, and it was *haubergetum*, rather than *haubergium* (or *haubergeum*) that persisted. Such variants of *haubergetum* as are found in the records can mostly be explained by the peculiarities of medieval habits of spelling and pronunciation, e.g. the substitution of *hal-* for *hau-*, the double *t* in *haubergettum*, *halbergettum*, the dropping of the *h* in *albergetum* (9), and of the *l* (or? *u*) in *habergeto* (11).

It should be noted that the new Latin word *haubergetum*, besides meaning a kind of cloth, was also used as the Latin for a hauberk—its use as such is attested between 1203 and 1308; hence it seems to have been coined twice over in the 12th century with two different meanings.

Philology thus points unmistakably to some connexion between the cloth called haberget and the military hauberk. What possible connexion can there be? Stubbs, following this clue, defined haberget as 'the material from which the common hauberk was made',<sup>34</sup> while Mary Bateson defined it as 'padding', thinking of it perhaps as the foundation or lining of a hauberk.<sup>35</sup> But the documentary evidence alone disposes of any such interpretation. For, as we have seen, there are many references to ordinary clothing like cloaks and whole 'robes' being made of haberget, but none that connect it in any way with the making of hauberks. Nor does such a definition take account of the French form of the word, which appears to have preceded the Latin. Cloth that is *haubergié* is 'hauberked cloth'. Such an expression must surely refer to the texture or appearance of the cloth, and grammatically the most likely shade of meaning is 'made to look like a hauberk'. Could haberget be a cloth whose texture in some way reminded people of a hauberk? Here etymology can take us no further. Can archaeology then help? Has any cloth been found which could possibly be said to resemble a hauberk?

Before attempting an answer to this question it may be as well to be clear about what a hauberk looked like. There can be no doubt that the Norman-French word *hauberc*, or *halberc*, which first appeared in the 11th century,<sup>36</sup> signified a garment of chain mail, that is to say a garment of interlinked metal rings, composed of several thousands of links separately forged so as to form a strong but flexible metal mesh or net, very effective for checking the cut and

<sup>33</sup> In the dialects spoken to the north of Paris the ending of past participles was often *iet* not *ié*, while in Paris and Normandy such words had ended in *iet* until the first half of the 12th century; one or both of these facts may have influenced whoever coined *haubergetum*.

<sup>34</sup> Stubbs, *op. cit.* in note 19, p. 517.

<sup>35</sup> M. Bateson, *Medieval England* (1905), p. 147.

<sup>36</sup> Ducange gives his earliest example, as *halberc*, in 1049: '*accepit unum equum xxx librarum, necnon unum Halberc septem librarum.*' The word also appears as *Halbergeon* and *Haubergeon* from the 12th century.

thrust of a sword or spear.<sup>37</sup> Such chain mail had been used long before the 11th century. Specimens of it have turned up in excavations on Roman sites, in the Sutton Hoo burial ship, and in a number of finds from the Viking period as, for instance, at Birka, whence came a rolled-up mass of interlocked rings.<sup>38</sup> This is the kind of armour described by the author of *Beowulf* as 'the armour of net-like cunning linked by the smith', so that the warrior wearing it could be spoken of as the 'ring-clad lord'.<sup>39</sup>

It was not easy for an artist to depict chain mail, especially if he was engaged in small-scale work such as cutting a seal, carving a set of chessmen, or painting a miniature. Hence the problem came to be solved in various conventional and highly stylized ways. These may be illustrated by a few examples from the 12th century out of the many that survive.

PL. XV is a miniature taken from a manuscript life of St. Edmund, written c. 1125-50 and illuminated either in England or on the continent. It illustrates a fight between the English and the Danes.<sup>40</sup> The combatants on both sides are wearing chain mail, and here the artist seems to be experimenting with different ways of representing it. In one or two of the figures (e.g. 3rd from left in top row and 4th from left in bottom row) he has made a honeycomb pattern of actual rings. More often, however, he has indicated the chain mail by detached rows of chevron-pattern ornament, with blank spaces between the rows giving the effect of horizontal ribbing (e.g. centre figure in bottom row). But since this must have been a tedious task, here and there he has saved himself time and trouble by simply drawing criss-cross lines, crossing either diagonally, or vertically and horizontally, thus as it were extending the individual strokes of the chevron pattern to form continuous lines. These lines, when drawn diagonally, give the effect of a diamond, or lozenge, pattern (e.g. middle row, extreme right), covering the warrior as with a net.

The continuous diagonal lines, forming a diamond pattern, are more surely and confidently drawn in an illuminated initial of the second half of the 12th century in the fine four-volume bible, illuminated by various unknown artists, which was presented to Durham by Hugh de Puiset, bishop of Durham 1153-95 (PL. XVI, A).<sup>41</sup>

The same conventional design was adopted by sculptors. Thus at Notre-Dame-du-Port, Clermont Ferrand, one of the capitals in the choir (c. 1140), which depicts two of the virtues—*largitas* and *caritas*—as warriors in hauberks piercing the vices under their feet, represents the hauberks by a network of

<sup>37</sup> Sir James Mann on 'Arms and Armour' in *The Bayeux Tapestry* (Phaidon Press, London, 1957), pp. 60-1.

<sup>38</sup> *Ibid.*, pp. 61-2, fig. 38. All these finds show clearly that the hauberk never consisted, as was sometimes thought, of rings sewn on to a foundation of leather or other material, as does the fact that rings are never found lying loose by themselves.

<sup>39</sup> *Ibid.*, p. 61.

<sup>40</sup> Margaret Rickert, *Painting in Britain: The Middle Ages* (1954), pl. 66; from New York, Pierpont Morgan Library, MS. 736, f. 7 v. (10¾ in. by 7¼ in.). The chevron pattern may be seen in numerous other 12th-century miniatures.

<sup>41</sup> Durham Cathedral Library, MS. A. ii. 1, vol. 3, f. 131 v (initial to I Maccabees). For dating of the initial see *Durham Cathedral Manuscripts to the end of the Twelfth Century*, introd. by R. A. B. Mynors (1939), no. 146.

incised criss-cross lines (PL. XVI, B).<sup>42</sup> Even more stylized is the lightly-cut diamond pattern by which the 'warders' are distinguished in the 12th-century set of ivory chessmen from the Isle of Lewis in the Hebrides (PL. XVII, A).<sup>43</sup>

Seal-cutters of the 12th century often used a similar device, emphasizing the diamond by slightly sunk lozenges with the fillets in relief. So pronounced was the pattern that Hewitt in his *Ancient Armour and Weapons in Europe* reproduced it by line drawings such as that of the seal of King Stephen shown in PL. XVII, B.<sup>44</sup>

In the Bayeux Tapestry, as in our first example, the designer (or the embroiderer) chose sometimes one method, sometimes another, to depict the chain mail of the hauberks which were battle-dress for horsemen and foot-soldiers—other than archers—on both sides of the conflict. Sometimes rows of circles are stitched in colour on a white ground to represent rings, honeycomb fashion (PL. XVIII, A). Sometimes there are half-circles giving the appearance of overlapping scales. But often the quicker method is chosen of stitching continuous straight lines across the hauberk, crossing each other either vertically and horizontally, or diagonally, when it gives the diamond pattern, as is vividly shown in the scene illustrating hauberks being carried to William's ships for the invasion of England (PL. XVIII, B, C). Sometimes more than one method is used on a single figure (PL. XVIII, D).<sup>45</sup>

Alongside these artists' representations of chain mail we may set photographs of an extant medieval hauberk. The hauberk shown in PL. XIX, back and front, was made in Westphalia in the late 14th or early 15th century; it may now be seen in the Tower of London Armouries.<sup>46</sup> In all essentials its construction is similar to that of earlier specimens of chain mail, that is to say it is made up of many thousands of interlocked rings with a diameter averaging about half an inch, each riveted with wedge-shaped rivets, and most of them made of iron. The horizontal ribbed effect is here very marked, as is the zig-zag effect in certain parts of the hauberk, especially in the centre of the chest, where the rings are of thicker wire than elsewhere.

Returning now to our problem, was there in 12th-century western Europe any cloth which could have been thought in some way reminiscent of the chain mail of a hauberk, and which would fit our other evidence about haberget, e.g. that it could vary in quality from coarse to fine, in price from very cheap to very expensive, and in colour from that of the natural wool to the princely red that was dyed in grain, so that its distinguishing feature must have been its texture?

I venture to put forward as a hypothesis, worthy at least of investigation, that there was one such cloth which might have inspired the name haberget from its

<sup>42</sup> Joan Evans, *Art in Medieval France 987-1498* (1948), pl. 114.

<sup>43</sup> British Museum, Department of Medieval and Later Antiquities, O. M. Dalton, *Catalogue of the Ivory Carvings of the Christian Era in the British Museum* (1909), nos. 125 and 124.

<sup>44</sup> J. Hewitt, *Ancient Armour and Weapons in Europe, 1, to end of the thirteenth century* (1855), p. 122, drawn from B.M. Harl. Ch. 43 C 13; cf. *id.*, Ch. 48 G40 (seal of Conan, duke of Brittany). Hewitt here discusses this and other methods of representing chain mail.

<sup>45</sup> See *The Bayeux Tapestry* (Phaidon Press, London, 1957), *passim*.

<sup>46</sup> William Reid and E. Martin Burgess, 'A habergeon of Westwale', *Antiq. J.*, XL (1960), 46 *et seq.*, pl. xvi; Tower of London Armouries, inventory no. III-1320.

resemblance to the chain mail of a hauberk—that 'armour of net-like cunning'.

In lands round the North Sea, in graves of the Viking and pre-Viking periods, and occasionally in bogs, there have been found many examples of a wool twill material so woven that it has a pronounced diamond, or lozenge, pattern, with a suggestion of ribbing running horizontally through the diamonds. The ribbed effect is the result of the diamonds being not quite symmetrical: the meeting points of the diagonals are slightly displaced, or broken, so that the weave has come to be called the 'broken diamond' or 'broken lozenge' twill. Fragments of this cloth, with its highly distinctive pattern, have been found in many different qualities, from coarse to exceedingly fine, and on sites dating back certainly to the Roman period. The following are some examples.

PL. XX, A, shows a specimen from a grave of the 4th or 5th century A.D. at Rønsberg, Norway.<sup>47</sup> The fabric is fairly coarse, having a count of *c.* 12 by 12 per cm. (i.e. 12 warp threads and 12 woof threads per cm.), and the broken diamond pattern is very distinct, each thread being clearly visible. In this case the sharp definition of the pattern is in part due to two factors which are common to virtually all broken diamond twills. One of these is the character of the yarn used. This is what today would be called 'worsted', that is to say yarn spun from relatively long-staple, smooth wool, prepared not by carding, like 'woollen' yarn, but by combing. This so aligns the fibres that they lie even and parallel to one another and when twisted in the process of spinning produce a smooth, lustrous yarn and, if desired, a very strong, hard one, unlike 'woollen' yarn, which is rough and fluffy. Almost equally important is the fact that, after weaving, the material is not shrunk and felted by fulling; hence the pattern is not obliterated by heavy pounding, as with woollens, but remains clearly visible. The pattern can be brought out still more sharply by using differently spun yarn for the warp and the weft, i.e. S-spun (twisted to the left) for one, and Z-spun (twisted to the right) for the other, or again by using a double, two-ply yarn, which can give a slight relief effect. It can be yet further emphasized, as in the Rønsberg example, by a difference of colour between the warp and the woof, even if the difference is only that between two shades of the natural wool.

A still more striking illustration of this last device may be seen in an undated fragment of broken diamond twill found in a peat cutting at Tvis Mose, West Jutland (PL. XX, B).<sup>48</sup> Here a double, two-ply yarn has been used, the threads are rather thick and hard, and the fabric is much coarser than that from Rønsberg, having a count of only 5·5 by 4·6 per cm. A chequered effect has been achieved by stripes of reddish-brown on a lighter yellowish-brown base, and in these stripes the diamond pattern, though discernible all over the piece, stands out particularly clearly.

Very similar in count to the Rønsberg specimen are a broken diamond twill from Scotland, found at Balmaclellan, Dumfriesshire, which dates from the 1st or

<sup>47</sup> Charlotte Blindheim, 'En Trønderisk Jernaldergrav med Tekstiler', *Viking*, x (Oslo, 1946), 179 ff., pl. xi.

<sup>48</sup> Margrethe Hald, 'Olddanske Tekstiler fund fra aarene 1947-1955', *Aarbøger for Nordisk Oldkyndighed og Historie*, 1955, pp. 18-20, fig. 22.

2nd century A.D. and has a thread count of *c.* 11–14 by 14–16 per cm.,<sup>49</sup> and another from Tofting in Schleswig, attributed to the 3rd century, which has a count of *c.* 10 by 10 per cm.<sup>50</sup>

These examples from the first five centuries of the Christian era, together with the as yet undated Tvis Mose specimen, are alike in that they are all relatively coarse and in that there is little difference, in each case, between the thread count of the warp and the weft.

Slightly finer, but still among the rather coarser pieces, is an undated fragment found in a cist at Greenigoe in the Orkneys (PL. XXI, A).<sup>51</sup> This is made with a very fine, hard worsted yarn, firmly woven, and though the yarn is all of one colour the pattern, particularly the ribbed effect, is clearly visible. With this we may compare specimens from two Danish finds: three pieces from a grave at Vrangstrup, ascribed to the 4th century A.D., with thread counts of 18 by 13–14, 16·5 by 16, and 19 by 17 per cm. respectively,<sup>52</sup> and a fragment found in a mound at Hjørrings Praesterogaards Mark, ascribed to the 3rd century A.D., with a count of 22 by 20 per cm.;<sup>53</sup> in all these four examples the warp and the weft are differently spun. From Hessens in Germany come a number of specimens of the 6th to the 7th centuries, with counts varying from 8 by 8 for the coarsest to 15–16 by 12 for the finest.<sup>54</sup>

From these examples we may turn to fabrics of quite a different order—fabrics altogether finer than those so far considered, and of such high quality that they must have called for expert skill in the spinning and the weaving. Such are some of the specimens from 7th-century graves of Anglo-Saxon England, notably the fine broken diamond twill found with other cloth fragments in the royal ship-burial at Sutton Hoo, probably of the early or mid 7th century (PL. XXI, B).<sup>55</sup> Here the count is 35–38 warp by 20–22 weft threads per cm. Comparable to this is a second fine example from East Anglia, found in a grave at Broomfield, Essex, and probably also of the early or middle 7th century; its count is 32–34 by 23–26 per cm.<sup>56</sup> Both of these are in marked contrast to some of the more commonplace types of cloth found in these and other Anglo-Saxon graves, as may be seen in another sample from Sutton Hoo (PL. XXI, C).<sup>57</sup>

Finest of all, however, are some of the diamond twills from Scandinavia, found in graves of the pagan Viking period. PL. XXII shows a specimen from the mid 9th century, taken from the royal ship-burial at Oseberg in southern

<sup>49</sup> Edinburgh, National Museum of Antiquities; see Audrey S. Henshall, 'Early textiles found in Scotland, part 1, locally made', *Proc. Soc. Antiq. Scotland*, LXXXVI (1951–2), 7.

<sup>50</sup> K. Schlabow, 'Textilfunde und Hausopfer von Tofting' in A. Bantelmann, *Tofting, eine vorgeschichtliche Warft an der Eidermündung* (Neumünster, 1955), p. 96, no. 8.

<sup>51</sup> Edinburgh, National Museum of Antiquities; see Audrey S. Henshall, *op. cit.* in note 49, p. 17, pl. ii, 1, no. 18\*.

<sup>52</sup> Margrethe Hale, *Olddanske Tekstiler* (Copenhagen, 1950), pp. 89 ff., figs. 78–80.

<sup>53</sup> *Ibid.*, pp. 85 ff., figs. 71–2.

<sup>54</sup> K. Schlabow, 'Leichtvergängliche Stoffe aus der Wurtengrabung Hessens', *Probleme der Küstenforschung im südlichen Nordseegebiet*, Bd. 5 (Hildesheim, 1953), 36–8.

<sup>55</sup> British Museum, Dept. of Medieval and Later Antiquities, Sutton Hoo, Textiles 1. Unpublished.

<sup>56</sup> *Ibid.*, Broomfield, Textiles 1. See *Proc. Soc. Antiq. London*, 2 ser., xv (1893–5), 252.

<sup>57</sup> *Ibid.*, Sutton Hoo, Textiles 4. Unpublished.

Norway.<sup>58</sup> This is of such fine yarn, and so closely woven, that it has no less than 50 warp by 22 weft threads per cm., and the broken diamond pattern with the horizontal ribbed effect is exceedingly clear. Similar in thread count is a fine broken diamond from a grave at Lousgaard on Bornholm in Denmark, probably rather earlier in date, from the 7th or 8th century (PL. XXIII, A).<sup>59</sup> From another 9th-century grave in southern Norway, at the famous Viking port of Sciringas Heal, or Kaupang, on Oslo Fjord, comes a fabric with the same pattern but a rather coarser weave, having a thread count of c. 40-42 by 14 per cm. (PL. XXIII, B).<sup>60</sup> These three very fine fabrics are all reminiscent of the well-known diamond twills found in Sweden, in graves of the 9th or 10th century, at the Viking city of Birka. The average count of the Birka pieces is much the same as that of the Oseberg and Lousgaard examples, but in some cases there are as many as 60 warp threads to the cm.<sup>61</sup>

In these diamond twills we have thus a highly distinctive and easily recognizable fabric. All are made of worsted yarn, unfulled, and all have the prominent diamond pattern, with the slight displacement of the diagonals that gives the ribbed effect. The early ones are all comparatively coarse, but from the 7th century much finer ones also appear, and in these the warp count becomes noticeably higher than that of the weft, until in the very finest specimens, like those of Oseberg, Lousgaard and Birka, it is at least twice that of the weft; indeed these fabrics reach an astonishing degree of technical expertise.

Scandinavian excavations have yielded many other comparable specimens from Norway and Sweden, and at least one has been found in Iceland in a 10th-century woman's grave with grave-goods of good quality.<sup>62</sup> These, together with the English and German evidence,<sup>63</sup> suggest that the material was well known in lands round the North Sea between the 7th and the 10th centuries and that the exceedingly fine diamond twills, such as are found in graves of kings and queens and others of high social position, were the luxury cloths of the age.<sup>64</sup>

The scarcity of finds after about A.D. 1000 must not lead us to assume that

<sup>58</sup> Oslo, Universitetets Oldsaksamling (University Museum of National Antiquities). Unpublished. Photograph from Dr. Charlote Blindheim.

<sup>59</sup> Copenhagen, Nationalmuseet; see Hald, *op. cit.* in note 52, pp. 96-8. Photograph from Dr. M. Hald.

<sup>60</sup> Oslo, *ut supra* in note 58 (C 27997 g); a second piece (27997 f) is coarser, c. 22 by 11 per cm. Unpublished. Photograph from Dr. Blindheim.

<sup>61</sup> Agnes Geijer, *Birka III, Die Textilfunde aus den Gräbern* (Uppsala, 1938), pls. 4-5. The specimens are in the Statens Historiska Museum at Stockholm.

<sup>62</sup> For other finds from Norway and Sweden see Marta Hoffmann, *The Warp-Weighted Loom* (Studia Norvegica, no. 14, Oslo, 1964), pp. 241-3 and 371-2, note 49. For Iceland see *ibid.*, pp. 244, and 372, note 52, and also Marta Hoffmann, 'Erlendir munaðardúkar í íslenskum konukumlum frá víkingaöld' and Anna M. Rosenqvist, 'Undersøkelse av fibre frá Snaehvammur 3931', *Arbók hins Íslenska Fornleifafélags*, 1965, pp. 87-108.

<sup>63</sup> For the German evidence, e.g. a 9th-century find from Hedeby in Schleswig, see Hoffmann, *The Warp-Weighted Loom*, *ut supra* in note 62, pp. 244 and 373, note 60. The scarcity of grave finds of any kind from East Anglia during the Viking period has often been noted, and the reasons for it discussed, e.g. by Shetelig in *Viking Antiquities in Great Britain and Ireland*, ed. H. Shetelig (6 vols., Oslo, 1940-54), VI, 86, and by P. H. Sawyer in *The Age of the Vikings* (1962), pp. 63-4. Sawyer attributes the scarcity to the adoption of Christian burial customs.

<sup>64</sup> See Hoffmann, *op. cit.* in note 63; it was evidently not only kings and chieftains who could afford the very fine cloth, for in some of the graves where it has been found the grave-goods imply a high social position but not the highest.

the fabric then ceased to be made. For finds up to then, apart from a few from bogs, which are seldom datable, come almost entirely from pagan graves.<sup>65</sup> Hence we should expect them to be rare after the general adoption of Christian practices, as indeed are finds of any kind of woollen cloth, while those that there are have received all too little attention. The diamond twill may well have continued to be made, even though we lack evidence of it, and it may well have been likened to the chain mail of a hauberk—a very familiar sight in the 11th century—and nicknamed *haubergié* by those who spoke French, whether in France or in England. Nor would it be surprising if Stamford, a city of Danish origin, with active trade links with Scandinavia and ample supplies of the finest wool of Europe close at hand, became at least one of the centres for its manufacture.

Should this seem an extravagant hypothesis—that haberget was a diamond twill, so called because of its resemblance to the chain mail of a hauberk—it may be observed that the diamond twill has a name today in Norway and Sweden, where it is still woven; that this name as applied to a cloth can be traced right back to the middle ages, where it appears in medieval Icelandic as *hringofinn*—literally ‘ring-woven’; and that the very same word was then also used for a hauberk or coat of chain mail, as in the *Fornmanna sögur* c. A.D. 1000.<sup>66</sup> In fact *hringofinn*, applied both to a cloth and to a coat of chain mail, appears to be the Norse equivalent for the French *hauberc* and *haubergié* and for the Latin *haubergelum*. And since, when applied to a cloth, it denotes a diamond twill, this surely greatly strengthens the case for haberget also being a diamond twill.<sup>67</sup>

Why then does the word *haberget* vanish in the 13th century, while *hringofinn* persists—both word and cloth—to the present day? We have seen that the first appearance of our word in the mid 12th century is not necessarily any indication of the first appearance of the cloth itself, or indeed even of the word, since written records before then are scarce. But the disappearance of the word in the mid 13th century is quite another matter, for written records multiply thereafter, as do trade names for different varieties of cloth, yet nowhere is haberget to be found.

Speculation about this leads inevitably to a consideration of textile techniques. As Agnes Geijer was first to point out, all diamond twills so far found dating from Viking or earlier periods are, without exception, irregular, showing that curious displacement of the diagonals which gives the ribbed effect we have noticed.<sup>68</sup> Geijer suspected that this might be due to purely technical reasons, and now Marta Hoffmann, following this clue, has convincingly demonstrated that the explanation is to be found in the kind of loom used. In her remarkable book

<sup>65</sup> Fragments of diamond twill have also been found attached to metal, and preserved by the corrosion of the metal, but the metal oxide so affects the cloth as to make it difficult to determine its original character.

<sup>66</sup> *Fornmanna sögur*, I (Copenhagen, 1825), 173. I owe this interesting parallel to Dr. Hoffmann, who brought it to my attention in a letter of 1960.

<sup>67</sup> This does not, of course, exclude the possibility that linens and even silks with an overall diamond pattern might be referred to as ‘haberget’ or ‘hringofinn’.

<sup>68</sup> Geijer, *op. cit.* in note 61, p. 33. Geijer states that all the pieces she has studied in European museums show this displacement. Hald found it in all the examples from the north that she examined (Hald, *op. cit.* in note 52). Hoffmann, while emphasizing the remarkable uniformity of the diamond twills of this period, discusses a few possible examples of regular diamond twills, but as yet has reservations about all of them (Hoffmann, *op. cit.* in note 63, pp. 189–91).

*The Warp-Weighted Loom*, based on archaeological and documentary evidence and on surviving examples of the loom still in use, she has shown how the technical peculiarities of this loom are such that when it is set up in the traditional manner for weaving a diamond twill it never produces a regular, but always a broken, diamond. She concludes that there can be little doubt that the broken diamond pattern came into being as the result of the technical necessities of this loom. Once established there was nothing to prevent the pattern being woven on other looms, looms which were also capable of weaving regular diamonds, but the basic connexion between the broken diamond (as also 'haberget', if our hypothesis be proved correct) and the warp-weighted loom seems inescapable.<sup>69</sup>

PL. XXIV, B shows one of the warp-weighted looms which Marta Hoffmann studied in action; it was discovered at a farm in Fitjar on the island of Stord, south of Bergen, and had been in use in the traditional manner as recently as the end of the second world war.<sup>70</sup> It consists essentially of two wooden uprights supporting a beam across the top; from this the warp threads hang, heavily weighted to keep them taut, and divided alternately, back and front, by the 'shed rod' near the lower end of the loom; through the opening thus made between the back and front threads the ball of weft is passed by hand. Across the middle of the loom is the 'heddle rod'; to this each of the back threads is tied by a 'heddle'—a loop of thread, so that when the rod is brought forward and placed in the crotches of the supports, as in this picture, it brings the back threads forward and creates a second and different opening, or 'shed', for the weft to be passed through on its return journey. In the weaver's hand is the 'sword-beater' used for beating up the weft close and firm—a task sometimes carried out by means of a hand-comb. The weaver works standing, and the process is a slow one, if only because the heddle rod has to be lifted out or back each time the weft thread has been run through. Nevertheless the loom has certain advantages: it is very easy to construct, it takes up little space as it leans against the wall, and it can be quickly assembled on the day it is to be used and then dismantled and stowed away in pieces until needed again.

Such a loom was widely used in western Europe through the first millennium A.D., and it can be traced further back still into the remote past. It was well known in the ancient world, from which comes a vivid illustration of it as shown in PL. XXIV, A,<sup>71</sup> and its existence in prehistoric times is constantly attested by finds of loom-weights; these, since they are usually made of stone, chalk, or fired clay, survive frequently to witness to the presence of a loom when all its wooden parts have perished.

At some point, however, this primitive warp-weighted loom was superseded, at least in so far as professional weavers were concerned, by a much more sophisticated apparatus, the horizontal treadle-loom. This greatly speeded up the

<sup>69</sup> Hoffmann, *op. cit.* in note 63, pp. 187 ff. Hoffmann's conclusion as to the way in which the loom was traditionally used is based on Icelandic descriptions of weaving and on a great many analyses of textiles from archaeological finds.

<sup>70</sup> *Ibid.*, p. 39, and fig. 14, p. 47.

<sup>71</sup> Oxford, Ashmolean Museum; Boeotian vase, 4th century B.C.

process of weaving. Its introduction was one of the major technical innovations in the history of Europe's textile industry, and coincided with the emergence of the *grande industrie* in northern France and Flanders and (to a lesser degree) in England. The distinguishing features of the new loom are clearly shown in an English drawing of *c.* 1300 (PL. XXV, A).<sup>72</sup> The weaver is now seated, not standing; the loom is horizontal, not vertical; the warp is tightly stretched between two beams, back and front; the heddles are operated by foot treadles, instead of by a rod which has to be lifted up and down by hand; and in place of the sword-beater is a fixed comb or 'slay' (i.e. beater) running right across the loom—the weaver in this picture is pulling it towards her. The weaver in this case is a woman, since the drawing depicts Eve, supposedly doomed to making cloth for the family's clothing after the expulsion from the garden of Eden. An earlier and somewhat cruder drawing (*c.* 1250) shows a male weaver seated at a horizontal loom with his feet on the treadles, his left hand on the slay, and his right hand holding the shuttle, or little boat (*navicula*), inside which the weft was now placed, wound on a spool, so that it could more easily be shot through the loom (PL. XXV, B).<sup>73</sup>

PL. XXV, C shows a much larger, double-width, loom, essentially similar in its mechanism, with two men seated side by side and a great beam on which immense lengths of cloth could be wound.<sup>74</sup> This was the type of loom commonly used in the *grande industrie* of Flanders and elsewhere, at least by the 13th century, and our illustration of it comes from an ordinance book of Ypres of 1363. Weaving, as it suggests, had become a male occupation, at least in the *grande industrie*, and though women might still weave small pieces at home there were also professional male weavers scattered up and down the countryside, weaving for the needs of their own district.

With the coming of the new loom the technical necessities which had given rise to the broken diamond twills vanished. Nevertheless some, no doubt, continued to be produced, since the pattern was such a long-established one, and if regular diamonds also were woven, as was possible on the new loom, most probably the same name was applied to them. Gradually, however, with the new loom came a new fashion in luxury cloth. Finishing techniques now became all-important. Fulling, raising, and shearing completely obliterated the pattern of the weave whatever it might be, leaving a plain, even surface, so that the new cloths were distinguished not for their pattern or for the exceeding fineness of their yarn and their weave, but for their soft 'handle' and smooth, almost silky finish; the finest of them were shorn again and again. The preparatory processes, too, differed. Short- rather than long-stapled wool was favoured. The wool was carded rather than combed, so that the yarn was not smooth but fluffy; and, since the weft could be more loosely spun for this type of cloth, the spinning-wheel in due course

<sup>72</sup> British Museum, Egerton MS. 1894, f. 2 v (Book of Genesis *c.* 1300).

<sup>73</sup> Trinity College, Cambridge: MS. O. 9. 34, f. 32 b. This manuscript was probably made at St. Albans.

<sup>74</sup> H. Obreen and H. Vander Linden, *Album historique de la Belgique* (Brussels, 1912), fig. 73; from an Ypres ordinance book of 1363 destroyed in the first world war. The little boy with the small wheel in front of the loom is winding weft thread on to spools to be inserted into the shuttles.

came to be used for it, though the warp, for greater strength, continued to be spun on the distaff.<sup>75</sup> In modern phraseology, the new luxury cloths were woollens, whereas the old had been worsteds.<sup>76</sup> If, as seems probable, the old and new luxury cloths co-existed for a while, the contrast between them must have been a striking one, giving new point to the descriptive term *haubergié*—if indeed this was the name for the diamond twills.

If, then, haberget was a diamond twill, product originally of the warp-weighted loom, can its disappearance perhaps be connected with the change to the horizontal treadle-loom and the change in fashion to finely fulled and finished woollens? The haberget conundrum has led us into two wider problems: what can be known as to when these two changes took place? Leaving aside for the moment the change in fashion, can we pinpoint more precisely when the new loom came into use in western Europe?

The earliest known illustrations of the horizontal treadle-loom, or of distinctive parts of it, seem to be two that date probably from the first quarter of the 13th century—a little earlier than that shown in PL. XXV, B. One is in a stained-glass window at Chartres;<sup>77</sup> the other is in an Austrian manuscript which depicts a woman weaving standing at an upright warp-weighted loom, sword-beater in one hand and ball of weft in the other, and a man seated at what seems intended to represent a horizontal loom, while in a lunette above is a figure holding a shuttle and a slay—two essential parts of the new, but not of the old, loom.<sup>78</sup> This manuscript suggests that the warp-weighted and the horizontal loom were both familiar features in the early 13th century, so that we can fairly confidently put the introduction of the new loom, if not its general adoption, back at least into the later 12th century.

Archaeology cannot as yet take us definitely further back than this. Finds of pieces of worked wood discovered at Gdansk, Poland, and thought to be parts of a horizontal loom, may possibly be 11th-century, but they have been dated only approximately as '11th to 12th century'.<sup>79</sup> Other such finds—none of them from western Europe—are all so far of later date, as, for instance, the shuttle and two

<sup>75</sup> The earliest evidence as yet for the spinning wheel is late 13th century: see A. Thierry, *Recueil des monuments inédits de l'histoire du Tiers État. Région du Nord* (Paris, 1850-70), IV, 53 (1288), and F. Keutgen, *Urkunden zur Städtischen Verfassungsgeschichte* (Berlin, 1901), no. 278, p. 16 (c. 1280). For the finishing (and other) techniques sees G. de Poerck, *La draperie médiévale en Flandre et en Artois: technique et terminologie* (Bruges, 1951), and E. M. Carus-Wilson, 'The significance of the secular sculptures in the Lane chapel, Cullompton', *Med. Archaeol.*, I (1957), 104 ff.

<sup>76</sup> This does not mean that no worsteds of any kind were thenceforth made. 'Worsted' appears as a trade name from the 13th century, when it was a very popular cloth, especially among the religious orders, for summer wear. The phrase 'New Draperies', commonly used of the new types of wool textiles coming on the market in the 16th century, could equally well be used of the new woollens we have been discussing, but in the 16th century the movement was in the contrary direction—away from heavily fulled woollens to the lighter worsteds.

<sup>77</sup> G. Aclocque, *Les corporations, l'industrie et le commerce à Chartres du XIe siècle à la Révolution* (Paris, 1917), pl. II, 111.

<sup>78</sup> Hoffmann, *The Warp-Weighted Loom*, ut supra note 62, p. 261. The slay (or 'comb') in the picture is the kind that was fixed right across the new horizontal looms. Another 13th-century illustration of the new loom may be seen in a window of Amiens Cathedral (G. Durand, *Monographie de l'église Notre-Dame, cathédrale d'Amiens* (Amiens-Paris), II, 263).

<sup>79</sup> J. Kaminska and A. Nahlik, 'L'industrie textile du haut moyen âge en Pologne', *Archaeologia Polona*, III (Warsaw, 1960), 93-7.

pulleys at Opole, Poland, dated 12th to 13th century,<sup>80</sup> the pulley at Sigtuna, Sweden, similarly dated,<sup>81</sup> and the numerous early 13th-century finds at Novgorod to which M. W. Thompson called attention in the last number of *Medieval Archaeology*.<sup>82</sup> Finds of loom-weights can be very valuable, at least if in groups, as indicating the existence of warp-weighted looms. The absence of such evidence must, however, be interpreted cautiously, for loom-weights have not hitherto been of great interest to archaeologists; when found, their precise position has seldom been noted, and still less published.<sup>83</sup> Moreover, the two-bar vertical loom, without weights, which was known in Roman times, may have been used in parts of western Europe in the period we are considering, but at present we have little knowledge about this. Cloth finds, especially if they include the woven starting borders, might reveal by close analysis the type of loom on which they had been woven, but, as we have seen, they are all too rare in the post-pagan period.

If, finally, we turn once again to documents, these also are scarce for the 11th and early 12th century—when archaeology seems unable to help us, but one there is of real significance for our purpose. This is a passage in the celebrated commentary on the Talmud by Rabbi Solomon Izhaqi (commonly called Rashi), who was born at Troyes and lived in France all his life (1040–1105) except for a time as a student in Germany. Commenting on a discussion in the Talmud about what, in connexion with weaving, constitutes prohibited work on the Sabbath, Rashi explains a certain technical term used in the Talmud by saying that it should be taken as meaning ‘that part of the loom of weavers who weave by foot which is in place of the rod that goes up and down in the loom used by women’; the Hebrew word here for ‘weavers’ is that used for professional weavers.<sup>84</sup> Rashi is here quite clearly referring to the two different looms we have been discussing—the horizontal treadle-loom, in which the heddles were worked by foot, and the old-fashioned vertical loom in which they were worked by a rod lifted up and down by hand. Since he is known to be a very careful commentator, and since he goes into such precise detail, there can be little doubt that he is describing what he has seen for himself and what would be perfectly familiar to his readers. We may therefore justifiably conclude that the horizontal treadle-loom was well established in northern France in Rashi’s lifetime, and that it was the loom then commonly used there by professional weavers, while the more primitive warp-weighted loom was still used by women at home.

Thus this major technical innovation, like that of the fulling-mill,<sup>85</sup> can be

<sup>80</sup> Gertrud Sage, ‘Die Gewebe aus dem alten Oppeln’, *Alt-Schlesien*, vi (Breslau, 1936), 322, 330; Agnes Geijer and J. E. Anderbjork, ‘Two textile implements from the early middle ages’, *Folkliiv* (Stockholm, 1939), pp. 233 ff.

<sup>81</sup> Geijer and Anderbjork, *op. cit.* in note 80, pp. 232 ff.

<sup>82</sup> M. W. Thompson, ‘The horizontal loom at Novgorod’, *Med. Archaeol.*, xii (1968), 146–7, quoting B. A. Kolchin (in Russian) *Antiquities of Novgorod: Wooden Objects* (Collection of Archaeological Sources, Issue E 1–55, Institute of Archaeology, Academy of Sciences of the U.S.S.R., Moscow, 1968).

<sup>83</sup> On the problems connected with the incidence of loom-weights see Hoffmann, *The Warp-Weighted Loom*, *ut supra* note 62, pp. 17 ff., 260.

<sup>84</sup> The Babylonian Talmud, Tractat Shabbat 105a. I am much indebted to Dr. H. Rosenwasser of the British Museum for discussing this passage with me and putting at my disposal his immense knowledge of the Talmud.

<sup>85</sup> On this see E. M. Carus-Wilson, *Medieval Merchant Venturers* (2nd ed., 1967), ch. iv.

attributed certainly to the 11th century and probably to the first half of it, if not earlier. This does not, of course, mean that the new methods supplanted the old immediately, or that they were introduced everywhere at the same time. Resistance to change was as much a delaying factor as lack of knowledge or technical skill, apart from the greater initial outlay involved in complex installations which could scarcely be home-made like the warp-weighted loom and the fuller's tub. Men were still fulling by foot in London, for instance, in the 13th century, at Ypres in the 16th century, in Ireland and the highlands of Scotland in the 20th century. So, too, as the Austrian manuscript and the passage in Rashi suggest, the warp-weighted loom must have continued to be used, widely at first and then more rarely, chiefly by women working for the needs of their own households. Just as the two looms co-existed for a while, so, most probably, did the two kinds of luxury cloth, until gradually, and not everywhere at the same time, the new woollens prevailed. And as the warp-weighted looms finally vanished, lingering only in the remote north of Europe where Marta Hoffmann found them, so no doubt did the diamond twills and, if our guess is right, haberget.

Such is the hypothesis which I would put forward as a basis, at least, for discussion.

The period between the millennium and the early 13th century saw profound changes in the woollen industry of western Europe, transforming its techniques and its products, while a major textile manufacturing industry emerged—Europe's first *grande industrie*, marketing its wares throughout the known world. Yet for the social and economic historian this is in some respects a veritable dark age. The classes of documents on which he largely relies from the 13th century onwards are almost wholly absent; the material remains of everyday life are less abundant than for earlier ages, for lack of pagan graves, and those that there are have been much less studied. Particularly is this true of woollen textiles, which in any case are a highly perishable commodity, seldom surviving except in fragments. Despite the pioneer work of Scandinavian archaeologists the study of medieval woollen textiles and textile implements in western Europe is still in its infancy. Such fragments as have been recovered lie often almost unnoticed in widely scattered museums; some have not even been listed, few have been published. Yet it is to archaeologists that we must look for further light on the problems discussed in this paper, for our scanty stock of documents is not likely to be much increased. Hence it is much to be hoped that, as they turn their attention more and more to the later middle ages, they will discover further evidences of the fabrics themselves and of the tools with which they were made and will also subject their finds to a rigorous technical analysis and publish the results thereof.