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ARCHERY AND WARFARE IN MEDIEVAL IRELAND

VOLUME I
ANDREW J. HALPIN

ARCHERY AND WARFARE
IN MEDIEVAL IRELAND
A HISTORICAL AND ARCHAEOLOGICAL STUDY
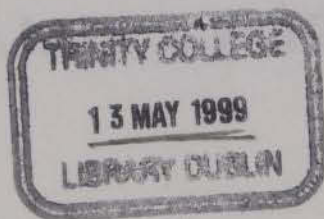
Volume 1 of 2 volumes

ANDREW J. HALPIN M.A.

Thesis submitted in fulfillment of the requirements of the degree of
Doctor of Philosophy

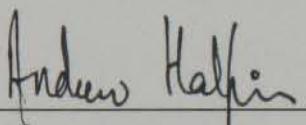Department of Medieval History, University of Dublin

OCTOBER 1998

DECLARATION

I declare that this thesis is entirely my own work, and has not been submitted as an exercise for a degree at any other university.

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Andrew J. Halpin M.A.

For Louise

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SUMMARY

This thesis attempts to provide a comprehensive survey of the evidence for the use of archery in medieval Ireland, and an assessment of its role in, and contribution to patterns of warfare. The methodology adopted is to present the historical and archaeological evidence separately, before proceeding to a synthesis of both and an overall assessment of the use of archery and its role in medieval Irish warfare.

A general overview of warfare and weaponry in medieval Ireland forms both an essential background and the context within which the role of archery must be assessed. This highlights developments in Irish warfare between the advent of the Vikings and the end of the Middle Ages, notably profound advances in military organisation and professionalisation in the 10th, 11th and 12th centuries under Viking influence, and the introduction of organised bodies of cavalry and archers after the Anglo-Norman conquest. However, an underlying continuity is also evident; a native tradition of military organisation and tactics, although altered by new influences, can still be recognised as a single tradition persisting throughout the medieval period and ultimately absorbing the competing Scandinavian and English military traditions within Ireland.

Historical and archaeological evidence reveals that archery was one of the innovations introduced into Irish warfare by the Vikings. The bow was used even more extensively and probably more effectively by the Anglo-Normans, and archery was also finally adopted into the native Irish military system in the wake of the Anglo-Norman invasion. In the later Middle Ages archery achieved an unprecedented level of importance in the English military economy and this is reflected in Ireland, both in the widespread use of English archers and in official attempts to foster proficiency in archery among the Anglo-Irish colonists. These elaborate efforts had some success in the most Anglicised areas but were, on the whole, a failure. The English military system based largely on archery was, to a great extent, forsaken even by the Anglo-Irish in favour of a more traditional and ultimately native Irish system in which archery, although present, was of less importance.

Archaeological evidence for archery consists largely of iron arrowheads but there is also a small, but important assemblage of wooden bows and arrowshafts. These are discussed in separate chapters, with an overall summary of the archaeological evidence for archery in another chapter. A study of the typology, chronology and

functions of the arrowheads identifies nine main types and five subtypes which are overwhelmingly military in function. The most common Viking arrowhead types are present in the Hiberno-Norse assemblage but are always in a minority, and the background of the majority of arrowheads is unclear. The Anglo-Norman conquest is reflected, not in the introduction of new arrowhead types, but in the disappearance of Scandinavian forms, leaving a more restricted range of types. A small number of examples of new arrowhead types are known in the late medieval period, but the assemblage continues to be dominated by types attested as early as the 10th century. A particularly important feature of the arrowhead assemblage is the predominance of armour-piercing forms. These first appear in the later 10th century, a feature noted at the same date in other parts of northern Europe and which can be interpreted, in Ireland as elsewhere, as reflecting the proliferation of body armour among an increasingly militarised aristocracy.

The surviving bows conclusively refute the widely accepted theory of the Welsh origins the late medieval longbow. Longbows are known in Ireland and elsewhere in the Viking period, and Welsh archers in late 12th century Ireland seem to have used relatively short bows. Indeed the evidence suggests that most bows in the 12th and 13th century were relatively short, and the proliferation of longbows thereafter should not be seen as reflecting the invention of a new type of bow, but rather the adaption of existing bow forms for use against plate armour. The Irish bows also reveal the existence of well established traditions in the making of bows which clearly recognised the value of yew wood and even of a distinctive method of converting a yew billet so as to retain sapwood on the back of the bow. These traditions are remarkably early in date; as with the arrowheads, there are few significant differences between the Hiberno-Norse and Anglo-Norman bow assemblages. The indications are that even the late medieval English longbow tradition is closely related to the Hiberno-Norse tradition, and both probably share a similar Scandinavian or north European background.

The continued prevalence in later medieval Ireland of relatively short bows and arrowheads designed specifically for use against chain mail is in line with other archaeological and historical evidence that full plate armour was never widely adopted. This in turn can be explained in terms of continuity in patterns of warfare which demanded mobility and, together with environmental conditions, precluded the use of very heavy armour. Another effect of the retention of this older military tradition and its extension even to the Anglo-Irish colonists, was that archery never developed the level of military importance which characterised contemporary England.

ACKNOWLEDGEMENTS

ABBREVIATIONS

A number of major primary sources are referred to in the text by abbreviations, as follows:

A.Clon.   *The annals of Clonmacnois, being annals of Ireland from the earliest period to A.D. 1408*, ed. D. Murphy (Dublin, 1896).

A.Conn.   *Annála Connacht: The annals of Connacht (A.D. 1224-1544)*, ed. A.M. Freeman (Dublin, 1944).

AFM   *Annála ríoghachta Éireann: Annals of the kingdom of Ireland by the Four Masters*, ed. J. O'Donovan, 7 vols (Dublin, 1851).

A.Inis.   *The annals of Inisfallen (MS Rawlinson B503)*, ed. S. MacAirt (Dublin, 1951).

A.L.C.   *The annals of Loch Cé. A chronicle of Irish affairs from A.D. 1014 to A.D. 1590*, ed. W.M. Hennessy, 2 vols (London, 1871).

A.Tig.   'The annals of Tigernach', ed. W. Stokes, *Revue Celtique* **16** (1895), pp. 374-419; **17** (1896), pp. 6-33, 119-263, 337-420; **18** (1897), pp. 9-59, 150-97, 267-303.

A.U.   *Annála Uladh: Annals of Ulster...: A chronicle of Irish affairs...431-1541*, ed. W.M. Hennessy and B. MacCarthy, 4 vols (Dublin, 1887-1901).

C.D.I.   *Calendar of documents relating to Ireland, 1171-1307*, ed. H.S. Sweetman, 5 vols (London, 1875-86).

Chron. Scot.   *Chronicon Scottorum*, ed. W.M. Hennessy (London 1866).

C.S.P.I.   *Calendar of the state papers relating to Ireland of the reigns of Henry VIII, Edward VI, Mary and Elizabeth, 1509-[1603]*, (London, 1860-1912).

INTRODUCTION

Background and scope of study

The present study in many respects represents a progression from an earlier thesis by the writer, which attempted to assemble and assess all the available archaeological material for a study of weaponry of the Anglo-Norman and later medieval periods in Ireland[1]. At the time the writer did not have access to the major body of material recovered in the National Museum of Ireland's excavations in medieval Dublin (much of which was, in any case, of pre-Norman date and thus outside the scope of the study) and it was always the writer's intention to undertake a comparable study of this invaluable assemblage of material. With the benefit of hindsight, the writer also became aware of a significant shortcoming in the 1983 study, which essentially dealt with the weaponry purely as archaeological artefacts with only passing reference to their historical context, which in this case is the context of medieval warfare. No study of medieval archaeology can afford to ignore the value of documentary sources in enriching and contextualising the archaeological record, and this is perhaps particularly true in such a specialised field as weaponry and warfare.

A new project was conceived, initially as a comprehensive study of all archaeological evidence for weaponry from the Viking period to the end of the Middle Ages (including the Dublin excavation material), integrated with a thorough historical survey of warfare in medieval Ireland. Practicality dictated, however, that this ambitious project should be reduced somewhat for the purposes of the present thesis, and this led to a decision to focus specifically on archery. This choice was primarily determined by the fact that the bulk of the archaeological evidence consists of archery material - bows, arrows and above all, arrowheads. This is especially the case for the material from modern archaeological excavations, which is particularly important because it generally comes from datable contexts. This survival pattern is largely an accident of the peculiar qualities of the weapon - bows and arrows were of little monetary value (unlike a fine sword, for instance), bows were easily broken and arrows, by their very nature, were disposable and readily lost. The fortunate result, however, is that a far more comprehensive and reliable archaeological study is possible for the bow and arrow than for any other medieval weapon.

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1. A. Halpin, *Irish medieval weapons, 1170-1600.* Unpublished M.A. thesis presented to the National University of Ireland (Department of Archaeology, University College, Dublin), 1983.

There is also, however, a wealth of useful historical information available to inform the archaeological study. Archery was perhaps never of greater military importance than in later medieval England, and this inevitably had an impact on Ireland. A study of the history of the weapon reveals that it is particularly appropriate, and not entirely accidental, that the bow and arrow is so well represented in the archaeological record of medieval Ireland. There is probably no other period in which the weapon was of such great military importance, a fact which is rarely reflected in the historical literature on this period.

A substantial part of this study, therefore, is given over to a survey of historical evidence for medieval Irish warfare. This differs from most histories of warfare, however, in that it is a study of the practicalities of warfare, and especially of the weapons and armour available, how they were used and the types of troops that used them. It is not concerned with the socio-economic, financial or political aspects of warfare or of feudalism, subjects that have been extensively treated of by more competent authorities. In many respects this study is not even concerned with the strategy of military campaigns; it hardly probes beyond the level of tactics, and thus does not deal with the military and strategic roles of castles and other fortifications, and while military organisation is discussed the treatment is not necessarily comprehensive. The primary focus of this thesis, in terms of original research, is the archaeological study of the surviving material; the scope of the historical study is limited to that which provides the context for the archaeological study.

Previous research

No particularly close parallels are known for this study. Military history is, of course, a well established field of historical research with a voluminous literature, although Ireland is, perhaps, not exceptionally well represented in this respect. Various aspects of the military history of medieval Ireland have been treated by scholars such as Hayes-McCoy, Lydon, Falls, Frame and Simms, however, and the papers by Charles-Edwards, Flanagan, Frame, Simms and Ellis in the recent volume *A military history of Ireland*[2] may be said to constitute the first attempt at a comprehensive overview. In general, these studies have not dealt in any detail with issues of arms and armour. Hayes-McCoy was, however, an exception to this[3], as is Harbison's very useful study of

2. T. Bartlett and K. Jeffery (eds), *A military history of Ireland* (Cambridge, 1996).
3. See especially Hayes-McCoy's 'The *galloglach* axe', *Journal of the Galway Archaeological and Historical Society* 17 (1937), pp. 101-121; 'The early history of guns in Ireland', *Journal of the Galway Archaeological and Historical Society* 18 (1938-39), pp. 43-65; and *Sixteenth-century Irish swords in the National Museum of Ireland*, (Dublin, 1977).

arms and armour in later medieval Gaelic sources[4]. Further discussion, particularly of armour but also to some extent of weapons, has been contributed by McClintock and Hunt on the basis of representational evidence[5]. Irish archaeologists have been slow in taking up the study of medieval weapons and armour; in the latter case this is, perhaps, understandable in view of the negligible amount of medieval armour extant. Weapons, however, are not infrequently met with, both as stray finds and in the course of archaeological excavations of medieval sites, but they have received little attention, with the exception of Rynne's work on weapons of the Viking and pre-Viking periods[6].

Turning specifically to archery, there has been an almost total absence of detailed study, whether by historians or archaeologists, in Ireland. This is not the case elsewhere, notably in England where, ever since Roger Ascham published his *Toxophilus* in 1545, there has been an active interest in the history of archery. This is largely due to the perception that archery made an extremely significant contribution to the military history of late medieval England and this period has, therefore, been particularly emphasised both in general military histories[7] and in specialist works on archery. A large amount of such specialist material has been produced and there is even a Society of Archer-Antiquaries, which publishes an annual *Journal*. Much of the material specialising on archery is the work of interested amateurs and is of very mixed quality, but a number of the writers make up for their lack of scholarship with valuable practical experience and some, such as Heath and Hardy, have produced work of real importance[8]. There have also been contributions by professional historians, notably an important study by Bradbury[9].

Archaeological research on archery has lagged behind historical work in England, but will hopefully be stimulated by the discovery of large amounts of archery

4. P. Harbison, 'Native arms and armour in medieval Gaelic literature, 1170-1600', *Irish Sword* 12 (1975-76), pp. 173-99, 270-84.
5. H.F. McClintock, *Old Irish and Highland dress* (Dundalk, 1950); J. Hunt, *Irish medieval figure sculpture 1200-1600* (Dublin and London, 1974).
6. See E. Rynne's *Irish iron weapons of pre-Norman times* (unpublished thesis submitted to National University of Ireland for Travelling Studentship in Archaeology, 1956); 'The impact of the Vikings on Irish weapons', *Atti del VI Congresso Internazionale delle Scienze Preistoriche e Protostoriche* III (Rome, 1966), pp. 181-185; 'A classification of pre-Viking Irish iron swords', in B.G. Scott (ed.), *Studies on early Ireland: Essays in honour of M.V. Duignan* (Belfast, 1981), pp. 93-97).
7. See, for example, C. Oman, *A history of the art of war in the Middle Ages,* Second edition (London, 1924); J.E. Morris, *The Welsh wars of Edward I* (Oxford, 1901).
8. E.G. Heath, *Archery: A military history* (London, 1980); R. Hardy, *Longbow: A social and military history* (Cambridge 1976); the third edition of 1992 is particularly important by virtue of the inclusion of information on the material from the *Mary Rose.*
9. J. Bradbury, *The medieval archer* (Woodbridge, Suffolk, 1985).

material on the wreck of Henry VIII's warship, *Mary Rose*[10]. Unfortunately, no formal publication of the *Mary Rose* material has yet appeared, although the most recent edition of Hardy's *Longbow* contains a valuable summary of research to date. Coincidentally, the first published attempt at a comprehensive typology of medieval arrowheads in Britain has recently appeared (see Fig. 1) and even though it is, in the present writer's view, not an entirely successful attempt it is, nevertheless, a welcome development[11]. Prior to this the standard reference typology used by archaeologists in Britain and Ireland was one developed by J.B. Ward-Perkins for the London Museum's *Medieval Catalogue* (see Fig. 2), published as long ago as 1940. Not surprisingly, in view of the relative lack of archaeological research, there have been few attempts to integrate the archaeological evidence with current models of military history.

In other parts of northern Europe, the pattern of research in medieval archery has been almost the opposite of that in Britain. Research has been led by archaeology rather than history and has tended to focus more on the earlier, rather than the later part of the medieval period. The years 1972-73 saw the appearance of two important Scandinavian studies. In Norway, Farbregd published a study of an important collection of arrows and arrowheads from the mountainous region of Oppdal, which had been left behind by reindeer hunters over a long period (*c.*300-1700 AD), and preserved in permanent snowbeds[12]. At the same time Wegraeus produced a typology of Swedish Viking-age arrowheads (followed in 1986 by a paper on the arrowheads from the great Swedish Viking-age site of Birka, largely based on the 1971 study)[13]. In 1988 Kempke published an important study of the arrowheads from the north German Baltic settlement of Starigard/Oldenburg, which constitutes what is still the most useful overview of the development of arrowhead types in northern Europe between the 8th and 12th centuries[14]. Similarly, Lindbom's 1994 study of the arrowheads from the Valsgärde 13 boat burial in Sweden contains a very useful discussion of the background to the development of Viking-age arrowhead types in the 8th and 9th centuries.

10. See M. Rule, *The Mary Rose: The excavation and raising of Henry VIII's flagship* (2nd edn, London, 1983).
11. O. Jessop, 'A new artefact typology for the study of medieval arrowheads', *Medieval Archaeology* **40** (1996), pp. 192-205.
12. O. Farbregd, *Pilefunn fra Oppdalsfjella* (Trondheim, 1972).
13. E. Wegraeus, 'Pilspetsar under vikingatid', *Tor* **15** (1972-73), pp. 191-208; E. Wegraeus, 'Die Pfeilspitzen von Birka', in G. Arvidsson (ed), *Birka II:2: Systematische Analysen der Graberfunde* (Stockholm, 1986), pp. 21-34.
14. T. Kempke, 'Zur überregionalen Verbreitung der Pfeilspitzentypen des 8.-12. Jahrhunderts aus Starigard/Oldenberg', *Bericht der Römisch-Germanischen Kommission* **69** (1988), pp. 292-306.

Overall, the volume of research into medieval archery in northern Europe, whether archaeological or historical, has been very limited. Moreover, the research that has taken place has tended to confine itself to one or other discipline; there have been few attempts to integrate the archaeological evidence with current models of military history, or *vice versa*. This has created substantial difficulties for the present study, primarily in relation to assessing outside parallels for the Irish material, but also in a general sense in terms of the lack of models for such a study.

Sources: Archaeology

The primary source used in this study is the archaeological assemblage of some 851 medieval iron arrowheads, 18 wooden bows (mostly fragmentary), 3 wooden arrowshafts and one antler nut, part of the trigger mechanism of a crossbow. In chronological terms this material covers the period from the 9th to 16th centuries and geographically it covers most of Ireland (see Fig. 3). Almost all of this material has been recovered in modern archaeological excavations; the only exceptions are some 78 arrowheads acquired by museums as stray finds, which can on typological grounds be assigned to the medieval period. The bulk of the assemblage (66% of the arrowheads and 45% of the bows) come from the excavations in medieval Dublin carried out by the National Museum of Ireland between 1962 and 1981; further substantial amounts of material have been produced by more recent excavations in the town of Waterford[15] and at the castle sites of Trim, Co. Meath and Dunamase, Co. Laois. The great value of finds from excavated sites is, of course, that they generally come from datable contexts. In the present case, however, it must be noted that many of the archaeological excavations concerned have yet to be properly published. In many cases the writer has been able to obtain information on contextual dating from the excavators in advance of publication, but there are some excavations (notably some early excavations in Dublin) for which very little information is available.

Iron arrowheads are by far the commonest weapons excavated on Irish medieval sites, although this is largely an accident of depositional factors and does not necessarily reflect the real military importance of archery. The influence of depositional factors can be clearly seen by comparing the extant weapon finds from the Viking cemeteries at Kilmainham/Islandbridge in Dublin, and from the nearly contemporary Hiberno-Norse town of Dublin. This is a very crude comparison but it does reveal stark differences in

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15. Already published by the writer: A. Halpin, 'Archery material', in M.F. Hurley, O.M.B. Scully and S.W.J. McCutcheon (eds), *Late Viking age and medieval Waterford: Excavations 1986-1992* (Waterford, 1997), pp. 538-552.

the distribution of weapon types, with archery represented at almost 90% of the total in the settlement, but at little more than 5% in the graves (Chart 1).

Graves

Settlement
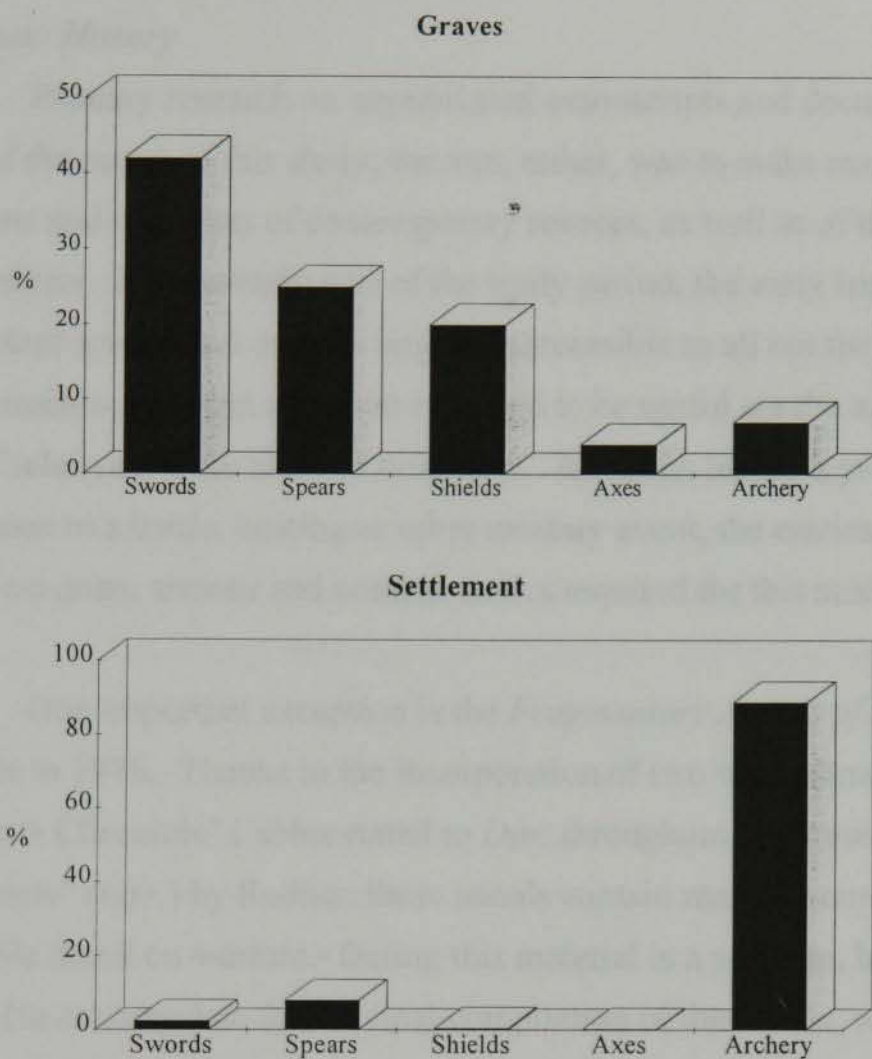
Chart 1: Histograms of extant weaponry in the National Museum of Ireland, from the Kilmainham/Islandbridge cemeteries (above) and from excavated sites in Dublin, 10th to late 12th centuries (below).

Almost certainly archery is significantly under-represented in the graves: this must be partly due to a bias in recovery[16] but also reflects the fact that inclusion of archery material in grave goods does not seem to have been common in Viking burial rituals[17]. Conversely, archery is probably over-represented in the settlement sites,

16. Wooden bows and arrowshafts would hardly have survived in the graves and arrowheads, especially if poorly preserved, may have been overlooked when the grave contents were being collected (they were not scientifically excavated) in the 19th century.
17. See B. Solberg, 'Social status in the Merovingian and Viking periods in Norway from archaeological and historical sources', *Norwegian Archaeological Review* **18** (1985), pp. 61-76; A. Pedersen, 'Weapons and riding gear in burials - evidence of military and social rank in 10th century Denmark?', in A.N. Jørgensen and B.L. Clausen (eds), *Military aspects of Scandinavian society in a European perspective, AD 1-1300* (Copenhagen, 1997), pp. 123-35.

mainly because other weapons were either too large or too valuable to be mislaid or discarded, to be found in archaeological excavation. Such factors, while difficult to quantify, must be taken into account in assessing the archaeological evidence.

Sources: History

Primary research on unpublished manuscripts and documentary sources was not part of the scope of this study; the aim, rather, was to make maximum use of published editions and calendars of contemporary sources, as well as of the work of other researchers. For the early part of the study period, the early Irish laws might be an important source, but are still largely inaccessible to all but the specialist student. The other main source that might be expected to be useful are the annals, but in general they are of relatively little value to this study. Although hardly a year goes by without a reference to a battle, hosting or other military event, the entries rarely provide the sort of detail on arms, armour and combat tactics required for this study.

One important exception is the *Fragmentary Annals of Ireland* edited by Joan Radner in 1978. Thanks to the incorporation of two early chronicles, labelled the "Durrow Chronicle" (abbreviated to *Dur.* throughout the present work) and "Osraige Chronicle" (*Osr.*) by Radner, these annals contain many discursive narratives full of valuable detail on warfare. Dating this material is a problem, but Radner suggests a mid-11th century date for the final compilation of the annals, while the "Osraige Chronicle" could have been put together within living memory of the reign of Cerball mac Dunlaing, king of Osraige, who died in 888. The "Durrow Chronicle" is more difficult to date, but Radner seems to suggest that it originally ended in the 8th century, possibly at 735, and was presumably put together within a short period of this date[18]. Although Radner wisely refrains from pinning her colours to the mast, it seems that one might suggest a late 8th/early 9th century date for the "Durrow Chronicle" and a late 9th/early 10th century date for the "Osraige Chronicle". As there is no reason to suppose that incidental information on weaponry and tactics should have been altered in subsequent editing of these sources, this dating is adopted in the present study.

Radner noted the relationship of the *Fragmentary Annals* to two early 12th century works, *Cogadh Gaedhel re Gallaibh* (referred to hereafter as *Cogadh*) and *Caithréim Chellachain Chaisil* (referred to as *Caithréim*), which also provide a wealth of information on warfare[19]. The pseudo-historical nature of these two works is well

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18. J.N. Radner (ed.), *Fragmentary annals of Ireland* (Dublin, 1978), pp. xxi, xxiv, xxvi.
19. *Ibid.*, pp. xxiv, xxxiv.

known, but again there is no reason to believe that such incidental detail was not an accurate reflection of conditions and practices at the time of composition[20]. Ní Mhaonaigh has recently suggested a date of *c*.1103-1113 for the composition of *Cogadh* and Ó Corráin has suggested a slightly later date of 1127-34 for *Caithréim*[21].

Another valuable source of information, but which also presents dating problems, is early mythological writing. Relatively manageable texts such as *Cath Maige Tuired* (referred to hereafter as *ČMT*) and *Tógáil Bruidne Da Derga* (*TBDD*), both apparently 9th century compositions, have proved very useful. Foremost in this category, however, are the Ulster Cycle tales. A comprehensive analysis of the Ulster Cycle is a major task which is beyond the scope of this study but account has been taken of *Táin Bó Cualnge*. The *Táin*, the most important tale of the Ulster Cycle and indeed of Irish mythology as a whole, is clearly a source of major significance for this study. This material is often ascribed a very early background via a long oral tradition, but in a recent study Mallory (1981) has conclusively demonstrated that the types of swords described in the Ulster Cycle can hardly be earlier than the Viking period[22]. The present writer's own reading of the *Táin* suggests that the same can be said of the military equipment in general, at least in that source. Two of the most important features of the tales which are taken as indicative of very early origin are essentially military in nature[23]. The first of these, head hunting, is not really touched on in this study but it might be noted in passing that references to the taking of heads occur reasonably frequently in the annals within the study period (i.e. after 800 AD). The second feature, fighting from chariots, is often presented as the Iron Age motif *par excellence*, yet in the present study evidence is noted for the use of chariots in warfare throughout the study period, including in the 12th century *Cogadh*. What the implications of this might be for the dating of the text is beyond both the scope of this study and the competence of the writer, but it seems clear that the *Táin*, in its present form, is a valid source of

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20. In a paper published after the relevant sections of the present work had been substantially completed, M.T. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', in T. Bartlett and K. Jeffery (eds), *A military history of Ireland* (Cambridge, 1996), pp. 52-75, makes much the same point and proceeds to demonstrate that much of the military information in these works is corroborated by contemporary annalistic and other documents, the historicity of which is not in doubt.
21. M. Ní Mhaonaigh, '*Cogad Gaedel re Gallaib*: Some dating considerations', *Peritia* 9 (1995), 354-77; D. Ó Corráin, '*Caithréim Chellacháin Chaisil*: History or propaganda?'. *Ériu* 25 (1974), p. 57.
22. J.P. Mallory, 'The sword of the Ulster cycle', in B.G. Scott (ed.), *Studies on early Ireland: Essays in honour of M.V. Duignan* (Belfast, 1981), pp. 99-114.
23. C. O'Rahilly (ed.), *Táin Bo Cualgne, from the Book of Leinster* (Dublin, 1984), p. xiii.

information on warfare and weaponry in the period between the arrival of the Vikings, c.800 AD, and the composition of the surviving text in the early 12th century.

For the purposes of this study both main recensions of the *Táin* were examined. Recension I is best represented by the text in *Lebor na hUidre* (referred to hereafter as *LU*); the manuscript is dated to *c.*1100 but this recension is thought to be a conflation of two 9th century versions, which presumably dates to the 10th or 11th centuries[24]. Recension II is best represented by the *Book of Leinster* text (*LL* in this study) and is dated to the early 12th century[25]. In this study, therefore, material common to both recensions is taken as reflecting 10th/11th century conditions, while material found in *LL* but not in *LU* is taken as reflecting possible 12th century developments.

Moving on to the Anglo-Norman incursions of the late 12th century the main source is, of course, Giraldus Cambrensis - primarily his *Expugnatio Hibernica* - although, as will be seen below, the very stature of Giraldus poses some problems for the interpreter. Another nearly contemporary narrative source, the so-called *Song of Dermot and the Earl* (referred to hereafter as the *Song*) also contains considerable military detail and is a useful complement to Giraldus. As the Anglo-Irish colony developed it began to produce administrative records containing a huge amount of information - direct and incidental - on military forces and campaigns. As in so many other areas, Sweetman's monumental *Calendar* remains an indispensable starting-point[26]. Financial records (such as survive) are largely unpublished with the exception of the calendared *Pipe Rolls*[27] but a great deal of information can be gleaned from the work of historians such as Lydon, Frame and D.B. Quinn. The published *Statute Rolls* have also proved extremely valuable although, perhaps surprisingly, little useful information was obtained from the published *Justiciary Rolls.* The records of the city of Dublin, calendared by Gilbert with recent additions by Connolly and Martin and Lennon and Murray, contain a wealth of fascinating detail on the city's military economy, while in the 16th century both the *Calendar of the State Papers of Ireland* and the English *State Papers* for the reign of Henry VIII have proved very useful.

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24. C. O'Rahilly (ed.), *Táin Bo Cualgne Recension I* (Dublin, 1976), vii-ix;   O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, p. ix.
25. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, pp. xlv-xlvi.
26. H.S. Sweetman, *Calendar of documents relating to Ireland, 1171-1307* (5 vols, London, 1875-86).
27. See M.J. McEnery (ed.) 'Accounts of the great rolls of the pipe of the Irish exchequer...', *Reports of the Deputy Keeper of the Public Records in Ireland,* **36** (1904) - **54** (1927);   O. Davies and D.B. Quinn (eds), 'The Irish pipe roll of 14 John, 1211-12', *Ulster Journal of Archaeology* **4** (1941), Supplement, 1-76.

Aside from these official records, individual Anglo-Irish or English documents such as those published by Chart, Empey and Simms, Mac Iomhair, Price and Shiels are also particularly valuable on specific issues[28]. Curiously, Anglo-Irish chronicles such as Clyn[29] and the Dublin annals[30] proved to contain little of direct relevance to this study, unlike their Gaelic counterparts. Inevitably, Anglo-Irish and English documents also contain a great deal of information about Gaelic Irish military organisation, tactics and weaponry. In addition, the later medieval Gaelic annals tend to contain more of such detail than at earlier dates, and there are many other Gaelic sources of information, such as biographies, pseudo-historical narratives and bardic poetry[31].

Structure

The thesis is laid out in three parts. Part One deals with the historical evidence; a general survey of historical evidence for medieval weapons and warfare (Chapter 1) is followed by a more specific study of the historical evidence for archery in medieval Ireland (Chapter 2). Part Two presents the archaeological evidence. Detailed typological, chronological and functional studies of iron arrowheads (Chapter 3) and wooden bows and arrowshafts (Chapter 4) are followed by an overall assessment of the archaeological evidence (Chapter 5). Finally, in Part Three, a synthesis of the historical and archaeological evidence is presented. In the Bibliography which follows Part Three, historical and archaeological publications are listed separately, in order to facilitate the division of primary and secondary sources with which historians are familiar, but which is of little meaning in relation to archaeological publications.

A detailed Catalogue of the full *corpus* of archaeological material is presented as an Appendix in a separate volume, accompanied by drawings of selected objects, and other illustrations.

28. L. Price, 'Armed forces of the Irish chiefs in the early 16th century', *Journal of the Royal Society of Antiquaries of Ireland* 62 (1932), pp. 201-07; D. Mac Iomhair, 'Two old Drogheda chronicles', *Journal of the Co. Louth Archaeological Society* 15 (1961-64), pp. 88-95; H. Shields, 'The walling of New Ross: A thirteenth-century poem in French', *Long Room* 12-13 (1975-76), pp. 24-33; C.A. Empey and K. Simms, 'The ordinances of the White Earl and the problem of coign in the later Middle Ages', *Proceedings of the Royal Irish Academy* 75C (1975), pp. 161-87.
29. R. Butler (ed), *The annals of Ireland according to Friar John Clyn and Thady Dowling* (Dublin, 1849).
30. In J.T. Gilbert (ed.), *Chartularies of St. Mary's abbey, Dublin*, vol. 2 (London, 1889).
31. For example, D. Murphy (ed.), *Beatha Aodha Ruaidh Ui Dhomhnaill* (Dublin, 1893); K. Simms, 'Images of warfare in bardic poetry', *Celtica* 31 (1990), pp. 608-19.

PART ONE

HISTORY

CHAPTER 1:

WARFARE AND WEAPONS IN MEDIEVAL IRELAND

The Viking period (9th century)

The period beginning with the Viking incursions after 795AD saw the coming
into contact (and conflict) of two military systems, Irish and Scandinavian. Any attempt
to discuss this contact and its results clearly demands some understanding of the
preceding period. However, assessment of military organisation and technology in pre-
Viking Ireland is severely hampered by a shortage of source material, both historical
and archaeological. The outstanding documentary source, the early Irish laws, are still
largely inaccessible to all but the specialist student and few other 8th century sources
contain useful information. Archaeological evidence, in the form of actual weaponry, is
rare and has received little study, so that it is hardly possible even to discuss the range of
material available, still less to draw general deductions from it. The scarcity of material
from securely dated contexts is a particular problem. Indeed, many of the same
difficulties are equally applicable to the historical and archaeological sources of the 9th
century. What follows, therefore, is of necessity an incomplete discussion but it is
hoped that it will be of some use in setting the background for later periods.

Warriors and military organisation

Clearly there were established conventions in pre-Viking Ireland governing how
kings raised armies and who was liable for military service. A marginal entry in *A.U.
s.a.* 804, for instance, notes the freeing of the clerics of Ireland from the obligation of
attendance on expeditions (*fecht*) and hostings (*sluaiged*), by Aed Oirdnide, king of
Tara. The laws speak of the obligation of all freemen of the *tuath* to answer the king's
summons to a hosting (*slogad*), to repel invaders or attack another *tuath*[1]. This general
military obligation of freemen was, in theory at least, the basis of most armies[2], much as
in contemporary Anglo-Saxon England and Carolingian Europe[3]. However, both

1. F. Kelly, *A guide to early Irish law* (Dublin, 1988), pp. 4, 31.
2. E. MacNeill, 'Military service in medieval Ireland', *Journal of the Cork Historical and Archaeological
   Society* **46** (1941), pp. 9, 11; K. Simms, *Gaelic lordships in Ulster in the later Middle Ages*
   (Unpublished Ph.D. thesis, University of Dublin, 1976), p. 122.
3. C.W. Hollister, *Anglo-Saxon military institutions on the eve of the Norman invasion* (Oxford, 1962), p.
   9; F.L. Ganshof, *Frankish institutions under Charlemagne* (New York, 1968), p. 64; J. Beeler,
   Warfare in feudal Europe, 730-1200 (Ithaca and London, 1971), pp. 9, 218-21; P. Contamine,
   War in the Middle Ages (Oxford, 1986), p. 17.

Contamine (referring to the Germanic kingdoms) and Alcock (referring to Britain) note a development in the first half of the first millennium AD, away from the tribe or kingdom as the primary unit of military organisation in favour of a more specialised system based on the king or chief and his war-band (*comitatus*)[4]. Just as the general military obligation of all freemen may well, by the 8th/9th centuries, have been something of a legal fiction in England and on the Continent[5], so too in Ireland a revealing annalistic detail of the 10th century suggests that military service was by that date an essentially aristocratic privilege. The account in *Osr. s.a.* 910 of a raid by the men of Breifne into Mide notes the high king's astonishment at the sight of an army of "peasants"; the terms used, *aitheachaibh* and *comhaithigh*, both refer to the ordinary, non-noble freeman who, in theory, was liable to military service[6]. Alcock argues that in contemporary British (i.e. non-Anglo-Saxon) society there is "no evidence for common soldiery who were free but not noble" and that all fighting, effectively, was carried out by a military aristocracy who were largely supported by exactions of services, food and lodging from the lower classes[7]. The Irish situation may well have been similar, although the early laws do speak of base clients (*céile giallnae/doerchéile*) having low-level military obligations of *fubae* (hunting thieves, wild animals etc.) and *rubae* (patrolling borders and other strategic areas)[8].

References also occur, even in the earliest laws, to kings maintaining personal retainers or mercenaries, depending on how the term *amus* is to be translated. *Amus*, at least in the laws, can refer to a servant as well as a mercenary or hired soldier but the term occurs in a military context from as early as the 8th century to as late as the 12th[9]. Another term, *milid* (an early loan-word from the Latin *miles*) is also thought to refer to a professional soldier. It is found in Irish sources as early as the 8th century and along with *amus* may indicate a distinction between professional (or hired) and non-professional warriors from this date. It is noteworthy that the recorded uses of *milid* prior to the 12th century all seem to refer to foreign warriors - a Briton in *Dur. s.a.* 702, Danes and Norwegians in *Osr. s.a.* 852 and Scots and Northumbrians in *A.Tig. s.a.* 1054[10]. The law tract *Crith Gablach* describes a king's military household as consisting

4. Contamine, *War in the Middle Ages*, 14-21; L. Alcock, *Economy, society and warfare among the Britons and Saxons* (Cardiff, 1987), p. 309.
5. N. Hooper, 'Anglo-Saxon warfare on the eve of the conquest: a brief survey', in R. Allen Brown (ed.), *Proceedings of the Battle conference on Anglo-Norman studies I 1978* (Ipswich, 1979), pp. 87-88; Contamine, *War in the Middle Ages*, pp. 17-21.
6. J.N. Radner (ed.), *Fragmentary annals of Ireland* (Dublin, 1978), pp. 173-75.
7. Alcock, *Economy, society and warfare*, pp. 292-94.
8. Simms, *Gaelic lordships in Ulster*, p. 122.
9. Kelly, *A guide to early Irish law*, p. 65; Radner, *Fragmentary annals*, p. 71; *A.Inis. s.a.* 968, 985; K. Meyer (ed.), *Betha Colmain Maic Luachain* (Dublin, 1911), pp. 26-27; *A.Tig. s.a.* 1157.
10. Radner, *Fragmentary annals*, pp. 49-51, 93.

of four bodyguards (*amuis*) stationed to his front, rear and on either side, as well as a "champion" (*fennid*) and a guard at the door; all are armed with a spear[11]. This is an obviously stylised description, but it suggests a level of militarisation which was low, even by contemporary European standards.

There is no evidence that this pre-Viking military system ever produced armies of outstanding quality. As Byrne put it, "the Irish nobleman was primarily a farmer. The battles which figure so prominently in the Annals rarely lasted longer than a summer's afternoon"[12]. In terms of military technology, also, the quality of Irish weapons of the period has been questioned[13] but pre-Viking Ireland was, in military terms at least, a relatively closed system with no significant outside threats and, in all probability, no pressing need for quality in either military technology or organisation. The Viking attacks represented the first serious outside military threat since prehistoric times and their impact undoubtedly led to profound changes in military organisation in Ireland. Binchy pointed to the contrast between the traditional, almost ritualistic approach to warfare common in pre-Viking Ireland and the more aggressive, "no-holds-barred" nature of Viking warfare[14]. Byrne credits the Vikings with introducing "the concept of total warfare" and notes the replacement in 11th and 12th century annals of the old term *cath* (battle, usually a one-day ritual affair) with *cocad* (war) as further evidence of increased militarisation[15].

In theory Scandinavian military organisation was not very different from Irish, with the bearing of arms similarly restricted to freemen, who were responsible to rise out in defence of the country[16]. However, proximity to the major power centres of continental Europe, especially the expansionist Frankish kingdom, helped to produce a more militaristic society and more highly developed military technology. Within Scandinavian society there seem to have been systems of levies and obligatory dues which provided kings with manpower and resources for warfare, allowing the

11. Kelly, *A guide to early Irish law*, p. 66.
12. F.J. Byrne, 'Early Irish society (1st to 9th century)', in T.W. Moody and F.X. Martin (eds), *The course of Irish history* (Rev. edn, Cork, 1984), p. 46.
13. E.g. E. Rynne, 'The impact of the Vikings on Irish weapons', *Atti del VI Congresso Internazionale delle Scienze Preistoriche e Protostoriche III* (Rome, 1966), pp. 181-185. It should be noted, however, that the first detailed study of the metallography of weapons of this period (B.G. Scott, *Early Irish ironworking* [Belfast 1990], pp. 108-146, summarised on pp. 146-47) is not entirely damning; while some weapons are certainly technologically poor, others were found to be quite effective.
14. D.A. Binchy, 'The passing of the old order', in B. O'Cuiv (ed.), *Proceedings of the International Congress of Celtic Studies* (Dublin, 1962), p. 128.
15. F.J. Byrne, 'The trembling sod: Ireland in 1169', in A. Cosgrove (ed.), *Medieval Ireland 1169-1534* (New History of Ireland vol. 2, Dublin, 1987), p. 10.
16. E. Roesdahl, *The Vikings* (London, 1992), pp. 56, 140.

development of something approaching national armies. The Viking bands and armies which attacked Ireland, however, were most likely organised as voluntary military fellowships; Scandinavian kings and lords often surrounded themselves with such bands or fellowships of warriors, bound to their lord by mutual loyalty[17]. The Viking invasions had an inevitable impact on military organisation, weapons and tactics in Ireland, as Irish kings responded in kind to Viking aggression. Simms and Kelly note the increasing use of professional soldiers and mercenaries, of both Norse and Irish extraction, by Irish kings in the aftermath of the Viking invasions[18]. Indeed, the shock of the Viking raids had a profound effect, not only on Gaelic warfare but also, according to Binchy, on the political and social framework of the country[19].

Cavalry

In the pre-Viking period there is little or no evidence for the use of cavalry in Irish warfare. The only occurrence noted in the annals of the term *marcsluag* (mounted troops or cavalry) is a reference to a large *marcsluag* led by Finnachta Fledach (later king of Síl nAeda Sláine, who died in 695) in *Dur.*, probably of 7th or 8th century date[20]. However, as Finnachta was engaged in nothing more warlike than visiting his sister at the time, the military significance of this reference is questionable. This lack of emphasis on cavalry in warfare is not unusual in a contemporary European context. The military historiography of north-western Europe in the early medieval period has emphasised as a central theme the gradual development of cavalry tactics by aristocratic war-bands. The Franks are seen as at the forefront of this development, but while writers such as White, Beeler and Todd have dated the first serious use of cavalry in the Frankish kingdom to the 8th century[21], more recent scholarship has, if anything, indicated an even later, 9th century date for the widespread adoption of cavalry tactics by the Franks[22]. Areas outside the core Frankish kingdom are thought to have turned to cavalry even later; thus Beeler suggests that in German principalities such as Saxony the adoption of cavalry tactics did not take place until the 10th century[23]. Davis suggests that Anglo-Saxon England followed the Frankish example in increasing the emphasis on

17. *Ibid.*, pp. 67, 71, 140.
18. Simms, *Gaelic lordships in Ulster*, pp. 122-24; see also Kelly, *A guide to early Irish law*, pp. 65-67, and P. Holm, 'The slave trade of Dublin, ninth to twelfth centuries', *Peritia* 5 (1986), pp. 319-320.
19. Binchy, 'The passing of the old order'.
20. Radner, *Fragmentary annals*, p. 23.
21. L. White, *Medieval technology and social change* (Oxford, 1962), pp. 1-38; Beeler, *Warfare in feudal Europe*, pp. 9-12; M. Todd, *Everyday life of the barbarians: Goths, Franks and Vandals* (London, 1972), pp. 108-09.
22. B.S. Bachrach, 'Charles Martel, shock combat, the stirrup and feudalism', *Studies in medieval and renaissance history* 7 (1970), pp. 47-75; Contamine, *War in the Middle Ages*, pp. 179-84.
23. Beeler, *Warfare in feudal Europe*, pp. 217-32.

cavalry from the later 9th century, but other writers take a different view and Alcock sees no evidence that the Anglo-Saxons were horsemen in the pre-Viking period[24]. Hooper argues that while the Anglo-Saxons did use horses in warfare and "could on occasion fight from horseback", they never developed "specific cavalry tactics" as the Franks did[25].

A related issue is the use of chariots in Irish warfare during this period. Jackson saw the use of chariots as evidence of the Iron Age background of the Ulster cycle of tales, arguing that "the characteristic use of the war-chariot is itself 'pre-historic', since there is no reliable evidence whatever for its existence in Irish warfare in historical times"[26]. This, however, does not appear to be borne out by the documentary record. Greene noted references to chariots persisting in early Christian literature, although the context of these references was not military[27]. The "Durrow chronicle" *s.a.* 703, however, describes Cellach mac Rogallaig, Uí Briuin king of Connacht, leaping from his chariot (*charbad*) to lead his army in battle against Cenel Conaill, and further references to chariots in military contexts occur in 9th century texts such as *Cath Maige Tuired* and *Tógail Bruidne Da Derga*, and as late as the 12th century *Cogadh Gaedil re Gallaibh*[28]. These references appear to provide definite evidence for the use of chariots in early medieval warfare, but unfortunately tell us little about how they were used or about the appearance of the chariots themselves.

A number of references to the use of horses by Vikings in military campaigns of the mid-9th century seem to herald new developments in warfare in Ireland. A consistent difficulty in the use of these references, however, is the lack of precision on how exactly horses were used. Kavanagh echoes Roesdahl's suggestion that the Vikings normally used horses only for transport to and from the battlefield and actually fought on foot[29], but some documentary references to mounted Vikings in combat in Ireland are

24. R.H.C. Davis, 'Did the Anglo-Saxons have warhorses?' in S. C. Hawkes (ed.), *Weapons and warfare in Anglo-Saxon England* (Oxford, 1989), p. 142; Beeler, *Warfare in feudal Europe*, p. 92; Todd, *Everyday life of the barbarians*, p. 114; Alcock, *Economy, society and warfare*, p. 300.
25. N. Hooper, 'The Anglo-Saxons at war', in Hawkes, *Weapons and warfare in Anglo-Saxon England*, p. 200.
26. K.H. Jackson, *The oldest Irish tradition: A window on the Iron Age* (Cambridge, 1964), pp. 17, 43.
27. D. Greene, 'The chariot as described in Irish literature', in C. Thomas (ed.), *The Iron Age in the Irish Sea province* (London, 1972), pp. 61-62.
28. Radner, *Fragmentary annals*, p. 51; W. Stokes, 'The second battle of Moytura', *Revue Celtique* **12** (1891), pp. 103, 81, 97; W. Stokes, 'The destruction of Da Derga's hostel', *Revue Celtique* **22** (1901), p. 51; Todd, *Cogadh Gaedhel re Gallaibh*, p. 173.
29. R. Kavanagh, 'The horse in Viking Ireland', in J. Bradley (ed), *Settlement and society in medieval Ireland: Studies presented to F.X. Martin, O.S.A.* (Kilkenny, 1988), p. 97; Roesdahl, *The Vikings*, p. 144.

tantalisingly ambiguous on this point. One example is an entry in *Osr. s.a.* 855, referring to the defeat of a Norse force at Áth Muiceda by the Osraige, which states that:

"a large troop of the defeated people (i.e. the Norse) rode their horses up a high hill...saw their own people being killed...and what they did was to draw their swords and take their arms and to attack the Osraige".

Since there is no mention of the Norse warriors dismounting, it could be argued that this account depicts the Norse actually fighting on horseback but the text is not clear enough on the point. Another entry in *Osr. s.a.* 866 seems to indicate that the use of horses was confined to the nobility among the Norse, as indeed was the case among the Irish throughout the Middle Ages; it notes that Cennetig mac Gaethine, king of Loiches "made a great slaughter of the noblemen of the Norwegian king...that is, of the horsetroops (*marcshluagh*) of the Norwegian king"[30].

Irish cavalry are also attested from the 850's. In 858, *Osr.* describes Mael Guala, king of Munster as attacking the high king Mael Sechnaill I with "many horsemen" (*marcsluaghaibh moraibh*), while the high king's force was apparently mounted as well, since defeat was only averted by the arrival of his footsoldiers (*coisigheadha*). A battle between the *marcsluagaibh* of Laigin and of Osraige is recorded *s.a.* 868[31]. Unfortunately, in all of these cases it is impossible to determine whether these forces actually fought on horseback or on foot, or what proportion of the total force was accounted for by the *marcsluagh*[32]. It does seem clear, however, in view of the great scarcity of earlier evidence, that the first serious use of the horse in Irish warfare dates to the 9th century and can be attributed to the influence of the Vikings.

Armour

In contrast to weaponry, where little difference is evident in the equipment used by Irish and Norse (see below), the use of armour seems to provide a clear distinction between the two groups. Later sources suggest that the Irish did not wear armour, while the Norse are consistently described as doing so. This may have been an oversimplification, if not a conscious distortion of the truth, in the 12th century, but is more likely to have been the case in the earliest years of Viking activity in Ireland. Armour may well have been worn by at least some of the earliest Viking raiders, to

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30. Radner, *Fragmentary annals*, pp. 99, 125.
31. *Ibid.*, pp. 103, 131.
32. K. Simms, 'Gaelic warfare in the Middle Ages', in T. Bartlett and K. Jeffery (eds), *A military history of Ireland* (Cambridge, 1996), p. 107, suggests that there are indications in the 14th century that Irish noble horsemen dismounted to fight.

judge by a description in the 9th century tale, *Cath Maige Tured*: "Not a chief nor man of prowess of them was without a hauberk (*lúirig*) against his skin, a helmet (*catbarr*) on his head"[33]. The reference here is actually to the mythical Fomoire but it is likely that the author was using the Vikings as his model[34]; this is supported by the similarity of the description to 12th century accounts of the Norse (see below). Alcock notes that armour (*lluric*) is referred to in the 7th century Welsh epic *Y Gododdin*, although he suggests that the reference may be to leather jerkins rather than mail coats[35]. There is no evidence for the wearing of armour in pre-Viking Ireland, unless a very early date for *Táin Bo Cualgne* is accepted. In the present study references to armour in the *Táin* are taken as being applicable only to the period of compilation of the various surviving recensions (i.e. 10th-12th century), and are discussed below.

Weaponry

As will be discussed below, sources of 9th to 12th century date indicate that the ideal armoury of an Irish warrior was a shield, a sword and one or more spears. Significantly, these are also the only weapons represented in the archaeological record for the pre-Viking period and, indeed, for the preceding Iron Age period in Ireland[36]. Taking all this into account we are probably safe in assuming that the shield/sword/spear armoury was also the ideal in the pre-Viking period, in spite of the lack of definite evidence. In one text of the latter half of the 8th century, the tale known as *"The expulsion of the Dessi"*, the only weapons referred to are the spear (*sleg*), sword (*colg ndet*) and shield (*sciath*)[37]. Jackson, referring to the pre-Viking period, pointed out that the term *gaisced*, referring to the set of weapons presented to a youth on reaching manhood, is a compound of terms for a spear (*gae*) and a shield (*sciath*), and concluded that "the most characteristic equipment of the ancient Irish warrior must have been the spear and shield"[38]. Alcock describes the shield, sword and spear as the most common weaponry in contemporary Britain, both Anglo-Saxon and non-Anglo-Saxon, as is evidenced from weapon finds from burials. This is undoubtedly true, but Harke's warning must be borne in mind that weapon combinations in Anglo-Saxon graves are

33. Stokes, 'The second battle of Moytura', p. 97.
34. P. Mac Cana, 'The influence of the Vikings on Celtic literature', in B. O'Cuiv (ed.), *Proceedings of the International Congress of Celtic Studies* (Dublin, 1962), p. 94, notes that the Norse "gradually came to be assimilated to, and partially identified with, the Fomoire", in works as early as Cath Maige Tured.
35. Alcock, *Economy, society and warfare*, p. 299.
36. See B. Raftery, *A catalogue of Irish Iron Age antiquities* (Marburg, 1983), pp. 83-133; B. Raftery, *La Tene in Ireland: problems of origin and chronology* (Marburg, 1984), pp. 62-133; E. Rynne, *Irish iron weapons of pre-Norman times* (Thesis submitted to National University of Ireland for Travelling Studentship in Archaeology, 1954); Rynne, 'The impact of the Vikings on Irish weapons'.
37. K. Meyer, 'The expulsion of the Dessi', *Y Cymmrodor* 14 (1901), pp. 104, 106, 114, 132.
38. Jackson, *The oldest Irish tradition*, pp. 16-17.

often manifestly non-functional and thus cannot be used to reconstruct fighting practices[39].

Irish sources of 9th to 12th century date are consistent in describing a basic armoury for (Irish) warriors of a shield, a sword and one or more spears. These are the weapons most frequently mentioned in accounts of battles and armies, for example in *Cath Maige Tured, Tógail Brudne Da Derga, Osr., Cogadh* and *Caithréim*[40]. *Táin Bo Cualgne* notes that the youthful Cú Chulainn, on first taking arms, was given "two spears (*sleig*) and a sword (*claideb*) and a shield (*sciath*)" by king Conchobor[41]. These are also the only weapons mentioned in a series of descriptions of individual warriors, in sources of the 9th to 12th centuries, notably the *Táin* (see Table 1). The descriptions listed in Table 1 are, in almost every case, fictional but some interesting patterns nevertheless emerge. In 82% of cases the warriors possess the full armoury of sword, shield and spear. While 90% of warriors have swords and 93% have shields, it is notable that all, without exception, have spears; most frequently a single spear is indicated but in 40% of cases the warriors are described as having two spears.

The remarkable consistency of these descriptions suggests a standard (or more precisely, an ideal standard) equipment for warriors of the 9th to 12th centuries: a shield, a sword and one or in some cases two spears, at least one of which was presumably for throwing. Of course not every warrior was so armed. The less wealthy were no doubt unable to afford the full range of weapons, particularly swords, which were probably less common than the literary sources suggest. Anglo-Saxon England provides a useful comparison here; it has been suggested that pagan weapon-bearing graves can be classified as those of nobles (*thegns*) where they contain sword, shield and spear, or of lesser freemen (*ceorls*) if only a spear, or shield and spear is present, as is most often the case[42]. The warriors described with the full panoply of weapons in the Irish sources should likewise be considered as nobles (as is explicitly stated in many cases).

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39. Alcock, *Economy, society and warfare*, p. 295; H. Harke, 'Early Saxon weapon burials: frequencies, distributions and weapon combinations', in Hawkes, *Weapons and warfare in Anglo-Saxon England*, pp. 55-56.
40. E.g. Stokes, 'The second battle of Moytura', pp. 89-91, 97, 99; Stokes, 'The destruction of Da Derga's hostel', p. 51; Radner, *Fragmentary annals*, pp. 93, 137-39; Todd, *Cogadh Gaedhel re Gallaibh*, pp. 53, 159-63; Bugge, *Caithréim Cellachain Caisil*, p. 114.
41. C. O'Rahilly (ed.), *Táin Bo Cualgne, from the Book of Leinster* (Dublin, 1984), ll.935-37, 946.
42. Alcock, *Economy, society and warfare*, pp. 293, 295; but see Harke, 'Early Saxon weapon burials', pp. 55-59 for a warning note on the discrepancy between weapon combinations in graves and real warriors' equipments.

Date (century)	Warrior	Weaponry	Source
9th	Fomorian king Elotha	Sword, 2 spears	*Cath Maige Tured*[43].
9th	Fiachna mac Reda	Sword, shield, 2 spears	[44].
8th/9th	Aed Allain	Sword, shield, 2 spears	"Osraige chronicle"[45].
11th/12th	Cú Chulainn	Sword, 2 spears	*Táin*, ll. 256-60[46].
11th/12th	Fergus mac Roig	Sword, shield, spear	*Táin*, ll. 1584-87.
11th/12th	Cú Chulainn	Sword, shield, 2 spears	*Táin*, ll. 2130.
11th/12th	fairy warrior	Shield, 2 spears	*Táin*, ll. 2142-45.
11th/12th	Cú Chulainn	Sword, shield, 2 spears	*Táin*, ll. 2246-55.
11th/12th	Cú Chulainn	Sword, shield, 2 spears	*Táin*, ll. 2364-67.
11th/12th	Fer Diad	Sword, shield, spear	*Táin*, ll. 3247-63.
11th/12th	Illand Ilarchless	Shield, 2 spears	*Táin*, ll. 3668-70.
11th/12th	Maine Maithremail	Sword, shield, spear	*Táin*, ll. 3730-32.
11th/12th	Iliach son of Cas mac Baicc	Sword, shield, 2 spears	*Táin*, ll.3904-07.
11th/12th	King Conchobor	Sword, shield, spear	*Táin*, ll.4305-09.
11th/12th	Causcraid Mend Macha	Sword, shield, spear	*Táin*, ll.4314-23.
11th/12th	Sencha mac Ailella	Sword, shield, spear	*Táin*, ll.4335-37.
11th/12th	Eogan mac Durthachta	Sword, shield, spear	*Táin*, ll.4369-72.
11th/12th	Munremur mac Gerrcind	Sword, shield, spear	*Táin*, ll.4391-95.
11th/12th	Connud mac Morna	Sword, shield, spear	*Táin*, ll.4401-06.
11th/12th	Reochaid mac Faithemain	Sword, shield, 2 spears	*Táin*, ll.4426-30.
11th/12th	Amairgin mac Ecelsalaig	Sword, shield, spear	*Táin*, ll.4449-54.
11th/12th	Feradach Find Fechtnach	Sword, shield, spear	*Táin*, ll.4461-63.
11th/12th	Celtchair Mor mac Uthechair	Sword, shield, spear	*Táin*, ll.4484-87.
11th/12th	Eirrge Echbel	Sword, shield, spear	*Táin*, ll.4498-4501.
11th/12th	Mend mac Salcholgan	Shield, spear	*Táin*, ll.4509-10.
11th/12th	Fergna mac Findchonna	Sword, shield, spear	*Táin*, ll.4519-22.
11th/12th	Furbaide Fer Bend	Sword, shield, spear	*Táin*, ll.4529-31.
11th/12th	Erc son of Fedilmid	Sword, shield, spear	*Táin*, ll.4538-43.

Table 1: Warriors' equipment in Irish sources, 9th to 12th centuries.

43. Stokes, 'The second battle of Moytura', p. 61.
44. K.H. Jackson, 'The adventure of Laeghaire mac Crimhthainn', *Speculum* **XVII** (1942), pp. 377-78, 381.
45. Radner, *Fragmentary annals*, p. 63.
46. References to the *Táin* in this table are to C. O'Rahilly (ed.), *Tain Bo Cualgne, from the Book of Leinster* (Dublin, 1984).

Undoubtedly other weapons were also used, though less commonly than the basic combination of shield, spears and sword. In later sources such as *Osr.*, *Cogadh* and *Caithréim* many other weapons are referred to: axes, knives, clubs, bows and arrows, stones and (by implication) slings. It is tempting to see this as indicating a proliferation of weaponry as a result of Viking influence, but caution must be exercised, as there is evidence to suggest that some of these weapons were already in use in the 9th century. References to slings, clubs and even a flail occur in 9th century sources[47], while the earliest evidence for the use of the axe seems to be in the 10th century, although there is a reference of doubtful reliability in *A.U. s.a.* 895. The bow and arrow (discussed in more detail in Chapter 2) was apparently unknown in Ireland until reintroduced by the Vikings. There is both historical and archaeological evidence for the use of the bow by the Vikings in the 9th century but no definite evidence for its use by the native Irish.

Throughout the medieval period, in Ireland as elsewhere, the spear was undoubtedly the commonest and in that sense the most important weapon of war[48]. It was used by Irish, Viking and Anglo-Norman warriors, by king and peasant, by mounted warrior and foot soldier alike; it could be used as a missile for throwing over long or short distances, or retained in the hand to thrust and parry in close combat. It is likely that a considerable number of spearheads of this period lie unrecognised in our museum collections, but the obstacles to recognition are formidable. Because the same basic forms seem to have been repeated over very long periods, it is extremely difficult to date iron spearheads on the basis of typology alone[49]. Thus only spearheads which have actually been found in datable contexts on excavated sites can so far be assigned to the pre-Viking period, and these are rare[50]. Alcock suggests an overall length of some 7 feet for infantry spears in pagan Anglo-Saxon weapon burials but very little can be said about the dimensions of spears in Ireland[51].

47. E.g. Stokes, 'The second battle of Moytura', pp. 93, 101; Stokes, 'The destruction of Da Derga's hostel', pp. 23-25, 57, 303, 309.
48. E.g. Alcock, *Economy, society and warfare*, pp. 296-98; J. Hines, 'The military context of the *adventus Saxonum*: some continental evidence', in Hawkes, *Weapons and warfare in Anglo-Saxon England*, p. 39; K. de Vries, *Medieval military technology* (Ontario, 1992), pp. 9-12.
49. See Raftery, *La Tene in Ireland*, p. 108.
50. Although Lagore crannog, Co. Meath produced many spearheads, most of these are unstratified; two examples, however, are apparently from 7th century contexts, see H. O'Neill Hencken, 'Lagore crannog: an Irish royal residence of the seventh to tenth century A.D', *Proceedings of the Royal Irish Academy* 53C (1950), 94-98. Moynagh Lough crannog, Co. Meath, has also produced two spearheads of 7th/8th century date (J. Bradley, pers. comm.).
51. Alcock, *Economy, society and warfare*, p. 298.

Two terms for swords, *claideb* and *colg*, are found in Irish sources of this period. Mallory suggests, on the basis of etymological and archaeological considerations, that *colg* is the earlier term, originally applied to small swords of the Iron Age designed for thrusting, whereas *claideb* is an introduction of the 5th or 6th centuries, denoting longer swords designed for slashing or cutting[52]. The few surviving swords datable to the centuries immediately preceding the Viking incursions have been studied by Rynne, who has suggested a progression of various types of sword developing in the wake of the Iron Age (in which a series of swords comparable to continental La Tene types or developed from them are known in Ireland). Swords of "Sub-Roman" type, based both on the broad *gladius* form and on the longer, narrower *spatha* form, are dated from the 4th to 7th centuries; a small number of "Grooved" swords, so far noted only at Lagore crannog, Co. Meath, are dated to the mid-7th century; another small group of "Expanded-ended" swords are also dated to the 7th century, while a final group, termed "Crannog" swords, are thought to have developed from the earlier types in the late 7th century and continued in use until superseded by "Viking" type swords, probably in the mid-9th century[53].

In view of the small numbers of swords available for study and the extreme scarcity of contextual information, Rynne's classification and chronological scheme must be regarded as provisional. Perhaps all that can confidently be said at this point is that a number of swords are known which seem mainly to be in the Roman *spatha* tradition, designed for slashing rather than thrusting; a further consistent feature is the relatively short length of all these swords[54]. The links with Roman or sub-Roman prototypes suggest early dates, however, and at present there are no definite grounds for dating any of these swords later than the 7th century. Thus it is not certain that these sword types were still in use at the time of the Viking raids, but given that Irish warriors of that period clearly had swords of some type, Rynne may be correct in suggesting that the "Crannog" type was in use into the early 9th century. If so, there is little doubt that the inferiority of such swords to those used by Viking warriors must soon have been evident.

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52. J.P. Mallory, 'The sword of the Ulster cycle', in B.G. Scott (ed.), *Studies on early Ireland: Essays in honour of M.V. Duignan* (Belfast, 1981), pp. 100, 109.
53. E. Rynne, 'A classification of pre-Viking Irish iron swords', in Scott, *Studies on early Ireland*, pp. 93-97; Scott, *Early Irish ironworking*, p. 104, questions whether the "Grooved" type can really be considered a discrete type.
54. Rynne, 'A classification of pre-Viking Irish iron swords', p. 93; Mallory, 'The sword of the Ulster cycle', pp. 103-04.

The normal range of Viking military equipment is relatively well known. Their main weapons were spears, swords, axes, javelins and bows and arrows; for personal defence, helmets, shields and body armour, mainly of chain mail, were used[55]. Lehtosalo-Hilander suggests that the sword predominated over the spear in western and southern Scandinavia, notably Norway[56], but this seems improbable and is most likely a misinterpretation of the occurrence of these weapons in graves, which does not necessarily reflect actual usage. With the exception of archery, it is not easy to distinguish between the weaponry of Irish and Vikings, even in the 9th century. The basic equipment of shield, spears and sword was common to both and the question of whether different types of spears or swords were used by Irish and Vikings can only be answered by sustained archaeological inquiry. Of other weapons, clubs and slings are associated with the Irish but cannot definitely be associated with the Norse. The eulogy to Oisle, a possibly fictitious son of the king of Norway, in *Osr. s.a.* 867, which describes him as superior to the Irish in "casting javelins and in strength with spears" and to the Vikings in "strength with swords and in shooting arrows"[57] may reflect different weapon preferences between Irish and Norse but this is not certain. In any case, as the example of the axe demonstrates, cross-cultural borrowing could be widespread and rapid. The axe and the bow seem to be the only weapons newly introduced by the Vikings but while the bow does not seem to have been adopted by the Irish to any great extent, the axe was and in the late 12th century Giraldus Cambrensis depicts it as a veritable national weapon of the Irish (see below). At the end of the day the weapons a warrior used were probably determined more by his economic status than by his ethnic background.

Tactics

Little information is available on the tactics of warfare in 9th century Ireland but it is worth noting as a general point that pitched battles and sieges, often thought of as the common currency of medieval warfare, were quite rare in Ireland. In her invaluable study of medieval Gaelic warfare Katherine Simms outlined geographical and demographic factors which contributed to the peculiar nature of Irish warfare. In particular she argues that because the country was underpopulated, there was little benefit to be gained by anyone from pitched battles with high casualties. Instead warfare aimed to extract the submission of people without killing them, and cattle

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55. Roesdahl, *The Vikings*, pp. 142-44; M. Harrison, *Viking hersir 793-1066AD* (London, 1993), pp. 46-50.
56. P-L. Lehtosalo-Hilander, 'Weapons and their use', in E. Roesdahl and D.M. Wilson (eds), *From Viking to Crusader: The Scandinavians and Europe 800-1200* (Nordic Council of Ministers, 1992), p. 194.
57. Radner, *Fragmentary annals*, p. 127.

raiding was the classic method employed, because of the central importance of cattle in the Gaelic economy. This tactic produced a characteristic mode of running warfare in which most fighting took place either when the raiders caught up with the intended victims as they attempted to move their cattle and non-combatants to a safe refuge, or when the raiding party, returning with its spoil, was overtaken by the pursuing victims[58].

While Simms focused on the later medieval period her conclusions seem equally appropriate to earlier periods. Lucas noted the earliest explicit annalistic reference to a *creach* (cattle raid) as occurring *s.a.* 854, but suggested that other entries of 8th or even 7th century date probably refer to cattle raids[59]. Of course, if tales such as the *Táin* are accepted as reflecting pre-Christian traditions, an even earlier origin is indicated. The battle of Cell ua nDaigre in 868, one of the battles described in detail by *Osr.*, was in many respects a classic cattle raid and pursuit. Although described in terms suggestive of a pitched battle, it took place when Aed Findliath, king of Tara, who had just plundered Cianachta and was retreating "with his booty ahead of him (*a chreacha reimhe*)" was overtaken by Flann mac Conaing, king of Cianachta, and his allies[60]. Lucas saw cattle raiding as so intimately bound up with both warfare and kingship in Gaelic Ireland that what he called the "inauguration raid" (*creach rígh*) was "regarded as a normal, if not indispensable, concomitant of the inauguration ritual". This apparent institution of a cattle raid undertaken by newly inaugurated kings can be detected in the sources from as early as the 7th century to the 16th century[61]. Charles-Edwards warns against underestimating the destruction and disruption which such raiding could cause[62].

The Hiberno-Norse period (10th-12th centuries)

Warriors and military organisation

Evidence for the impact of the Vikings on the Irish military system is scarce in the first century of the Viking period but in the 10th, 11th and especially 12th centuries a greater quality of documentary sources provides abundant evidence for major new

58. K. Simms, 'Warfare in the medieval Gaelic lordships', *Irish Sword* 12 (1975-76), pp. 99-104.
59. A.T. Lucas, *Cattle in ancient Ireland* (Kilkenny, 1989), pp. 147-48.
60. Radner, *Fragmentary annals*, p. 133.
61. Lucas, *Cattle in ancient Ireland*, pp. 146-48.
62. T.M. Charles-Edwards, 'Irish warfare before 1100', in Bartlett and Jeffery, *A military history of Ireland*, p. 32.

developments. Many of these were undoubtedly due to Viking influence, although this should not be seen as the only factor. One result of the Viking invasions was the increasing use of professional or semi-professional soldiers[63]. A 12th century passage in the *Táin* (*LL*) describes in extravagant terms the "standing household (*gnathteglach*)" of Medb, composed of "royal mercenaries (*rigamus*)" drawn from "the sons of strangers exiled from their own land and...the sons of native freemen (*aurrad*)"; another passage refers to "the sons of kings and royal princes who are with [Cuscraid Mend Macha mac Conchobuir] in mercenary service (*i reicc a n-amsa*)"[64]. Medb's household guard (*tegluch*) is also referred to in the (11th century?) *LU* version of the *Táin*[65] and Flanagan notes 12th century annalistic references to the *lucht tighe* or *lucht teglaig* of various kings[66]. Simms suggests that the aristocratic warriors who made up these household troops are comparable to the knights found elsewhere in Europe[67]. While, as was noted above, there is some evidence in the laws for the use of household troops or bodyguards by kings in pre-Viking Ireland, this apparent increased use of permanent troops must be largely due to the Viking impact. It may have begun with the use by Irish kings of Norse mercenaries, for which there is evidence from as early as the 10th century and from which the next logical step was to raise indigenous permanent troops[68].

The 12th century sees the appearance of a variety of new terms for warriors. The origins of loanwords such as *suaitrech/suartleach* (from Old Norse *svartleggja*), first noted early in that century, and *seirsenach* (from French *sergent*), appearing late in the century, are readily understandable; both refer to mercenaries or billeted warriors[69]. However, native terms like *ceithern* (band of warriors), *buanna* (mercenaries, billeted or permanent soldiers), *glaslath* (recruits or young warriors), *anrad* (warrior), and *cuingid* (warrior) are not so easily accounted for. It seems likely that the appearance of these new terms reflects an increasing militarisation of Irish society, largely under the influence of the Viking invasions. Both *Cogadh* and *Caithréim* speak of the Norse billeting professional warriors (*suaitrigh* and *buanna*) on subjugated peoples[70], which may have forced the greater Irish kings to respond in similar terms. Thus, for instance, *A.Tig.* refers to the billeting (*connmedh*) of troops on occupied peoples *s.a.* 1159 and 1163. Other indications of growing militarisation in the wars of the great dynasties in

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63. Kelly, *A guide to early Irish law*, pp. 65-67.
64. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll.16-21, 273, 704-05.
65. C. O'Rahilly (ed.), *Táin Bo Cualgne Recension I* (Dublin, 1976), ll. 166-68.
66. M.T. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', in Bartlett and Jeffery, *A military history of Ireland*, p. 58 and n. 20.
67. Simms, 'Gaelic warfare in the Middle Ages', p. 99.
68. Mac Cana, 'The influence of the Vikings on Celtic literature', p. 83 and n.15.
69. Royal Irish Academy, *Dictionary of the Irish language* (Dublin, 1983).
70. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 49, 83, 85, 139; Bugge, *Caithréim Cellachain Caisil*, pp. 58, 68.

the later 11th and 12th centuries, such as the increased use of naval forces and of the horse, also seem to owe much to Norse influence.

Hayes-McCoy and MacNeill believed that native Irish mercenaries or professional soldiers, permanent camps or garrisons and the liability of householders to have mercenaries billeted upon them (*buannacht*) were all unknown before the advent of the gallowglass in the mid-13th century[71]. In this they were mistaken, as there is evidence no later than the 12th century for billeted soldiers (*buannadha, suartleach*) of the Norse and for the billeting (*connmedh*) of troops on occupied peoples by Irish kings[72]. Simms notes that the impact of the Viking invasions resulted not only in greater use of professional or mercenary soldiers but also in the increasing professionalisation of the territorial levies of Irish kingdoms[73]. New procedures such as payment (*tuarastal*) in return for military service beyond the borders of the *tuath* and the development of kings' right of billeting (*buannacht*) and maintenance of soldiers (*coinnmhed, congbail*) allowed powerful kings to undertake increasingly prolonged and far-ranging military campaigns. By the early 12th century Toirdelbach Ua Conchobair, at least, was establishing large encampments (*mórlongport*) which were at least semi-permanent, as bases from which operations could be launched against other kingdoms[74].

Irish military organisation may have developed by the later 12th century to a greater extent than is generally recognised. In the 11th and 12th centuries there is evidence for considerable use of cavalry, for more limited use of castles and of armour, and arguably for the existence of a quasi-feudal noble warrior class. There is also evidence for larger armies and more prolonged campaigns than previously[75]. More specifically, it is possible to detect the origins of each of the three categories of warrior into which later medieval Gaelic forces are normally divided: the mounted nobleman, the common footsoldier or kern, and foreign mercenaries.

While the term *marcsluag* ("mounted host", cavalry) occurs at an earlier date, the marked increase in its use from the later 11th century suggests that at this period the Irish nobility began to make serious use of horses in warfare. It may be that part of the

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71. G.A. Hayes-McCoy, 'The army of Ulster, 1593-1601', *Irish Sword* 1 (1949-53), pp. 106-07; MacNeill, 'Military service in medieval Ireland', p. 7.
72. E.g. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 49, 83; Bugge, *Caithréim Cellachain Caisil*, pp. 58, 68; *A.Tig. s.a.* 1159, 1163; Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 60 and n. 23.
73. Simms, *Gaelic lordships in Ulster*, pp. 106-09, 123-24.
74. *A.Tig. s.a.* 1124, 1126.
75. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', pp. 57-60.

reason for this was to preserve their position as a recognisably distinct entity in military forces, which now members of lower social classes than previously. It is hardly coincidental that it is also in the late 11th/12th century that the term *ceithern* ("kern") is first used regularly[76]; *A.Tig. s.a.* 1101 records a "conflict in Clonmacnois of two bodies of footsoldiers (*dá ceithernn*)", which suggests that the phenomenon was already well established. While it is not certain that *ceithern* carried precisely the same meaning in the 12th century as it did in the late Middle Ages, the appearance of the term may reflect the first effective extension of military service and weapon-bearing to non-noble classes in the late 11th and 12th centuries. Simms argues that *ceithern* can be taken to refer to bands of native Irish mercenaries by the early 13th century, if not earlier[77]. Finally, the widespread use of Scandinavian and other mercenaries by Irish kings of the 11th and 12th centuries can clearly be seen as foreshadowing the later medieval use of gallowglass.

On paper, the Irish military system was in some respects comparable to the Anglo-Saxon, which also featured noble warriors (thegns), foreign mercenaries (huscarles) and a general levy of freemen (the fyrd)[78]. Flanagan even suggests that 12th century Irish kings could demand labour services for military purposes (such as construction or repair of fortifications and bridges) in much the same way as Anglo-Saxon kings could[79]. Doherty suggests that the references in *Lebor na Cert* to "stipends" (*tuarastal*) of military equipment distributed by the major kings may reflect "the equipping of the local levies for the armies of the emerging 'quasi-feudal' lordships"[80]. However, there is no evidence that Irish military organisation ever achieved the sophistication of the Anglo-Saxon system, notably of the "select fyrd", a selective levy of men from land units and the towns, designed to provide smaller numbers of better equipped warriors than the general levy[81].

Cavalry

Following the apparent introduction by the Norse of the use of horses in warfare, a marked increase in references to mounted warriors is visible in Irish sources of the 10th to 12th centuries. A poem in *Cogadh* on the battle of Sulcoit of 967, attributed to

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76. Simms, 'Gaelic warfare in the Middle Ages', p. 100 notes the occurrence of the term in Cormac's Glossary, c.900 AD.
77. *Ibid.*, p. 100.
78. Hollister, *Anglo-Saxon military institutions*, p. 9; Beeler, *Warfare in feudal Europe*, pp. 89-92.
79. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 65.
80. C. Doherty, 'Exchange and trade in early medieval Ireland', *Journal of the Royal Society of Antiquaries of Ireland* 110 (1980), 74.
81. Beeler, *Warfare in feudal Europe*, pp. 89-91; Hooper, 'Anglo-Saxon warfare', pp. 87-89.

Brian Bóruma himself, describes Dál Cais being opposed by "a battalion of horsemen in corslets (sic: *cath marcsluaigh co lúireachuib*)", clearly referring to the Norse of Limerick[82]. The slaughter by Mael Sechnaill II of a "battalion of cavalry" (*cath marc[s]luaigh*) of the Dublin Norse is recorded by *A.Tig.* and *A.U. s.a.* 1000. In 1095 the *marcsluag* of Muirchertach ua Briain defeated the Connachta in Mag Ai and in 1099 a battle between the *marcsluagaibh* of Cenel Eogain and Ulaid is recorded[83]. Battles between the *marcsluagaibh* of Connacht and Munster took place in 1114 and 1131 and between those of Cenel Eogain and Breifne in 1128[84]. Muirchertach mac Lochlainn, king of Cenel Eogain, defeated the *marcsluag* of Laigin in 1153, while his own *marcsluag* was defeated by the Foreigners of Mag-Fitharta in 1162[85]. In 1167 the army with which Ruaidri ua Conchobair attacked Cenel Eogain included "seven battalions of cavalry" (*catha marc[s]luagh*: *A.Tig.*). Diarmait ua Ainbfheith, king of Uí Meith, was described in *A.U. s.a.* 1170 as leader of the *marcsluag* of the king of Ailech. As before, however, none of these references provide substantial information on the makeup, armoury or tactics of these cavalry forces, or on whether they actually functioned as cavalry in battle.

As noted earlier, references to the use of chariots in warfare occur as late as in the 12th century *Cogadh*[86]. By far the best source for information on chariots is *Táin Bo Cualgne*, although the very frequency with which chariots are mentioned makes this an exceptional source which must be used with caution. Thus the tale of Cú Chulainn attacking Medb's army in his scythed chariot (*cathcharpat serda*) and slaughtering them by driving the chariot through their ranks reads very much like artistic imagination. On the other hand, the account of Cú Chulainn and Fer Diad fighting from their chariots with spears (*manaisib*) is far more credible as evidence for the use of chariots in battle[87].

Naval warfare

Naval warfare was clearly not unknown in pre-Viking Ireland; *A.U.* records a naval battle at Ard Nesbi *s.a.* 719 and the shipwreck of 30 boats of the Delbna in Lough Ree *s.a.* 756 (although in this case the military nature of the expedition is only assumed). Moreover the Vikings were not the first seafaring warriors to reach Ireland in the period under discussion. According to *Dur.* Irgalach mac Conaing, king of Síl nAeda Sláine, was killed by a warrior from a British fleet at Inis Mac Nesain in 702,

82. Todd, *Cogadh Gaedhel re Gallaibh*, p. 77.
83. *A.Inis.*; *A.U.*
84. *A.Tig.*; *A.U.*
85. *A.Tig.*; *A.U.*
86. Todd, *Cogadh Gaedhel re Gallaibh*, p. 173.
87. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll.2304-19, 3143-45.

while Flaithbertach mac Loingseach, king of Cenel Conaill, engaged a fleet from Foirtriu (the land of the Picts in Scotland) to fight Cenel Eogain in c.733-34[88]. Nevertheless, naval warfare is an area in which a decisive Viking impact might be expected and the documentary evidence seems to bear this out. References to substantial Viking fleets - numbers of ships vary between 60 and 200 - occur in 9th century annals[89]. The 10th century apparently saw a huge increase in naval activity which is clearly related to the Viking impact but it is notable that native Irish fleets are referred to for the first time[90]. By the later 10th century Brian Bóruma was imitating Viking tactics by putting fleets (*coblach, coblach mor*) on the Shannon to raid Connacht, Mide and Breifne, so that by 1001 Connacht and Mide felt the need to cooperate in building an obstructing causeway across the Shannon at Athlone to prevent further raids[91].

Although it might be premature to argue that Brian Bóruma was a pioneer among the Irish in the use of naval warfare, he is noticeably prominent in annalistic references of the 10th century, and it is not until the 11th century that references to the use of ships in warfare by other Irish kings become common[92]. In 1022 the king of Ulaid apparently defeated the Dublin fleet in "a naval combat (*muircomhrac*) in the open sea"[93]. Evidence for naval warfare is even more common in 12th century sources[94]. The terminology used in these references is interesting, although a full investigation is beyond the scope of this study. It is notable that ships of the Vikings and Hiberno-Norse are always denoted by the term *long*, while other terms are used for Irish vessels in the 10th and 11th centuries. Thus the vessels of the men of Thomond are described as *llestra* in 963 and as *ether* in 988[95]. The earliest association of an Irish king with a vessel distinguished by the term *long* is in 1030 and in 1035 a single ship (*long*) of Donnchad Ua Briain was apparently more than a match for 14 vessels (*serrcend/eathar*) of the men of Breifne[96]. The impression gained is that *llestra/lestar*, *eathar/arthrach* and *serrcend* may refer to smaller vessels than those referred to as *long*, but this issue requires more detailed study. By the 12th century Irish ships are normally described as *long* and by 1127 Toirdelbach Ua Conchobair could muster a fleet of 190

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88. Radner, *Fragmentary annals*, pp. 49-51, 87, 196 n.221.
89. E.g. *A.U. s.a.* 837, 842, 849, 851, 852, 871.
90. E.g. *A.U. s.a.* 914, 921, 922, 924, 928, 930; *A.Inis. s.a.* 926; Radner, *Fragmentary annals*, p. 147; *A.U. s.a.* 913; *A.Inis. s.a.* 963.
91. *A.Inis. s.a.* 983, 988, 993; *A.U., A.Inis.*.
92. E.g. *A.Inis.; A.Tig. s.a.* 1035; *A.Tig. s.a.* 1065, 1089.
93. *A.U., A.Tig.*
94. E.g. *A.Inis./A.Tig. s.a.* 1103, 1115, 1119, 1124, 1125, 1126, 1127, 1131, 1132, 1137, 1145, 1154, 1159, 1161, 1170; *A.U. s.a.* 1165.
95. *A.Inis.*
96. *A.Inis., A.Tig.*

ships (*long*)[97]. There is archaeological evidence for shipbuilding in Viking Dublin and it has recently been discovered that one of the finest early medieval ships known from northern Europe, the late 11th century warship Skuldelev 2 from Denmark, was almost certainly built in Dublin[98]. This dramatically underlines the possible extent of the Viking impact on naval warfare in Ireland.

The 12th century *Caithréim* provides an account of a naval battle in Dundalk bay between the Munster and Norse fleets which, despite being essentially fictional, is an invaluable source of detail on how such encounters may actually have been conducted[99]. The encounter is described in terms quite similar to the pattern of land battles (discussed below); after a preliminary exchange of arrows and other missiles the main objective seems to have been to draw alongside an opposing ship, board it and fight hand-to-hand on its decks. There are even descriptions of ropes and chains being thrown around the prows of enemy vessels to prevent them from separating. The account also includes the king's instructions for the assembling of the "full muster (*coimtinol*)" of the Munster fleet, based on a levy of ten ships (*longa*) from each cantred (*tricha c[et]*) of the coastal sub-kingdoms of Corcu Loegde, Uí Echach, Corcu Duibne, Ciarraige Luachra, Corcu Baiscind and Corcu Modruad. Again, this fictional account may well reflect real patterns of military organisation in 12th century Ireland, and Flanagan suggests on this basis that the cantred was used as a unit of assessment for military service[100].

Armour

The use of armour may mark a significant difference between Irish and Viking. Many contemporary sources suggest that the Irish did not wear armour, while the Vikings are consistently described as so doing. *Cogadh* and *Caithréim* frequently refer to the armour (*lúirech*) and helmets worn by the Norse and this is confirmed by the annalistic record of 1,000 *lúirech* (clearly warriors in armour) of the Norse at Clontarf[101]. The armoured Norse are often contrasted with the unarmoured Irish[102]; indeed in its account of Clontarf, *Cogadh* refers to the Norse on a number of occasions simply as "the battalion of the [men in] armour (*cath na lúirech*)" as if that were

97. A.Tig.
98. S. McGrail, *Medieval boat and ship timbers from Dublin* (Dublin, 1993), p. 86-87; N. Bonde and O. Crumlin-Pedersen, 'The dating of wreck 2 from Skuldelev, Denmark', *Newswarp* 7 (1990), pp. 3-6.
99. Bugge, *Caithréim Cellachain Caisil*, pp. 95-104.
100. *Ibid.*, p. 86; Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 64.
101. E.g. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 153, 159-61, 181; Bugge, *Caithréim Cellachain Caisil*, pp. 64-65; A.U..
102. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 159-63; Bugge, *Caithréim Cellachain Caisil*, p. 64.

sufficient to distinguish them from the Irish[103]. When Brian Bóruma, in his tent, is warned of the approach of "blue stark-naked people" he immediately recognises them as *goill na lúireach* (the foreigners of the armour)[104]. Even more significantly, in both *Cogadh* and *Caithréim* Irish military failures are specifically attributed to the ineffectiveness of their weapons against the armour of their Norse opponents; on two occasions *Caithréim* depicts an Irish warrior so despairing of piercing a Viking's armour that he throws away his weapons and resorts to wrestling with his more cumbersome opponent[105].

The main term used in these sources, *lúirech*, clearly denotes armour of some form but its precise meaning may be open to some debate. It derives from the Latin *lorica*, which in Roman times usually referred to a breastplate of lamellar armour, but by the 9th century was clearly being used to refer to the byrnie or hauberk of chain mail[106]. In an Irish context it might be suggested, as Alcock has for 7th century Wales[107], that *lúirech* refers to armour of leather rather than chain mail. This does not seem warranted, however, for several reasons. Firstly, there are descriptions in contemporary Irish sources of what seems to be leather armour, for which a number of terms are used (see below), and it is notable that the term *lúirech* is not used. Secondly, additional detail tends to support the identification of *lúirech* with chain mail, or at least metal armour. *Cogadh* specifically refers to the *lúirig* of the Norse as being made of iron and/or brass and both it and *Caithréim* describe them as blue, which is also suggestive of iron[108]. Furthermore, *Cogadh* repeatedly describes the Norse *lúirig* as *tréndualaig/trédualach*, variously translated by Todd as "treble", "triple-plated", and "thrice-riveted". Whatever its precise meaning, this term *trédualach* echoes the reference to "triple armour" (*lorica trilicem*) found in an Anglo-Saxon source describing a group of Danish huscarles in 1040, which Hooper takes to be a reference to mail byrnies[109].

There is, in any event, nothing revolutionary in suggesting that Scandinavian warriors in Ireland wore chain mail armour in the 11th and 12th centuries, as this would be readily accepted by most authorities elsewhere[110]. Brooks notes that the wearing of

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103. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 175, 177, 195.
104. *Ibid.*, p. 203.
105. *Ibid.*, pp. 53, 67-69; Bugge, *Caithréim Cellachain Caisil*, pp. 65, 66, 101-02.
106. Contamine, *War in the Middle Ages*, pp. 187.
107. Alcock, *Economy, society and warfare*, pp. 277.
108. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 153, 159-61, 203; Bugge, *Caithréim Cellachain Caisil*, pp. 64-66.
109. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 53, 153, 159, 181; Hooper, 'Anglo-Saxon warfare', p. 85.
110. E.g. Roesdahl, *The Vikings*, pp. 143-44; Harrison, *Viking hersir*, pp. 47-48.

mail hauberks was standard among the European warrior elite by the 11th century at the latest, and referring specifically to Anglo-Saxon England, suggests that the widespread use of armour can be traced to the late 10th century in response to the renewed Viking attacks of that period. He suggests that Aethelred (978-1016) was "concerned to improve the quality of his army by seeing that his earldormen and thegns had armed retinues of men with effective body armour" and introduced reforms to bring the armament of his army into line with the *arma militaria* of contemporary northern France[111]. For all these reasons it is assumed in the following discussion that the term *lúirech* in the Irish sources refers to the byrnie or hauberk of chain mail, the typical armour of the well equipped warrior in 10th-12th century Europe.

No direct evidence survives for the form of armour worn in 11th century Ireland, but this is not unusual, as little evidence survives elsewhere. Thus armour of the 11th century has been discussed largely on the basis of representational evidence, especially the Bayeux tapestry[112]. The main body armour of knights was the hauberk, a mail shirt reaching usually to the knees, under which a long padded undergarment, the aketon or gambeson, was probably worn. Legs could be protected by stocking-like chausses of mail, but these were probably rare at this date[113]. Over the head, throat and neck was a mail coif with padded leather cap or hood underneath, and over which a helmet was worn in combat. Typical helmets of this period were of simple, conical form; these could be of single-piece construction or formed of triangular plates of iron riveted to a framework of iron bands - the *Spangenhelm*[114]. Four vertical bands, rising from a circular basal band and meeting at the apex, was typical and this type of construction may possibly be intended by a reference to "four-cornered (*cetharchoir*)" helmets in the *Táin*[115]. Downward-projecting nasal guards appear to have been common on both types of helmet. The 11th century probably saw the replacement of the old circular shield with the triangular, or kite-shaped form. Although this is generally interpreted as a development to provide greater protection for mounted warriors, the Bayeux tapestry apparently shows kite-shaped shields being carried by Anglo-Saxon foot soldiers[116]. The construction of kite-shaped shields seems to have been similar to the older round

111. N.P. Brooks, 'Arms, status and warfare in Late-Saxon England', in D. Hill (ed.), *Ethelred the unready* (Oxford, 1978), pp. 82, 88-93.
112. E.g. C. Blair, *European armour* circa *1066 to* circa *1700* (London, 1958), pp. 19-27; I. Peirce, 'Arms, armour and warfare in the eleventh century', *Anglo-Norman Studies X*, pp.237-257; Brooks, 'Arms, status and warfare', pp. 94-97.
113. Blair, *European armour*, pp. 23-24; I. Peirce, 'The knight, his arms and armour c.1150-1250', *Anglo-Norman Studies XV*, p.251.
114. Blair, *European armour*, pp. 25-27; Peirce, 'Arms, armour and warfare in the eleventh century', pp. 240-43.
115. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, l. 2212.
116. Peirce, 'Arms, armour and warfare in the eleventh century', pp. 243-44.

shield, being essentially made of wood with a covering of leather or other material, a central iron boss and, probably, an iron binding strip around the edge[117]. It is not possible to say whether kite-shaped shields were being used in Ireland in the 11th century.

On the use of armour by the Gaelic Irish at this period, the detailed information in the *Táin* indicates that the clothing normally worn in battle, even by the nobility, did not differ significantly from normal civilian dress. For example, in Mac Roth's descriptions of a succession of Ulster warriors each one is described as wearing a tunic or shirt, known as a *léne*, with a mantle or cloak called a *bratt* over it; where materials are noted, the *léne* is of linen or silk and the *bratt* is of wool[118]. These were also normal items of civilian dress, which probably explains Giraldus' statement that the Irish went "naked and unarmed into battle", meaning that they did not wear armour[119]. Giraldus' statement is confirmed by the other early source for the Anglo-Norman invasion, the *Song of Dermot and the Earl*, which describes the Irish as "quite naked", with "neither hauberks (*haubers*) nor breast-plates (*bruines*), but also as being "swift as the wind"[120].

There are, however, a number of references to armour being worn by Irish warriors. On two occasions in the 12th-century *LL* version of the *Táin*, descriptions of the noise of approaching warriors include references to the sounds of helmets (*cathbarr*) and armour (*lúirech*)[121]. The 11th/12th century *Lebor na Cert* contains frequent references to *lúirecha* as stipends given by over-kings to subordinates, to be used in reciprocal military service[122]. Such evidence has been viewed with suspicion by historians, but an open mind might be more appropriate[123]. Another possible reference to armour among the Irish is a description in *Caithréim* of the armies of a number of Leinster kings as equipped with armour (*lúirech*), aketons (*cotún*) and helmets

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117. Peirce, 'The knight, his arms and armour c.1150-1250', p.258-59.
118. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 4305-4543, 4391ff, 4426ff, 4469ff, 4519ff.
119. M. Dunlevy, *Dress in Ireland* (London, 1989), pp. 17, 21; J.J. O'Meara (trans), *Gerald of Wales: The history and topography of Ireland* (London, 1982), p. 101.
120. Orpen, *The song of Dermot and the earl*, ll. 672-73, 663.
121. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 2852ff, 4213ff.
122. M. Dillon (ed.), *Lebor na Cert: The Book of Rights* (Dublin, 1962), pp. 5, 8-11, 30-43, 56-61, 66-71, 78-91, 95-99, 104-09, etc.; see also Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 55.
123. K. Hughes, *Early Christian Ireland: Introduction to the sources* (London, 1972), p. 287, saw such references to *lúirecha* as evidence for the unreliability of *Lebor na Cert*, remarking disdainfully that "it is little use for archaeologists to look for all these hundreds of coats of mail". In the Introduction to his edition of *Lebor na Cert* (p. xix), Dillon also expresses uncertainty about the reliability of these references.

(*cathbarr*)[124]. The author offers no explanation as to why the Leinstermen should have armour while his own Munster heroes had none, and he may perhaps have been referring to Hiberno-Norse allies of the Leinster kings. *Cogadh* also states that the Dál Cais wore "crested golden helmets (*cathbarr ciracha, fororda*)" at Clontarf but there is no mention of any other armour[125]. *Caithréim* refers to 1,000 men of the Dealbhna, Gailinga and Luighne as being composed of equal numbers with armour and without armour; the terms used are *eidedac* and *gan eided* and the root term *eided*, denoting armour in a generic sense, also begins to occur in annalistic sources of the 12th century[126].

But what form of armour is being referred to? In view of the overall thrust of both Irish and Anglo-Norman sources that the Irish did not wear armour, it may be that *eided* (at least in a 12th century context) refers to clothing of organic materials rather than chain mail or other metallic armour. Harbison has discussed references to such clothing in later medieval sources but some important references exist in the pre-Norman period[127]. The most explicit descriptions occur in the *Táin* - and perhaps significantly, in the earlier (10th/11th century) *LU* version as well as the 12th century *LL* version. Loeg, Cú Chulainn's charioteer, is described as dressed in a deerskin tunic (*inar*), mantle (*bratt*) and helmet (*cathbarr*)[128]. The armour (*catheirred*) worn by Cú Chulainn consisted of a "crested war-helmet (*circhathbarr*)", along with:

> twenty-seven tunics (*cneslenti*) worn next to his skin, waxed, board-like, compact, which were bound with strings and ropes and thongs close to his fair skin... Over that outside he put his hero's battle-girdle (*cathchriss*) of hard leather, tough and tanned, made from the best part of seven ox-hides of yearlings, which covered him from the thin part of his side to the thick part of his arm-pit; he used to wear it to repel spears (*gai*) and points (*rend*) and darts (*iaernn*) and lances (*sleg*) and arrows (*saiget*), for they glanced from it as if they had struck against stone or rock or horn. Then he put on his apron (*fuathbroic*) of filmy silk with its border of variegated white gold, against the soft lower part of his body. Outside his apron of filmy silk he put on his dark apron (*dond[f]uathbroic*) of pliable brown leather made from the choicest part

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124. Bugge, *Caithréim Cellachain Caisil*, p. 114.
125. Todd, *Cogadh Gaedhel re Gallaibh*, p. 163.
126. Bugge, *Caithréim Cellachain Caisil*, p. 89; P. Harbison, 'Native arms and armour in medieval Gaelic literature 1170-1600', *Irish Sword* 12 (1975-76), pp. 180-81; *A.Tig. s.a.* 1116, 1131.
127. Harbison, 'Native arms and armour in medieval Gaelic literature'.
128. O'Rahilly, *Táin Bo Cualgne Recension I*, ll. 2204ff.

of four yearling ox-hides with his battle-girdle (*cathchris*) of cows' skins about it[129].

Cogadh's description of the Dál Cais at Clontarf and *Cathreim's* account of a battle between the armies of Munster and the Norse of Limerick are also important sources of information[130]. We are told that the Dál Cais fought dressed in tunics or shirts known as *léine* or *scuird* (a loanword from Old Norse *skyrta*), both probably of linen and both common in civilian as well as military contexts[131]. Over these was worn another garment, the *inar*, which could also be a civilian's tunic but there are suggestions that it could alternatively refer to a garment of leather when worn in battle[132]. The Munstermen at Limerick also wore these *inair* but in addition wore garments called *cotúin* and collars or neck protection called *muincedha*. The *cotún* is clearly a loanword, either from the Middle English *aketoun* or Old French *haqueton*, both of which refer to the long, padded garment of leather or cloth normally worn under a mail coat, but in this case it seems to have been the first line of defence. Regardless of whether the *inar* can be seen as a specifically military garment, the *cotún* and *muince* can hardly be anything else and are further evidence that armour, if only of a non-metallic character, was worn by the Irish in the 12th century.

The broad thrust of the literary evidence is quite consistently that the Vikings wore mail armour while the Irish, in general, had leather armour at best. This must reflect some reality in 11th and 12th century Ireland but can only be taken as a broad generalisation and subject to two caveats. Firstly, the possession of armour was always a privilege of the relatively wealthy and thus any idea of entire armies of armoured Vikings in Ireland can probably be discounted. Secondly, beyond any reasonable doubt some Irish warriors, familiar with Norse armour, could have obtained mail armour for themselves, either through trade or combat. Thus references in the sources to mail armour (*lúirech*) worn by Irish warriors should be taken seriously, although it must be said that borrowing of armour does not seem to have happened to the same extent as the merging of weapon assemblages between the two cultures. If any Irish warriors wore armour in opposing the Anglo-Norman invasion forces of the 1170's, they were apparently so rare as to be a negligible quantity. The advent of the Anglo-Norman *milites* and *loricati* greatly increased the amount of armour in circulation, and undoubtedly accelerated the process of the adoption of armour by the Irish.

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129. *Ibid.*, ll. 2215ff.
130. Todd, *Cogadh Gaedhel re Gallaibh*, p. 163; Bugge, *Caithréim Cellachain Caisil*, pp. 64-66.
131. Dunlevy, *Dress in Ireland*, p. 21
132. *Ibid.*

The range of weapons available to warriors in this period does not seem to have been significantly different to that outlined for the period of the initial Viking invasions, although patterns of use may have changed. In the late 12th century Giraldus Cambrensis stated that the Irish

> use...three types of weapons - short spears, two darts and big axes well and carefully forged, which they have taken over from the Norwegians and the Ostmen...They are quicker and more expert than any other people in throwing, when everything else fails, stones as missiles, and such stones do great damage to the enemy in an engagement[133].

Giraldus' statement is confirmed by analysis of incidental details in his *Expugnatio Hibernica* and in the other early source for the Anglo-Norman invasion, the *Song of Dermot and the Earl*. The only weapons of the Irish which are specifically mentioned in the latter are javelins (*gauelocs*) and darts (*dars*), although there is also a reference to Meiler Fitz Henry being hit by a stone in the taking of a pass in Odrone in 1171; the account of the second siege of Dublin in 1171 also makes reference to the feats of the Norseman John the Wode with his "well-tempered axe"[134]. All of this is in full accord with the evidence of earlier 12th century Irish sources such as *Cogadh* and *Caithréim*. Indeed little seems to have changed in centuries - Giraldus' description of Irish warriors armed with two spears and an axe echoes the 9th century descriptions referred to earlier; so too does his account of the battle at Down between John de Courcy and Mac Duinn Shleibhe, which began with each side firing volleys of arrows and spears at long range before coming to close quarters[135]. The only differences are the replacement of the sword by the axe (which is clearly an over-simplification) and the lack of any mention of shields carried by the Irish (and one hesitates to suggest, purely on this basis, that they had ceased to use shields).

Of all these weapons, as noted earlier, the most important was always the spear. Perhaps the clearest testimony to its ubiquity and importance in warfare lies in the fact that at least twelve different terms for spears can be found in Irish sources of the early medieval period: *bir, bunnsach, cléttine, cruisech, foga, gablach, gae, gothnait, laigen, lethgae, mánais* and *sleg*. Unfortunately this simple fact has tended to be obscured in

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133. A.B. Scott and F.X. Martin (eds), *Giraldus Cambrensis: Expugnatio Hibernica* (Dublin, 1978), pp. 37, 39.

134. G.H. Orpen (ed.), *The song of Dermot and the earl* (Oxford, 1892), ll. 2011-13, 2425-28, 2444, 3197.

135. Scott and Martin, *Expugnatio Hibernica*, pp. 115, 175-77.

previous discussions of Irish weaponry by attempts to identify the different types of spears represented by the terminology[136]. The desire to identify distinctive spear types in literary references is understandable, and clearly there must have been different types of spear in use, ranging from the lightest javelin for throwing to the stoutest spear designed for thrusting, slashing or boring through armour. However, it is not possible to construct a rigid classification of spear types on the basis of the Irish terminology.

The amount of information that can actually be gleaned from literary references is limited, but useful as far as it goes. It would appear that a number of terms normally refer to a javelin, i.e. a spear intended for throwing. *Lethgae* and *foga* are the terms most commonly used for the javelins thrown between two armies before they come to blows[137] and any other occurrences are consistent with this usage[138]. Both terms are compounds of *gae*, one of the standard terms for spears. *Lethgae*, literally "a half *gae*", probably has the connotation of a short, light spear, (although it may alternatively carry the meaning of one of a pair of spears). The precise meaning of *foga* is less clear, but the idea is probably of something less than a *gae*. In both cases the etymology of the words seems to support the contextual information of its usage in suggesting the idea of a javelin. A rarer term, *bir*, clearly refers to a javelin in *Cogadh's* account of the Dál Cais at Clontarf, which notes that they carried both spears (*sleg*) and "terrible sharp darts (*bera*)...to be violently cast"[139]. *Táin Bo Cualgne* uses the term *bir* to refer to fire-sharpened holly sticks, apparently without any metal head, which were cast as darts[140]. Two other terms used for spears which were thrown in battle are *gothnait* and *gablach*[141].

The two commonest terms used for spears are *sleg* and *gae*. On at least two occasions *sleg* is used in the same context to denote both spears thrown at long range and spears used in hand-to-hand combat[142]. Thus it should probably be regarded as a generic term applicable to all types of spears. The same may be true of *gae*, although where a specific usage is suggested by the context it is usually a thrusting spear that is

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136. E.g. P. W. Joyce, *A social history of ancient Ireland*, vol. i (London, 1903), pp. 108-113.

137. E.g. Radner, *Fragmentary annals*, pp..

138. E.g. *Ibid.*, pp. 123, 127, 135, 143; Bugge, *Caithréim Cellachain Caisil*, p. 104; Stokes, 'The second battle of Moytura', p. 99; *A.Conn. s.a.* 1230.7.

139. Todd, *Cogadh Gaedhel re Gallaibh*, p. 161.

140. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 1698-99.

141. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 3093-99; Stokes, 'The second battle of Moytura', p. 99; according to the *Oxford English Dictionary* the word javelin itself is derived, via the French, from the Gallo-Roman *gabalottus* and it is possible that *gablach* has the same root and the same restricted meaning.

142. Bugge, *Caithréim Cellachain Caisil*, pp. 64, 104.

indicated[143]. On the other hand, the term *laigin*, which seems to be synonymous with *gae* since both terms are used of the same spear, is used of a spear which could either be thrown or thrusted[144]. *Gae* and *sleg* are both used in later sources for an Anglo-Norman horseman's lance but as things stand it would be foolhardy to attempt to associate *sleg*, *gae* or *laigin* with any particular type of spear[145]. The same applies to the other terms not discussed here.

Swords were always expensive commodities, only available to the relatively wealthy, and therefore not as important in military reality as spears. The Hiberno-Norse period saw the introduction of finer, but even more expensive swords (usually of foreign manufacture) and the evidence suggests that among the Irish the sword was largely replaced by the cheaper axe. Swords clearly remained in use among the Irish, however, to the end of this period and it is notable that the sword is by far the most frequently mentioned weapon in the (admittedly imaginary) stipend lists in *Lebor na Cert*[146]. The sword has always had a symbolic significance out of all proportion to its military value and early medieval Ireland was no exception in this. References to swords of special ceremonial or symbolic importance occur in the 10th, 11th and 12th centuries, while a remarkable passage in the 9th century *Cath Maige Tuired* gives us some insight into the survival of mythological traditions which probably forms the background to this attitude to swords. After the battle of Magh Tuired Ogma, a Tuatha De Danann champion, unsheathes and cleans Orna, a sword which had belonged to a Formorian king; the text continues:

> then the sword related whatsoever had been done by it; for it was the custom of swords at that time, when unsheathed to set forth the deeds that had been done by them. And therefore swords are entitled to the tribute of cleansing them after they have been unsheathed. Hence also charms are preserved in swords thenceforward. Now the reason why demons used to speak from weapons at that time was because weapons were worshipped by human beings at that epoch, and the weapons were among the safeguards of that time[147].

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143. E.g. Radner, *Fragmentary annals*, pp. 11, 127, 139.
144. Stokes, 'The destruction of Da Derga's hostel', pp. 189, 299-301.
145. S. O hInnse (ed.), *Miscellaneous Irish annals A.D. 1114-1437* (Dublin, 1947): McCarthaig's annals s.a. 1173; *A.Conn. s.a.* 1230.6-7.
146. E.g. *A.Tig. s.a.* 1148, 1156, 1167; *A.U. s.a.* 1165; Dillon, *Lebor na Cert*, pp. 5, 8-11, 30-43, 56-61, 66-71, 78-91, 95-99, 104-09, etc.
147. Stokes, 'The second battle of Moytura', p. 107.

The first, and perhaps most significant of the ceremonial swords in the historical sources is the "sword of Carlus". Who this Carlus was is not certain, although the most common suggestion is Karl (d.868), son of Olaf the White, king of Dublin[148]. Whatever its origin, the sword of Carlus was clearly a treasured possession of the Dublin Norse until it was forcibly taken from them by Mael Sechnaill II in 995. It must have been recovered subsequently by the Dubliners, as in 1029 Sitric Silkbeard, king of Dublin was required to give it to Mathgamain ua Riacáin, king of Brega, as part of the ransom for his release. By 1058 it was in the hands of Conchobar ua Mael Sechnaill, king of Meath, but in that year it was taken from him by Diarmait mac Mael-na mBó, king of Leinster and thereafter apparently disappears from history[149]. Curiously enough, however, the next of these high status swords also comes to light in the household of Diarmait mac Mael-na-mBó. This is the "sword of Brian" which was taken from Diarmait by Toirdelbach ua Briain in 1068[150]. Is it possible that this was none other than the sword of Carlus again which, once in the possession of the Uí Briain, was renamed after their own hero, Brian Bóruma?

Another such sword was the "sword of the son of the Earl"; the earl in question is again unknown but was probably a Viking jarl, although Hudson has suggested that it may have been Harold Godwinsson, whose sons were involved in Irish politics for some years after his death at Hastings in 1066[151]. In reality, however, nothing is known of the background of this sword, but it was among the treasures given by Eochaidh mac Duinnsléibhe, king of Ulaid, to Muircertach mac Lochlainn, king of Cenel Eogain, in return for his restoration to the kingship in 1165. Two years later, following a successful campaign to subdue the Cenel Eogain, Ruaidri ua Conchobair, king of Connacht, rewarded his ally Diarmait mac Carthaig, king of Desmumhan, with the gift of a sword referred to as "Cormac's sword"[152]. Flanagan interprets this as Ruaidri returning to Diarmait the sword of his father, Cormac mac Carthaig, but it is equally possible that the name was applied to the sword subsequent to the gift and one wonders whether this was in fact the "sword of the son of the Earl" again, having been taken

148. Todd, *Cogadh Gaedhel re Gallaibh*, p. lxvii; C. Haliday, *The Scandinavian kingdom of Dublin* (Dublin, 1884), pp. 127-28; W.A. Hennessy (ed.), *Annala Uladh: Annals of Ulster*, vol. i (Dublin, 1887) p. 560 n. 8; H.B. Clarke, 'The bloodied eagle: the Vikings and the development of Dublin, 841-1014', *Irish Sword* **18** (1990-92), p. 111 n.159.
149. *A.Tig. s.a.* 995, 1029; *A.U. s.a.* 1029; *AFM s.a.* 1058; *Chron. Scot. s.a.* 1056.
150. *A.Inis.*; Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 71, interprets this as Diarmait returning the sword of Brian to Toirdelbach, but the annalistic entry states merely that Toirdelbach "brought away" the sword.
151. B. Hudson, 'The family of Harold Godwinsson and the Irish Sea province', *Journal of the Royal Society of Antiquaries of Ireland* **109** (1979), p. 97.
152. *A.U. s.a.* 1165; *A.Tig. s.a.* 1167.

from Muircertach mac Lochlainn in the campaign against Cenel Eogain[153]. Whether one is dealing with four separate swords or only two, turning up repeatedly in the documentary record, the obvious importance of these special swords serves to underline the idea of the sword as a prestige weapon.

The axe is traditionally regarded as the weapon *par excellence* of the Vikings and it seems likely that the axe, as a weapon, was introduced to Ireland by them. Curiously, the earliest reference so far noted to the use of axes as weapons is in an apparently 10th century account of warriors of the Laigin, in *Osr. s.a.* 869, but this does not preclude its introduction by the Norse early in the 9th century[154]. An interpolated reference in *A.U. s.a.* 895 to the Norse of Dublin "with their axes (*tuaghaibh*) ... smiting the oratory" of Armagh cannot be relied on as early attestation. The axe clearly was widely adopted by the Irish, probably as a cheaper substitute for the sword, and it is referred to with great frequency in 12th century texts as used both by Norse and Irish[155]. Axes are constantly mentioned in Giraldus Cambrensis' *Expugnatio Hibernica*, from the initial campaign of 1169, where Mac Murchada's Irish troops moved in with their axes to finish off the men of Osraige who had fallen under FitzStephen's cavalry charge to the author's parting advice to the Anglo-Norman conquerors that "we must never grow careless of the axes of the Irish"[156]. In between, prominent figures such as Hugh de Lacy, Miles de Cogan and Ralph FitzStephen met their deaths at the hands of the dreaded Irish axe, while Meiler FitzHenry, attacked by the Irish at Waterford in 1173, is described as having three axes stuck in his horse and two more in his shield. Giraldus is surprisingly well informed in knowing that the Irish had adopted the use of the axe from the Norse, a point confirmed by archaeological evidence, since all known battle axes of this period are clearly derived from a classic Scandinavian type, Petersen's Type M[157]; *Cogadh*, however, also refers to the Irish using "Norwegian axes (*tuaga...*
Lochlannacha)" at Clontarf[158].

As will be seen in Chapter 2, the bow continued to be a significant weapon of the Vikings and Hiberno-Norse in Ireland. It is unlikely that the Gaelic Irish never

153. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 71.
154. Radner, *Fragmentary annals*, p. 137.
155. E.g. Bugge, *Caithréim Cellachain Caisil*, p. 104; Todd, *Cogadh Gaedhel re Gallaibh*, pp. 163, 181, 183, 191.
156. Scott and Martin, *Expugnatio Hibernica*, pp. 37, 251; see also pp. 115, 163, 175-77.
157 J. Petersen, *De Norske vikingesverd: En typologisk-kronologisk studie over vikingetidens vaaben* (Kristiana/Oslo, 1919).
158. *Ibid.*, pp. 187, 235, 137; O'Meara, *The history and topography of Ireland*, p. 101; Todd, *Cogadh Gaedhel re Gallaibh*, p. 163.

learned the use of archery from the Hiberno-Norse in the 11th and 12th century, but there is little evidence for any serious use of the bow for military purposes.

Tactics

It was noted earlier that the importance of cattle raiding in Irish military strategy can be traced to an early date and the model of warfare proposed by Simms for the later medieval period is also applicable to the early medieval period. The actual modes of combat described by Simms as associated with cattle raiding are also evident in sources of the 10th to 12th centuries. *A.Tig.* gives accounts of typical cattle raids and subsequent pursuits *s.a.* 1053 and 1063, while *Cogadh* states of the Dál Cais that "to them belonged the lead in entering an enemy's country, and the rear on returning", a remark which makes perfect sense in the context of raiding and pursuit as described by Simms[159]. Lucas also highlights the importance of cattle raiding in the military strategy of Toirrdhealbhach Ó Conchobhair between 1111 and 1154[160].

Apart from such raid and pursuit encounters, there is good evidence for the deliberate choice of strategic locations for military action. Combat frequently focused on the encampments established by armies while on raids or longer campaigns. It was clearly normal for armies on campaign to establish camps, to which the terms *dunad* or *longport* came to be attached[161]. The author of *Cogadh* considered it noteworthy that the young Brian Bóruma did not make use of encampments (*foslongpuirt*) while waging guerrilla warfare on the Norse, but rather quartered his forces in "rude huts" in the woods and wilderness of Uí Blait[162]. By the 12th century Toirdelbach ua Conchobair was establishing semi-permanent camps, described as *mórlongport*, as winter quarters in subjugated lands and as bases for extended raiding campaigns, as well as a series of fortifications to which the loan-word *caistel* was applied by contemporary annalists[163].

159. Todd, *Cogadh Gaedhel re Gallaibh*, p. 55; this statement is effectively repeated in Dillon, *Lebor na Cert*, pp. 29, 31.
160. Lucas, *Cattle in ancient Ireland*, p. 195.
161. E.g. Radner, *Fragmentary annals*, pp. 103, 123; O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 312f, 319f, 332f, 512; Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 60-61, suggests that *dunad* and *longport* refer to distinct types of fortification, with *dunad* being more substantial, and possibly permanent as opposed to the temporary *longport*; this suggestion remains unproved.
162. Todd, *Cogadh Gaedhel re Gallaibh*, p. 61.
163. *A.Tig. s.a.* 1124, 1126; see also Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', pp. 60-62.

Attacking an enemy in his camp, usually at night, was a standard tactic frequently recorded in the annals[164]. *Cogadh*, describing the lead-up to the battle of Sulcóit, portrays the Dál Cais planning to spy out the strength of the Norse army "that they might ascertain if they were able to give them battle; and if not, to make a wood and camp assault on them" - i.e. to ambush the Norse either in their camp or in the woods[165]. It was only when they received unexpected reinforcements that the Dál Cais decided to engage the Norse in open battle. *Osr.*, describing a victory of the Connachta over a Norse raiding party, makes the telling comment that "it would not have been thus if the woods and the night had not been near"[166]. A surprise attack on the enemy camp was clearly an important tactic in cases where success in open battle could not be assured.

The references to woods in these 12th century sources raises an additional factor in Irish military tactics, for which there is particularly good evidence in the *Song of Dermot and the Earl*. Where attacks by the Irish on invading Anglo-Norman forces are described in the *Song*, they almost invariably take place at a "pass", presumably a particularly restricted point on the route through woods, hills or bogs[167]. Passes were frequently prepared in advance for such ambushes by plashing (interweaving) the branches of trees bordering the pass. More substantial fortifications of fosses (and presumably banks) surmounted by palisades or stockades were also constructed. These tactics were clearly not devised solely to meet the threat of the Anglo-Normans, but had an older ancestry; on one occasion in 1169 Fitz Stephen and MacMurchada were attacked by the men of Osraige at a pass "where Dermot had formerly been/On three occasions defeated"[168].

Between cattle raids/pursuits, camp attacks and ambushes in woods and passes, a very substantial proportion of Irish military activity clearly took forms other than that of the pitched battle. The obviously heavy reliance on such natural obstacles and the general avoidance of open pitched battles could be said to underline the military weakness of the Irish, but some caution should be exercised in this respect. In any military context it made patently good sense to make use of any advantages which one's environment provided, and this was not a tactic unique to Ireland. Recent military historical writing repeatedly emphasises that it was a general feature of medieval

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164. E.g. Radner, *Fragmentary annals*, pp. 111, 123, 129, 141; *A.Tig. s.a.* 1167.
165. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 75-77.
166. Radner, *Fragmentary annals*, p. 129.
167. E.g. Orpen, *The song of Dermot and the earl*, ll. 560ff, 631f, 1010ff, 1316f, 1575ff, 1983ff, 2801, etc.
168. *Ibid.*, ll. 1359f, 1575ff, 560ff, 1010ff, 631f.

European warfare that pitched battles, precisely because they could produce rapid and decisive results, were all the more to be sought or avoided, depending on the relative strengths of one's position. The use in defensive strategy of natural obstacles such as rivers, woods and bogs was also a common European phenomenon, not confined to Ireland[169].

Where pitched battle was joined, the tactics employed are to some extent illuminated by the sources. Many descriptions of battle formations, while lacking in detail and laden with poetic bombast, nevertheless combine to give the impression of massed bodies of men in which the emphasis was on solidity and rigidity rather than mobility. Forces in battle are typically described in terms such as "a firm battle-line, shoulder to shoulder", "strong indestructible battalions", "a phalanx of spears and swords", "a solid, very thick palisade of spears", "a solid, skillful and firm rampart...and a thick, dark stronghold"[170]. In *Táin Bo Cualgne*, at the final battle between Ulster and the rest of Ireland, Cú Chulainn's charioteer, Laeg, notes that:

> if we were to go in two chariots from one wing (*itte*) of the army to the other along the tips of their weapons, not a hoof nor a wheel nor an axle nor a shaft of those chariots would touch the ground, so densely, so firmly and so strongly are their weapons held in the hands of the soldiers (*miled*)[171].

This is echoed in *Cogadh*'s account of the battle of Clontarf, which states that the armies were drawn up in such a way that "a four-horsed chariot could run from one end to the other of the line, on both sides". *Caithréim* gives an even more explicit description of the compactness of a battle formation; its account of a battle between the men of Munster and the Norse at Limerick notes that the Munstermen "put the hooks of their shields over each another, and they made champion knots by attaching their broad belts to each other"[172].

The picture presented by such sources tallies well with the general European pattern, even of the later Middle Ages. The Irish sources seem (in some cases, at least) to be describing an extended linear formation, one of the typical formations listed by Contamine in his general survey of medieval European warfare. Other more compact

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169. J.F. Verbruggen, *The art of warfare in western Europe during the Middle Ages*, vol. i (Amsterdam / New York / Oxford, 1977), pp. 251-52, 285; see also note   below.
170. Radner, *Fragmentary annals*, p. 135; Stokes, 'The second battle of Moytura', p. 97; O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 4725ff; Bugge, *Caithréim Cellachain Caisil*, p. 64.
171. O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 4673ff.
172. Todd, *Cogadh Gaedhel re Gallaibh*, p. 173 and n.5; Bugge, *Caithréim Cellachain Caisil*, p. 64.

formations listed by Contamine, in circles, crescents, triangles or shield shapes, could also be plausibly read into some of the Irish descriptions. Even the account of Munstermen lashing themselves together with their belts, quoted above, becomes credible in view of the record of a Flemish infantry force of 1303 in which the men at the apex of the shield shaped formation were bound together[173].

The available information on the actual conduct of battles suggests little tactical sophistication. A standard pattern is discernible in the sources: a preliminary exchange of volleys of light missiles - mainly javelins, arrows and stones - from a distance was followed by hand-to-hand engagement between the two armies[174]. The ensuing struggle was apparently little more than a melee on foot, with spears, swords, axes and clubs the most common weapons. Some accounts emphasise the importance of single combats between principal figures in deciding the issue but this may only have been a literary device[175]. In reality, most battles were a trial of strength between the two armies in which, as noted earlier, it was the solidity, rigidity and brute force of the formation as a whole that was decisive. The aim was to force the opposing army first to give ground, then to break ranks and finally to flee from the battlefield.

This is clearly seen in a revealing exchange in *Táin Bo Cualgne* between the wounded Cú Chulainn and his charioteer Laeg, watching the final battle between the men of Ulster and the rest of Ireland. Laeg informs his master:

> as for the warriors from the west [of the battlefield], they make a breach
> (*berait toilc*) eastwards through the battle-line (*cath*). The same number
> of warriors from the east breach the battle-line westwards

Cú Chulainn replies: "Alas that I am not healed...or my breach (*mo tholc-sa*) too would be clearly seen there like that of all the others[176]. This fictional dialogue seems to confirm that the warrior's ideal in battle was to force a breach or opening in the lines of his opponents. Translated over an entire army this would result in the opposing formation being forced to break up and flee.

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173. Contamine, *War in the Middle Ages*, pp. 231-32.
174. Radner, *Fragmentary annals*, pp. 123, 135; Bugge, *Caithréim Cellachain Caisil*, p. 64; the terminology used for javelins was *lethgae* (Radner, *Fragmentary annals*, p. 123), *fogae* followed by *lethgae* (ibid., p. 135) or *sleg* (Bugge, *Caithréim Cellachain Caisil*, p. 64).
175. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 185ff; Bugge, *Caithréim Cellachain Caisil*, pp. 65-66.
176. O'Rahilly, *Táin Bo Cualgne Recension I*, ll. 3992ff; O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 4623ff.

But while the indications are that tactics of combat and deployment were rudimentary, they were not wholly lacking. Frequent references occur to armies dividing into a number of companies for battle; in general three divisions, apparently one behind the other, is indicated[177]. These may have corresponded to a main battle with vanguard and rearguard, although the three divisions of the Munster army at the battle of Belach Mugna in 908 are specifically stated to have been of equal size[178]. More numerous subdivisions also occur, such as the seven battalions of Tir Conaill and Tir Eogain which attacked Connacht in 1131 and the thirteen battalions of foot and seven of cavalry with which Ruaidri Ua Conchobair attacked Tir Eogain in 1167, but these may apply to the various tribal contingents within an overking's army, rather than to a deliberate tactical formation[179].

More elaborate deployments are undoubtedly attested, however. Indeed, Ua Conchobair's defeat of Cenel Eogain in 1167 was apparently due to confusion among the Cenel Eogain caused by separating into a number of divisions for a night attack on Ruaidri's camp[180]. *Cogadh* describes Brian's army at Clontarf in terms of the standard three divisions, consisting of the men of Tuadhmumhain, Desmumhain and Connacht, respectively. The author, however, notes conflicting traditions as to whether the Desmumhain were drawn up behind the Tuadhmumhain or whether the two divisions fought side by side; moreover the main divisions were flanked by "the ten great stewards of Brian...with their foreign auxiliaries" on the right wing and by the Uí Briuin and Conmaicne on the left[181]. The most striking example of tactical complexity is *Caithreim*'s account of the army of Munster attacking Armagh to rescue their king, Cellachan from his Norse captors. The Munstermen divided into five battalions, four of which were to attack the Norse army from each point of the compass while the fifth was apparently to remain as a reserve; the author noted that "a battle without a check (*cath gan chostadh*) is not common". The Norse were soon surrounded by the four Munster divisions but were only overcome by an elaborate manoeuvre, apparently involving a fake breach being opened in the Munster line in order to entice the Norse out of their compact defensive formation; once the Norse formation was broken the Munster lines closed in again and slaughtered them[182].

177. E.g. Radner, *Fragmentary annals*, pp. 135, 155; Todd, *Cogadh Gaedhel re Gallaibh*, pp. 165; O'Rahilly, *Táin Bo Cualgne, from the Book of Leinster*, ll. 228, 556. Such an arrangement was common elsewhere, even at later dates; see M. Prestwich, *Armies and warfare in the Middle Ages: The English experience* (New Haven/London, 1996), p. 315.
178. Radner, *Fragmentary annals*, pp. 155.
179. *A.Tig.*.
180. *A.Tig.*.
181. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 167-71.
182. Bugge, *Caithréim Cellachain Caisil*, pp. 90-91.

Of course this episode appears to be entirely fictional and the Clontarf narrative cannot be taken as a reliable account of the battle. Nevertheless the writers' familiarity with concepts of complex formations should warn us not to underestimate the level of tactical development, at least in the 12th century. Flanagan points out that there are annalistic records of Irish kings mounting sieges of towns such as Dublin, Waterford, Limerick, Cork and Armagh in the 12th century and even suggests that the Armagh scene in *Caithréim* is paralleled in Ruaidri Ua Conchobair's deployment of forces in the siege of Dublin of 1171[183]. This may be to misunderstand the *Caithréim* incident, however, which seems to refer to a battle rather than a siege, with the Munster army surrounding the Viking force, rather than Armagh itself. Nevertheless, the essential point remains true, that what could be described in pseudo-historical literature may well have been actually put into practice in warfare.

Despite these episodes, the overall impression gained from the sources is that battle tactics were fairly rudimentary, both in the deployment of forces and combat methods. In this, however, Ireland probably differed little from much of early medieval Europe, that is, at least until the latter end of this period. Hooper's discussion of contemporary battle tactics of the Anglo-Saxons and Danes paints a very similar picture[184]. From the 10th century, however, the heavy armoured horseman, the *miles*, began to assume a predominant role in warfare in feudal north-western Europe while other developments, notably in the use of archers, followed. Ireland clearly fell behind at this point, though she may have been slowly following these trends - cavalry forces (*marcsluag*), which are definitely attested from the 9th century, are referred to with increasing frequency from the end of the 11th century onwards. Unfortunately, little can be said about the makeup or tactics of these cavalry forces. As things stand there is no evidence for the use in battle of combinations of different forms of troops, such as archers with spearmen or cavalry with foot before the Anglo-Norman invasion. It was precisely this combination of heavy armoured cavalry and large but mobile contingents of archers which - potentially, at least - gave the Anglo-Normans a military advantage over the Irish.

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183. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 66.
184. Hooper, 'Anglo-Saxon warfare', pp. 89-93.

The Anglo-Norman conquest (*c.*1170-1200)

Warriors and military organisation

      The arrival of Anglo-Norman forces in 1169-70 introduced radically new elements into the Irish military equation. When the mounted charge of Robert FitzStephen's *milites* scattered the men of Osraige in the initial campaign of that year, Ireland experienced for the first time the shock power of armoured heavy cavalry, which over the previous two centuries had come to dominate much of European warfare[185]. Our major source for this period, Giraldus Cambrensis, gives prominence to the exploits of the *milites*, as for example in his description of Raymond le Gros transfixing two Irishmen with his lance at the siege of Dublin in 1171, but it is possible that their impact has been over-emphasised[186]. Closer examination of the available evidence suggests that the role of the cavalry, although of considerable importance, must nevertheless have been limited in its extent.

      The make-up of a number of Anglo-Norman contingents landing or operating in Ireland between 1169 and 1185 are described in detail by Giraldus. While his figures may not be absolutely accurate, they are strikingly consistent; there seems no reason not to accept the broad picture of the invading forces provided by Giraldus and in particular, the relative proportions of the four types of troop he mentions: *milites, loricati, arcarii* and *sagittarii*. These contingents are tabulated in Table 2.

      The *milites* were heavy cavalry, the core of any army of this period. They were mounted, possibly with more than one horse - three was the normal minimum for a knight in mainstream European warfare[187] - and routinely wore armour. Nelson has discussed in detail the composition of Fitz Stephen's force of 1169 and has pointed out that the Cambro-Norman *milites* who invaded Ireland were not necessarily always knights in the strict sense, although they must have been of sufficient status to provide themselves with a horse and full armour[188]. However, they would have fulfilled essentially the same function as knights and Contamine is almost certainly mistaken in suggesting that they were a light cavalry, distinct from true *milites*, who formed a heavy cavalry[189]. Contamine's theory was clearly prompted by Giraldus' remarks on the

185. Contamine, *War in the Middle Ages*, pp. 31ff.
186. Scott and Martin, *Expugnatio Hibernica*, p. 83.
187. Contamine, *War in the Middle Ages*, p. 67.
188. L.H. Nelson, *The Normans in south Wales, 1070-1171* (Austin, 1966), pp. 68-69, 138.
189. Contamine, *War in the Middle Ages*, p. 70.

suitability of Cambro-Norman *milites* for campaigns in Ireland, but these remarks should probably only be taken to indicate that they wore lighter armour than their counterparts in wealthier areas of lowland England and France[190]. This is a question which can probably be answered only through archaeological evidence, which unfortunately is not sufficiently plentiful to allow regional comparisons to be made.

Date	Circumstances	Contingent
1169	Robert Fitz Stephen lands at Bannow	30 *milites* 60 *loricati*, 300 *sagittarii*
1169	Maurice Fitz Gerald lands at Wexford	10 *milites* 30 *arcarii*, 100 *sagittarii*
1169	Raymond le Gros lands at Baginbun	10 *milites*, 70 *sagittarii*
1170	Strongbow lands at Waterford	200 *milites*, 1000 others [elsewhere 1000 archers[191]]
1171	Henry II lands at Waterford	500 *milites* "many" *arcarii* and *sagittarii*
1173	Raymond le Gros at Lismore	20 *milites*, 60 *arcarii*
1173	Raymond le Gros returns to Ireland	30 *milites* 100 *arcarii*, 300 *sagittarii*
1175	Strongbow and Raymond attack Limerick	120 *milites* 300 *arcarii*, 400 *sagittarii*
1175	Garrison left at Limerick	50 *milites* 200 *arcarii*, 200 *sagittarii*
1176	Raymond le Gros returns to Limerick	80 *milites* 200 *arcarii*, 300 *sagittarii*
1177	Miles de Cogan invades Connacht	40 *milites* 200 *arcarii*, 300 *sagittarii*
1177	FitzStephen/Cogan/de Breuse attack Limerick	70 *milites* 150 *arcarii*, "many" *sagittarii*
1183	Raymond le Gros sails to Cork	20 *milites* 100 *arcarii*, 100 *sagittarii*
1185	John lands in Ireland	300 *milites* "large number" of *arcarii*, *sagittarii*

Table 2: Anglo-Norman forces in Giraldus Cambrensis, 1169-1185.

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190. Scott and Martin, *Expugnatio Hibernica*, pp. 247-49.
191. O hInnse, *Miscellaneous Irish annals*, p. 53.

Giraldus' *loricati* are a more difficult group to identify. The name implies that these warriors wore armour, presumably a hauberk (Latin *lorica*), but their function and status is not clear. Nelson suggests that they were armed retainers attached to the *milites*; it was normal for a *miles* to be accompanied by one or more (sometimes up to five) armed servants, later known as esquires or valets, who as well as attending to their master and his equipment were themselves armed and played an active role in combat[192]. The proportion of *loricati* to *milites* in Fitz Stephen's force (2:1) suggests that they may have been attendants of this kind. A slightly different explanation has been proposed by Suppe, who suggested that the *loricati* were equivalent to the *muntatores*, *homines equitantes* and *seruiens*, "lightly armed horsemen ... found all along the [Welsh] Marches" in the 12th and 13th centuries. These, apparently, were all mounted warriors who owed military service equipped with mail coat, helmet and lance, but rather than being attendants of knights, they seem to have had a distinct function. Suppe never fully clarifies what this function was, although he notes that they were frequently assigned to castle guard and suggests that they functioned as "mobile patrolling forces", developed to counter the mobility of native Welsh horsemen[193].

The other main early source for the Anglo-Norman invasion of Ireland, the *Song of Dermot and the Earl*, repeatedly categorises the early Anglo-Norman invading forces under the headings of knights (*cheualers*), archers (*archers*) and sergeants (*seriant*), or on one occasion, knights (*barun*), archers, valets (*ualet*) and sergeants (*seriant*)[194]. It seems very likely that Giraldus' *loricati* are to be equated with the *sergeants* or *valets* of the *Song*, or perhaps with both. According to Contamine, the term *sergeant* should refer to an armoured horseman of sub-knightly class, but Beeler suggests that although mounted *sergeants* were known, Anglo-Norman *sergeants* functioned mainly as infantry (archers, crossbowmen and spearmen); Prestwich also notes infantry being termed as sergeants in England in the 1160's[195]. Simms suggests that *sergeants*, in an Irish context, were infantry and possibly archers, and this view finds support in the *Song's* account of the 1171 siege of Dublin, which notes that Miles de Cogan stationed his

192. Nelson, *The Normans in south Wales*, p. 138; Contamine, *War in the Middle Ages*, p. 68; Prestwich, *Armies and warfare in the Middle Ages*, p. 49, suggests that at least one of the retainers would normally charge into battle behind his master on the spare war horse.
193. F.C. Suppe, *Military institutions on the Welsh marches: Shropshire, A.D. 1066-1300* (Woodbridge, Suffolk, 1994), pp. 18, 29, 73-78. Note that Suppe's remarks (p. 76) on the differences between a *lorica* and a hauberk, and between the armour worn by *loricati* and knights, should be treated with the greatest caution.
194. Orpen, *The song of Dermot and the earl*, ll. 412-413, 1359-60, 1427, 1441, 1885-1896.
195. Contamine, *War in the Middle Ages*, pp. 69-70; Beeler, *Warfare in feudal Europe*, p. 100; Prestwich, *Armies and warfare in the Middle Ages*, p. 120.

sergeants on the walls of the city "to hurl their lances and shoot their arrows" while the knights were mounted, waiting to charge out from the city[196].

It may be possible to reconcile these various interpretations by accepting Suppe's analogy of the *loricati* with his *muntatores* in Shropshire, who were required to serve with horse and armour but seem frequently to have been assigned to castle guard, which would presumably be performed largely on foot. However, it is perhaps safest to say that the existing evidence does not permit conclusive categorisation of *loricati*, sergeants and valets. Prestwich notes the "shifting and often imprecise" nature of the terminology used to describe such sub-knightly warriors, especially in the 12th century[197]. Whatever their function, it is notable that Giraldus makes no reference to *loricati* after the 1169 expedition, although they may be included in the figures given for *milites*, or even for archers, in later forces.

Armour

We have no direct evidence for the forms of armour worn by the earliest Anglo-Normans in Ireland, but they may not have differed significantly from those described previously for the pre-Norman period. The chain mail hauberk continued to be the main body armour; separate mail chausses (leg coverings) seem to have become common after 1150, and mail mufflers (hand coverings) from the last quarter of the 12th century. A mail coif continued to be worn over the head and neck, over which was worn a helmet. The conical helmet of the 11th century continued in use, but from the second half of the 12th century other forms, hemispherical and cylindrical appeared. These were sometimes fitted with a face-guard and Blair suggests that this had in turn given rise to the "great helm" (a cylindrical helmet fully enclosing the head) before the end of the 12th century. The kite-shaped or triangular shield continued in use[198].

Weaponry

The main offensive weapon of Anglo-Norman knights was the lance; the sword, in spite of its richly symbolic importance, performed a largely secondary defensive role[199]. The form of swords in use in the late 12th century were little different from those of the Hiberno-Norse period; relatively long (70cm-90cm), double-edged blades,

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196. Simms, *Gaelic lordships in Ulster*, p. 126; Orpen, *The song of Dermot and the earl*, ll.2347-56.
197. Prestwich, *Armies and warfare in the Middle Ages*, pp. 16-18.
198. Blair, *European armour*, pp. 28-30, 181; Peirce, 'The knight, his arms and armour c.1150-1250', pp. 252-54, 259-62.
199. See A. Halpin, 'Irish medieval swords c.1170-1600', *Proceedings of the Royal Irish Academy* **86C** (1986), pp. 183-230, for fuller discussion.

designed for cutting, slashing blows either from horseback or on foot, predominated. Hilts (i.e. crossguards, grips and pommels) were single-handed and of various forms. No Irish examples which can definitely be attributed to the initial Anglo-Norman invasion are known but a series of swords which can be dated to the period from the 12th to 14th centuries has been identified and are typical of what would have been used by the first Anglo-Normans and their successors[200]. The spear or lance was still the primary weapon of this period, however, and from an archaeological viewpoint it continues to present the same difficulties as were noted earlier. The iron spearhead changed little over centuries and diagnostic indicators of date are rare. As with swords, practically no surviving examples can definitely be dated to the period of the initial Anglo-Norman incursions, a leaf-shaped spearhead (which is not necessarily of Anglo-Norman background) from Waterford being a sole exception[201]. This apart, the only weapons visible in the archaeological record of this period are the bows and arrowheads of the otherwise almost invisible archers.

Giraldus also provides us with a picture of Irish warriors and warfare, in which little is obviously different from what we know of the Hiberno-Norse period. Giraldus' testimony is consistent with the little evidence we have from other sources and is also internally consistent, as the incidental information in the *Expugnatio* tallies well with the general statement on Irish weaponry in his *Topographia Hibernica*, noted earlier. Thus, for instance, at the death of Tighearnan ua Ruairc at the Hill of Ward in 1172, Giraldus describes the Irish as each armed with two spears and an axe[202]. Giraldus also supports his statement about Irish skill in throwing stones by advocating that Anglo-Norman cavalry on the march should always be escorted by archers, to protect against

> the damage caused by the stones with which they (the Irish) usually
> attack heavily armed troops at close range, alternately rushing forward
> and retreating without loss to themselves because they are so mobile[203].

Tactics

Writers on the military tactics of Anglo-Norman forces in Ireland have tended to focus largely on the role of the knightly cavalry[204]. This is understandable, as heavy

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200. Halpin, 'Irish medieval swords', pp. 185-195.
201. A. Halpin, 'Archery material', in M.F. Hurley, O.M.B. Scully and S.W.J. McCutcheon (eds), *Late Viking age and medieval Waterford: Excavations 1986-1992* (Waterford, 1997), p. 545: Fig.15:26.38.
202. Scott and Martin, *Expugnatio Hibernica*, pp.115, 175-77.
203. *Ibid.*, p. 249.
204. E.g. R. Rogers, 'Aspects of the military history of the Anglo-Norman invasion of Ireland 1169-1225', *Irish Sword* 16 (1984-86), pp. 135-44.

cavalry undoubtedly represented a totally new and formidable military force in late 12th century Ireland. Giraldus' descriptions of the devastating impact of Anglo-Norman cavalry charges, even against much larger numbers of Irish (e.g. in Osraige in 1169, at the sieges of Dublin in 1171 and at the Hill of Ward in 1172), are quite credible. References to Anglo-Normans transfixing both men and beasts with their lances may well be more fanciful embellishments of the record, but do at least demonstrate that the *milites* were using their lances in the couched position, thus exploiting to greatest effect the momentum of rider and beast[205]. The fact that Giraldus' numbers of *milites* in various Irish campaigns tend to feature multiples of ten might support the suggestion that cavalry were organised in basic units or *conrois* of ten men, as Prestwich suggests[206], but could equally well be due to the rounding off of numbers for convenience.

It would, however, be a mistake to assume that the shock power of charging cavalry was the only, or even the main reason for the military success of the Anglo-Normans in Ireland. For one thing, the sheer proportions of non-cavalry troops involved should give pause for thought. Excluding the royal armies of Henry II and John (for which his figures are incomplete) the totals given by Giraldus for troops arriving in Ireland between 1169 and 1173 are 280 *milites*, 60 *loricati* and 1,900 archers, of whom at least 300 were *arcarii* and at least 770 were *sagittarii*. Of course Giraldus' figures may not be comprehensive (i.e. he may not list every contingent which arrived in Ireland during this period) but they are presumably representative as far as they go. They reveal that cavalry account for only 15% of the total and similar proportions of cavalry (10-15%) are maintained in the other Anglo-Norman forces detailed by Giraldus. When the apparently large numbers of Irish and Hiberno-Norse warriors who frequently accompanied Anglo-Norman forces are taken into account, the proportion of cavalry becomes even smaller. In Fitz Stephen's initial victory in Osraige in 1169, for example, the combined total of *milites* and *loricati* (around 90) amounted to less than 3% of his total force, which Giraldus numbers at around 3,000[207].

Such small contingents could of necessity make only a limited, albeit important, contribution in the overall battle tactics of Anglo-Norman forces in Ireland. The primary function of cavalry was to break up enemy formations and scatter the combatants[208]. The real damage, in terms of casualties, was usually done in the

205. Scott and Martin, *Expugnatio Hibernica*, pp. 37, 77, 83, 115.
206. Prestwich, *Armies and warfare in the Middle Ages*, p. 48.
207. Scott and Martin, *Expugnatio Hibernica*, p. 37.
208. Verbruggen, *The art of warfare in western Europe*, pp. 94-95.

subsequent rout and pursuit of the enemy and here the contribution of the *milites* was inevitably limited by their numbers; most of this was done by the infantry and mounted auxiliaries[209]. Giraldus describes a classic case in Fitz Stephen's first victory in Osraige in 1169, where the men of Osraige, having been scattered by a sudden cavalry charge, were finished off by MacMurchada's native infantry and, presumably, the Anglo-Norman infantry[210]. It is interesting to note that this basic tactical procedure of breaking enemy formations and scattering the combatants is also visible in pre-Norman Irish warfare (see above). In some respects all that has changed, tactically, is that the initial breakthrough is being achieved by cavalry rather than by infantry against infantry.

Furthermore, opportunities for the *milites* to exercise their shock power in this way were limited in Ireland, both by the terrain in which they were fighting and by the early realisation on the part of the Irish that such confrontations were to be avoided. In fact, pitched battles and cavalry charges were far from common in Anglo-Norman warfare, even outside of Ireland[211]. Thus Giraldus argues that *milites* from the Welsh marches were particularly well suited for campaigning in Ireland because they could fight not only as cavalry but also as infantry, when circumstances demanded it. By contrast, the English *milites* who accompanied Henry II and John were of limited effectiveness in Ireland precisely because they could function only as heavy cavalry[212]. This presumably reflects the fact, noted by Prestwich, that whereas Anglo-Norman knights frequently dismounted in battles of the earlier 12th century, it subsequently "became increasingly difficult to persuade knights to fight on foot", a situation that was to pertain until the early 14th century[213]. It is very likely that the military contribution of the *milites* in the initial conquest of Ireland was made on foot at least as much as on horseback - particularly when duties such as besieging towns and garrisoning castles are taken into account.

A neglected and potentially major factor in any consideration of Anglo-Norman tactics is the role of archers, who made up the large majority of all Anglo-Norman forces in Ireland. This is considered in greater detail in Chapter 2, although unfortunately the scarcity of information in contemporary sources means that the full extent of their contribution remains, to a great extent, a matter of speculation.

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209. Contamine, *War in the Middle Ages*, p.230; Prestwich, *Armies and warfare in the Middle Ages*, p. 330.
210. Scott and Martin, *Expugnatio Hibernica*, p. 37.
211. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', pp. 69-70; Prestwich, *Armies and warfare in the Middle Ages*, pp. 305-08.
212. Scott and Martin, *Expugnatio Hibernica*, pp. 247-49.
213. Prestwich, *Armies and warfare in the Middle Ages*, pp. 315-17.

The Anglo-Irish ascendancy (*c.* 1200-1350)

Warriors and military organisation

It is likely that Anglo-Norman military make-up and tactics remained much as they have just been described throughout the late 12th and 13th centuries. In England and on the Continent this period is seen as the *apogee* of the dominance of knightly cavalry, but here too it is clear that there was more to warfare than cavalry charges[214]. There is abundant evidence from this period for the widespread use of crossbowmen, archers and other infantry. Bradbury even notes that on occasion feudal tenure of lands in England was based on military service by archers, rather than horsemen, a situation also noted by Suppe on the Welsh marches[215]. Similar grants are known from Ireland in the 16th century (see Chapter 2) and may have an equally early ancestry. Contamine's survey of feudal military obligation indicates a variety of troop forms based on differing social status. Thus while the military service of fief-holders consisted almost entirely of heavy cavalry (whether knights, sergeants or esquires), that provided by urban centres and rural communities combined both cavalry and infantry. Feudal military obligation, of course, was everywhere becoming of less and less practical importance in the later 12th and 13th centuries, but the advent of paid service did not significantly alter the social background or military characteristics of the troops used by European states. In France and particularly in England, however, the late 12th and 13th centuries saw efforts by the monarchy to extend military obligation to the poorer classes, both urban and rural, which inevitably meant increased representation of infantry[216].

By the later 13th century Anglo-Irish military forces are invariably classified under three headings: men-at-arms (heavy cavalry), hobelars (light cavalry) and infantry[217]. Regarding popular obligation in Ireland during this period, Frame has argued that there is evidence for the common use of "shire levies" by the government in Irish campaigns. These have left little trace in the documentary record because they were apparently not paid by the government but by the local community and little can

214. Contamine, *War in the Middle Ages*, p. 67;   J.E. Morris, 'Mounted infantry in medieval warfare', *Transactions of the Royal Historical Society* 8 (3rd series, 1914), pp. 77-80;   Prestwich, *Armies and warfare in the Middle Ages*, pp. 326-27, argues that cavalry charges were actually relatively rare in English warfare of the 12th and 13th centuries and, even when they did take place, were far from uniformly successful.
215. Contamine, *War in the Middle Ages*, pp. 71-73;   J. Bradbury, *The medieval archer* (Woodbridge, 1985), pp. 75-79;   F.C. Suppe, *Military institutions on the Welsh marches: Shropshire, A.D. 1066-1300* (Woodbridge, Suffolk, 1994), pp. 18-19.
216. Contamine, *War in the Middle Ages*, pp. 77-86, 87-90, 99.
217. R. Frame, *The Dublin government and Gaelic Ireland 1272-1361* (Unpublished Ph.D. thesis, University of Dublin, 1971), pp. 2-7.

therefore be said about the types of troops involved or the weaponry they used. Presumably they were, in the main, infantry and Frame has argued that they may have provided most of the archers in Anglo-Irish forces of the later 13th and early 14th centuries (see below)[218]. From the mid-13th century hired troops, mainly retinues of hobelars and foot raised by the Anglo-Irish magnates, became increasingly more important than the feudal levy in the military operations of the government[219]. Frame suggests that the foot in these magnates' retinues were probably the "kerns and idlemen" against the billeting of whom laws were passed in the late 13th and early 14th centuries[220]. The Irish expeditions to Scotland in the late 13th and early 14th centuries also provide a good overall picture of the variety and relative proportions of troop types in use in Ireland at this period.

The main expeditionary forces, both within Ireland and to Scotland, for which details are readily available are summarised in Table 3, and several features stand out. The proportion of heavy cavalry (men-at-arms, which includes bannarets, knights and esquires) varies widely, up to a maximum of 31% in the 1335 expedition to Scotland, but seems to decline significantly from the 1340's onwards. The growing importance of hobelars is clear - from the turn of the 14th century they rarely account for less than 20% of the total and sometimes for more than 40%. Finally, the low proportions of archers - rarely more than 10% - contrasts sharply with the figures of 80% or more noted for both the Anglo-Norman invading forces of little more than a century earlier and for contemporary English forces in the Scottish campaigns and the Hundred Years War. It may be that numbers of archers had declined because of an increasing reliance on hobelars, but it is also possible that the true proportion of archers is seriously under-represented in these figures (see below). It is unfortunate that details of the types of soldiers listed under the heading of "foot" (usually at least 50% of the entire force) and the weapons they used tend not to be provided in sources of this period. Lydon suggests that all of the 1,617 foot in the 1301 Scottish expedition (71% of the total force) were archers[221]; if this is so then it may well be that the proportions of archers were equally large in other forces of the period.

218. Frame, *The Dublin government and Gaelic Ireland*, pp. 7, 42-48; R. Frame, 'Military service in the lordship of Ireland 1290-1360: Institutions and society on the Anglo-Gaelic frontier', in R. Bartlett and A. MacKay (eds), *Medieval frontier societies* (Oxford, 1989), pp. 108-110.
219. A.J. OtwayRuthven, 'Royal service in Ireland', *Journal of the Royal Society of Antiquaries in Ireland* **98** (1968), p. 39; Frame, *The Dublin government and Gaelic Ireland*, pp. 22-23, 32; S.G. Ellis, 'Taxation and defence in late medieval Ireland: the survival of scutage', *Journal of the Royal Society of Antiquaries of Ireland* **107** (1977), p. 6.
220. Frame, *The Dublin government and Gaelic Ireland*, pp. 32-34; H.F. Berry (ed.), *Statute and ordinances and acts of the parliament of Ireland: King John to Henry V* (Dublin, 1907), pp. 203, 329, 377.
221. Lydon, 'Irish levies in the Scottish wars', p. 214: Table II, note (b).

Year	Men-at-arms (%)	Hobelars (%)	Mounted archers (%)	Foot archers (%)	Infantry (%)	Total force[222]
1296	10	8		1	81	3156[223]
1300		5		95		377[224]
1301	12	17		71		2272[225]
1308	5	23			72	689[226]
1317	24	32			43	920[225]
1329	12	44			43	654[225]
1330	21	43			35	781[225]
1332	9	38			52	1425[225]
1335	31	18			51	1584[227]
1338	16	30		2	52	464[228]
1342	2	22			75	442[225]
1342	4	29		3	63	563[229]
1344	13	24	18	11	33	681[225]
1345	6	32	3	1	57	1943[225]
1348	5	18	5		72	477[225]
1352	2	17	1		80	555[225]
1353	6	39	2		53	1122[225]
1353	4	35	2		60	1012[230]
1358	1	28		71		859[228]

Table 3: Anglo-Irish forces, 1296-1358: Relative proportions of troop types.

The continuing importance of heavy cavalry, evident in Table 3, is also well illustrated by the fact that the only permanent standing force in the colony, the justiciar's retine, consisted of 20 men-at-arms with armoured horses, when first regulated at the end of the century[231]. The practical importance of such a small force was obviously extremely limited but its composition is probably indicative of current military thinking.

222. Figures represent the maximum total strength of any given expedition.
223. J.F. Lydon, 'An Irish army in Scotland', *Irish Sword* 5 (1961-62), p. 190: table.
224. J.F. Lydon, 'Irish levies in the Scottish wars, 1296-1302', *Irish Sword* 5 (1961-62), pp. 208, 214: Table 1.
225. Lydon, 'Irish levies in the Scottish wars', p. 214: Table II; Table II, note (b) states that all foot were archers, including six crossbowmen.
226. Frame, *The Dublin government and Gaelic Ireland*, p. 37.
227. R.G. Nicholson, 'An Irish expedition to Scotland in 1335', *Irish Historical Studies* 13 (1962-63), p. 211.
228. Frame, *The Dublin government and Gaelic Ireland*, p. 298.
229. Frame, *The Dublin government and Gaelic Ireland*, p. 303.
230. R. Frame, 'The defence of the English lordship, 1250-1450', in Bartlett and Jeffery (eds), *A military history of Ireland*, p. 85: Table 4.1.
231. A.J. Otway-Ruthven, 'The chief governors of medieval Ireland', *Journal of the Royal Society of Antiquaries of Ireland* 95 (1965), p. 230; A.J. Otway-Ruthven, *A history of medieval Ireland* (London, 1968), p. 147.

The continued use (however sporadically) of feudal service well into the 14th century, long after it had been abandoned in England, must have helped to maintain the emphasis on knightly cavalry[232]. Frame has pointed out that this 'antique feudalism' must be viewed in the context of contemporary political and military factors in Ireland[233].

Nevertheless, the limited usefulness of heavy cavalry in Irish conditions, evident even in Giraldus' day, demanded new responses. The most important response was the hobelar, a light horseman which was to be Ireland's main contribution to English forces of the period and played an important role in England's wars with Scotland in the early 14th century[234]. The hobelar, although mounted, performed an entirely different role to the knight/man-at-arms; he lacked the weight and power necessary for cavalry charges but made up for this with greatly increased mobility in pursuits and skirmishes. In the 14th century, at least, there is evidence for diversity even within the broad grouping of hobelars, with some being described either as *armati* or *non armati*[235]. This distinction probably refers to whether or not the hobelar wore armour.

To what extent did this situation differ from that pertaining at the time of the Anglo-Norman conquest? Clearly the late 13th century man-at-arms is in the same tradition as Giraldus' *miles*, but is the hobelar in any sense comparable to Giraldus' *loricatus* or the *valet* of the *Song*, and are late 13th century infantry comparable to late 12th century infantry, who apparently were almost invariably archers? If the *loricatus/valet* is accepted as an aide or esquire to the *miles*, there can be no connection with the later hobelar, as there is no evidence that the hobelar ever performed such a function. If, however, the alternative analogy with the *muntatores* of the Welsh marches is accepted, the picture changes. While many details of the function of *muntatores* are still far from clear, the suggestion that they were "mobile patrolling forces" is remarkably reminiscent of Lydon's view of the origins and functions of the hobelar[236]. Moreover, in terms of equipment the hobelar may not have appeared very different from the *loricatus*.

Lydon suggested that the hobelar represents a new form of troop developed in Ireland during the 13th century, originating from the mounting of Anglo-Irish infantry.

232. Frame, *The Dublin government and Gaelic Ireland*, pp. 20-26; Prestwich, *Armies and warfare in the Middle Ages*, p. 75.
233. Frame, 'Military service in the lordship of Ireland', pp. 105-08, 113.
234. J.F. Lydon, 'The hobelar: an Irish contribution to mediaeval warfare', *Irish Sword* 2 (1954-56), 12-16.
235. Frame, *The Dublin government and Gaelic Ireland*, p. 5.
236. Lydon, 'The hobelar: an Irish contribution to mediaeval warfare', pp. 13-14.

While this remains a valid hypothesis, alternative origins may also be considered. Hobelars may be the counterparts of the *loricati* of the late 12th century, or they may have developed from the native Gaelic tradition of horsemen. The use of such lightly armed, highly mobile troops tends to bear out Frame's assertion that Anglo-Irish forces came to be deployed largely in Gaelic modes of warfare[237]. Indeed, in terms of armour, equipment, mounts and possibly function the hobelar must have closely resembled the Gaelic horseman of the later Middle Ages (see below), and Gaelic horsemen were routinely classified as hobelars when serving in Anglo-Irish forces of the late 13th and 14th centuries[238]. It may well be, therefore, that the first hobelars were Gaelic horsemen serving in Anglo-Irish forces, who were subsequently imitated by the Anglo-Irish themselves, much as Anglo-Irish foot companies came to be referred to as kern[239]. To further complicate matters, Suppe seems to suggest that the *muntatores* and other horsemen of the Welsh Marches were a response to, and based on, native Welsh horsemen who, in turn, must have closely resembled contemporary Gaelic Irish horsemen. This complex web of relationships may never be entirely clarified.

Late 13th/early 14th century sources do not seem to indicate the same high proportions of archers as were normal during the Anglo-Norman invasion. Was there, then, a decline in the practice of archery once the new colony was established in Ireland? If (as was noted above) the government's armies were largely composed of magnates' retinues in which the infantry were mainly "kern and idlemen" of Gaelic background, then the proportion of archers among them may indeed have been low. On the other hand, the proportions of archers in Anglo-Irish forces of this period may often be obscured by the indiscriminate description of all infantry forces as "foot". Moreover, Frame has suggested that the scarcity of references to archers in government sources of the late 13th and early 14th centuries may be due to the fact that archers served mainly in county levies which were not paid by the government. He points to the fact that Archbishop Sandford apparently had a force of 100 men-at-arms and 4,500 other "vassals" in Connacht in 1289, arguing that this very large force was largely composed of local popular levies serving at their own expense and that this illustrates how official figures for the size of armies may be seriously understated because of their exclusion of such popular levies[240]. Alternatively (although perhaps less convincingly), Frame suggests that figures for "archers" in official documents of this period refer specifically to 'longbowmen after the English fashion', while acknowledging that the bow must have

237. R. Frame, 'War and peace in the medieval lordship of Ireland', in J.F. Lydon (ed.), *The English in medieval Ireland* (Dublin, 1984), pp. 120-21; Frame, 'Military service in the lordship of Ireland', pp. 101, 121.
238. Frame, *The Dublin government and Gaelic Ireland*, pp. 8, 467.
239. Frame, 'Military service in the lordship of Ireland', pp. 119-20.
240. Frame, *The Dublin government and Gaelic Ireland*, pp. 6, 43-44.

been widely used among ordinary footsoldiers, both Gaelic and Anglo-Irish[241].
Whatever the truth of this, the continued importance of archery among the Anglo-Irish
colonists can be demonstrated despite the relative scarcity of documentary evidence (see
Chapter 2).

Thus, while much of the old Anglo-Norman military tradition of heavy cavalry
and archers and other infantry was still intact in late 13th century Ireland, there are
already strong indications that this was being modified by a combination of
environmental and cultural factors. New forms of troops, notably light horsemen, were
emerging and this almost certainly indicates the course being taken by the pattern of
warfare itself. Raiding, skirmishing and other forms of almost incessant, small-scale
warfare were the rule, rather than large campaigns, sieges and decisive pitched battles.
These tendencies were to become increasingly obvious in later centuries.

More localised records hint at great diversity in the military scene. On the urban
front, the poem of 1265 on the walling of New Ross describes the town's military
potential as follows:

> Crossbow men, I am quite sure, / number three hundred and sixty-three /
> counted at their muster / and recorded in their roll, / and of other archers
> twelve hundred / good men, I can vouch for it. / And besides there were
> three thousand men / with lances and axes, all from the town, / and men
> on horseback, a hundred and four, / were well armed for battle[242].

For purposes of comparison with the tables given earlier these figures may be
represented as follows: Men-at-arms 2%, archers 34%, other infantry 64%. Although
these figures cannot, of course, be taken literally the indication of a very large
preponderance of foot soldiers over heavy horsemen is entirely credible in an urban
context. The infantry included substantial numbers of archers and crossbowmen but the
majority were spearmen and axemen.

In a largely rural context, on the other hand, the provisions made at about the
same date by Geoffrey de Geneville, lord of Meath, to the magnates in his lordship
display a decided bias towards horsemen. These provisions define seven categories of
landholder, based on the value of lands or goods held; separate provisions are made for

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241. Frame, 'Military service in the lordship of Ireland', pp. 115-17.
242. H. Shields, 'The walling of New Ross: a thirteenth-century poem in French', *Long Room* **12-13**
    (1975-76), ll. 182-191.

farmers and merchants, but are too vague to be discussed[243]. Of the seven defined categories the lowest, those with goods to the value of half a mark, were to be armed with a bow and sheaf of arrows, but all the others were to be equipped as horsemen. As Frame points out, the obligation to have a horse was in this case considerably more extensive than in contemporary provisions in England, which presumably is indicative of the importance of horses in warfare in Ireland at this date[244]. The two highest categories, defined respectively by 20 librates and 20 marcates of lands, were clearly intended to function as heavy cavalry with full armour, lance and armoured horses. It is not possible to determine whether the four intermediate categories were intended to function as light or heavy cavalry, as apart from horses their required equipment is not specified; Frame, however, may well be correct in suggesting that these were, in fact, hobelars[245]. Even more importantly, the distribution of these categories in the population and hence their relative numerical importance cannot be determined. For this reason it is not possible to speak of a real predominance of horsemen in rural Meath but only of a predominance in the thinking of the ruling aristocracy.

Gaelic sources of the period provide some evidence for Anglo-Irish military forces. The *Annals of Connacht*'s account of Richard de Burgo's campaign against Aed Ó Conchobair in 1230 notes that he attacked Aed with "a large party of soldiery (*sersenchaib*) and horsemen (*marcachaib*)"[246]. *Sersenach*, a term frequently found in Gaelic sources of this period, is clearly derived from *sergeant*, and its use here in opposition to *marcachaib* (horsemen) suggests (as was previously noted above) that *sergeants* in the Irish context were infantry. Simms suggests that *sersenach* at this period in Ireland may refer to archers or alternatively to a distinct heavy armed (and armoured) infantry but there is no conclusive evidence in support of either suggestion[247]. De Burgo clearly used archers in this encounter as well, since Aed's ally, Donn Oc Mac Airechtaig, is described making his last stand with five arrows in his body, holding an Anglo-Irish horseman at bay by parrying the latter's lance with his own axe. Further indirect evidence for heavy cavalry at this period comes from the Annals of Ulster's account of the battle of Áth-in-chip in 1270, which claims that the defeated Anglo-Irish "abandoned a hundred horses with their breastplates (*luirechaibh*) and with their saddles (*dillaitibh*)"[248]. Clearly these were the caparisoned horses of Anglo-Irish knights or men-at-arms.

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243. J. Mills and M.J. McEnery (eds), *Calendar of the Gormanstown Register* (Dublin, 1916), pp. 10, 182.
244. Frame, 'The defence of the English lordship', p. 80.
245. Frame, 'Military service in the lordship of Ireland', pp. 114-15.
246. *A.Conn.*.
247. Simms, *Gaelic lordships in Ulster*, p. 126.
248. *A.U.*; see also *A.Conn.*.

As noted earlier, the observations of Giraldus Cambrensis on Gaelic Irish military warriors and weaponry is supported by the evidence of earlier 12th century Irish sources. In the later Middle Ages, however, a variety of sources combine to give us a relatively full picture of Irish warriors and warfare which in many respects differs from Giraldus'. It seems that the intervening period - centering on the 13th century - saw the development of new military traditions in Gaelic Ireland and two factors may be isolated as contributing to what emerged. The most obvious is the influence of foreign military systems - initially of the Anglo-Normans and subsequently of the Scottish gallowglass. However, the second factor which must be taken into account is the incipient quasi-feudal change already taking place in pre-Norman Ireland. As noted earlier, new military traditions were to some extent already developing by the time of the Anglo-Norman invasion, although there is no evidence of it in Giraldus' writing. The evidence indicates that all three categories of later medieval Gaelic forces - mounted noble warriors, kern and foreign mercenaries - were already present by the 12th century, at the latest.

The impression conveyed by Giraldus of the military backwardness of the Irish relative to the Anglo-Normans undoubtedly had some basis in fact, but should probably be seen as greatly overstated. As Flanagan points out and as the contemporary annals make clear, even in the first years of Anglo-Norman conquest Irish kings were capable of inflicting defeats on them[249]. Conflict with Anglo-Norman forces inevitably concentrated Irish minds and before the end of the 12th century even Giraldus noted that having been initially panic stricken by Anglo-Norman military superiority, the Irish had become "skilled and versed in handling arrows and other arms"[250]. At about the same time, in 1187, Irish annals record Conor Moinmoy O'Conor and Melaghlin Beg taking "arms, shields, coats of mail and horses" while destroying the castle of Killare, while in 1212-13 Cormac McArt O'Melaghlin is recorded as capturing shirts of mail, horses and other Anglo-Norman equipment in Westmeath[251]. Undoubtedly many similar incidents went unrecorded. At the same period, also, the earliest probable annalistic reference to archery among the Irish occurs[252], confirming Giraldus' statement that the Irish had adopted the use of the bow from the Anglo-Normans and from the early/mid-13th century the bow was clearly part of the arsenal of the Gaelic Irish.

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249. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', pp. 66-67.
250. Scott and Martin, *Expugnatio Hibernica*, p. 231.
251. *AFM.; A.Clon.*
252. *A.U. s.a.* 1206.

The employment of foreign mercenaries was another obvious channel of new military ideas and technology to the Gaelic Irish. Mention of foreign mercenaries inevitably brings Scottish gallowglass to mind and these were undoubtedly a major influence from the later 13th century onwards. However, as Simms points out, Anglo-Norman mercenaries were used by Irish kings in the late 12th and early 13th centuries[253]; indeed it was in a sense as mercenaries that the Anglo-Normans first arrived in Ireland[254]. Moreover, Irish kings had used Scandinavian and Hiberno-Norse mercenaries for centuries and the gallowglass must be seen as representing a continuation of this tradition rather than something radically new.

By the early 14th century, at the latest, the Anglo-Irish government was frequently making use of contingents supplied by Gaelic chieftains in its campaigns, and these often made up a considerable proportion of government forces - over half of the entire force on some occasions. Moreover, these forces are described in exactly the same terms (hobelars and foot, with occasional men-at-arms) as the Anglo-Irish themselves[255]. The only element which the Gaelic Irish still lacked was heavy cavalry but as was noted earlier, the practical usefulness of heavy cavalry in Irish warfare was extremely limited. Thus an approximate parity of military resources may have been reached by the end of the 13th century and possibly even earlier. In discussing attempts to pacify the Ui Conchobair of Offaly in the 1280's, Frame concluded that "the justiciars of the period were dealing with no unworthy enemy"[256]. Small wonder, then, that in the 14th century even such powerful magnates as the earls of Kildare and Ormond were anxious to recruit Gaelic lords as their retainers[257].

Armour

Anglo-Norman and Anglo-Irish armour of the 13th century has been discussed by Hunt, whose treatment remains the best available despite a definite aristocratic bias, being based on a small body of surviving figure sculpture with heavy reliance on foreign parallels[258]. The main body armour of knights continued to be the hauberk, reaching usually to the knees; hands were protected by mail mufflers and legs by stocking-like

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253. Simms, 'Warfare in the medieval Gaelic lordships', p. 106; Simms, *Gaelic lordships in Ulster*, p. 126.
254. A point also made by Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', pp. 67-68.
255. E.g. Frame, *The Dublin government and Gaelic Ireland*, pp. 8, 175-77, 332-33, 351-52, 454, 467; Frame, 'Military service in the lordship of Ireland', pp. 120-21.
256. Frame, *The Dublin government and Gaelic Ireland*, p. 110.
257. J.A. Watt, 'Gaelic polity and cultural identity', in Cosgrove, *Medieval Ireland 1169-1534*, pp. 325-28.
258. J. Hunt, *Irish medieval figure sculpture 1200-1600* (Dublin and London, 1974), pp. 21-32.

chausses of mail. Under the hauberk was worn a long padded gambeson or aketon, while a linen surcoat (of no defensive importance) was sometimes worn outside the hauberk. Over the head, throat and neck was a mail coif with padded leather cap or hood underneath. In addition a helmet or helm was worn in combat; this was usually of "barrel" or "great helm" type (cylindrical with flat top and slit openings for eyes and mouth) but there is evidence that the old conical *Spangenhelm* had not gone entirely out of use[259]. Shields of the period were now fully triangular, rather than kite-shaped, and tend to become broader and shorter over time. As noted above, there is some evidence that Gaelic warriors were using armour even before the Anglo-Norman invasion and this, together with the annalistic references to armour being captured from Anglo-Normans, makes it very likely that armour was being used by the Gaelic Irish in the 13th century. The extent of such use, however, is impossible to quantify.

Weaponry

Hunt's discussion of the weaponry of the 13th century is, however, inadequate[260]. Apart from swords - which were more diverse in form (particularly hilt form) than Hunt realised - there is evidence that Anglo-Normans and Anglo-Irish used maces with spiked heads of bronze while the use of other weapons such as axes, daggers and war-hammers is possible[261]. Above all, however, the spear or lance was the primary weapon of this period but apart from a small number of examples from datable excavated contexts medieval spearheads can rarely be identified. Three forms which have been identified are a quadrangular-sectioned, spike-like armour piercing form, a slender leaf-shaped form of thick lozenge section and a shouldered blade of lozenge section[262]. The most commonly represented weapon in the archaeological record, however, continues to be the bow and arrow, and for the first time there is clear evidence in the 13th century for the use of archery by the Gaelic Irish (see Chapter 2). As previously, swords, spearheads and axes were used by the Gaelic Irish as well as the Anglo-Irish and English. It is possible that Gaelic Irish weapons might be distinguishable from those of the Anglo-Irish by virtue of remaining within a broadly "Scandinavian" tradition, but further archaeological research is required to establish this.

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259. M.J. Moore, 'A ceramic head from Lady Lane, Waterford', in G. Mac Niocaill and P.F. Wallace (eds), *Keimelia: Studies in medieval archaeology and history in memory of Tom Delaney* (Galway, 1988), pp. 375-77.
260. Hunt, *Irish medieval figure sculpture*, p. 31.
261. Swords of the 13th century did not differ significantly from those of the late 12th century Anglo-Normans; see Halpin, 'Irish medieval swords', pp. 185-95; A. Halpin, 'Irish medieval bronze maceheads', in Mac Niocaill and Wallace, *Keimelia*, pp. 168-192; See A Halpin, *Irish medieval weapons, 1170-1600* (Unpublished M.A. thesis, National University of Ireland, 1983).
262. Halpin, *Irish medieval weapons*, pp. 64-75.

Frame has noted the almost total lack of evidence for the tactics employed by Anglo-Irish forces in the period 1272-1361 but at the level of strategy certain trends can be discerned. While "straightforward engagements with the enemy" (i.e. the Gaelic Irish) did take place on many occasions, he suggests that a more complex strategy was frequently employed, particularly in Leinster. This involved surrounding Gaelic territories with a series of wards or garrisons from which the Irish could be attacked, or at least harried, on several sides at once in order to compel them to submit[263]. This strategy was clearly employed by Richard II against MacMurchada in 1394 but Frame suggests that its use can be traced for at least a century earlier; he describes it as a response to the recurring difficulty of bringing the Gaelic Irish to open battle[264]. In many cases, however, Anglo-Irish commanders themselves showed little interest in pitched battle and were content to resort to harrying and even the traditional Irish cattle raid in order to discipline unruly Irish[265].

In Gaelic Irish warfare, tactical continuity between the pre-Norman period and the later Middle Ages can clearly be traced. The pattern of raiding warfare described by Simms as characteristic of late medieval Ireland[266] was clearly carried over from earlier periods and there is little evidence for fundamental tactical innovation in the later period. Improvements in military organisation and technology seem largely to have been employed within this traditional tactical framework. Combat tended to take the form of a running skirmish, rather than a standing fight, focussed on the interface between the rear of the retreating party (whether raider or victim) and the vanguard of the pursuing party. The really significant troops - the noble horsemen and gallowglass or other mercenaries - would be stationed in this interface, at the rear of the retreating force or at the head of the pursuers, a phenomenon already noted in the pre-Norman period (see above). Interestingly, Lucas concluded (on the basis of a statistical study of available annalistic records of cattle raids) that in such conflicts the pursuing party were far more likely to be victorious than the retreating raiders[267].

The 13th century probably witnessed a gradual increase in the use of armour among Gaelic nobility and their mercenaries, but there is little evidence that this led to

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263. Frame, *The Dublin government and Gaelic Ireland*, pp. 444-47; Frame, 'The defence of the English lordship', p. 87.

264. D.B. Johnston, *Richard II and Ireland, 1395-9* (Unpublished Ph.D. thesis, University of Dublin, 1976), pp. 68-69; Frame, *The Dublin government and Gaelic Ireland*, pp. 446-47.

265. Frame, 'The defence of the English lordship', p. 86.

266. Simms, 'Warfare in the medieval Gaelic lordships'.

267. Lucas, *Cattle in ancient Ireland*, p. 175.

any major changes in tactics or military organisation. For the remainder of the Middle Ages the distinctive tactics associated with raiding and counter-raiding continued to dominate Irish warfare. Simms suggests that gallowglass, as heavy infantry, may have acted as a moving line of defence in such conflicts, a base from which the horsemen could mount sallies and to which they could retreat, if necessary. This may, perhaps, be a new tactic facilitated by the increased proliferation of armour, but there is no reason why well armoured Hiberno-Norse or Scandinavian mercenaries could not have performed a similar role in the pre-Norman period.

The continued prevalence of pre-Norman raiding tactics should not necessarily be seen as indicating the military weakness or backwardness of the Gaelic Irish. Rather, it is a mark of how well suited such tactics were to the political, demographic, economic and environmental conditions prevailing in medieval Ireland, so much so that even the Anglo-Irish largely adapted to it (see below). Lucas' study, although entirely independent of Simms', essentially bears out her conclusions about the tactics and conduct of the military aspects of cattle raiding. Lucas also drew attention to the level of detailed planning and logistical arrangements which must have accompanied much of this raiding[268].

The late Middle Ages (c.1350-1550)

Warriors and military organisation

Contamine has argued that the later Middle Ages was a period in which warfare was unusually prominent and pervasive in all parts of Europe and at all levels of society[269]. Warfare was still dominated by the heavily armed knight or man-at-arms, who even if he often fought on foot was still essentially a horseman. The period sees a general increase in the weight and quality of armour used by men-at-arms and others; in particular, a fundamental shift from chain mail to solid plate armour began to occur in the late 13th/early 14th century and plate armour rapidly became widespread after 1350[270]. While obligatory military service (no longer strictly feudal service, of course)

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268. *Ibid.*, pp. 125-99; see especially pp. 154-59, 173, 177-80.
269. Contamine, *War in the Middle Ages*, pp. 119-26.
270. *Ibid.*, p. 127; Hunt, *Irish medieval figure sculpture*, pp. 15-16.

was still an important source of military manpower, this period witnessed an increasing use of hired troops as well as the first permanent armies[271].

Although the heavy horseman was still predominant, light cavalry were also frequently used, especially in peripheral areas of Europe (the Irish hobelar being a good example). While infantry usually outnumbered cavalry by 3:1 or 4:1 in most European armies up to the mid-14th century, Contamine suggests that a partial decline in both the numbers and importance of infantry can be seen from the mid-14th to mid-15th century. Thereafter the use of infantry increased again, on a more massive scale and more specialised and better organised basis than in earlier medieval Europe. Swiss infantry enjoyed a particularly high reputation from the late 14th century onwards and their example was followed elsewhere, such as German *Landsknechte* and Burgundian forces of the later 15th century. These late medieval infantry corps were better equipped than their earlier predecessors to resist cavalry attacks and this in turn forced the knightly nobility to adopt new modes of combat. This period also, of course, witnessed the advent of firearms; the earliest evidence for their relatively widespread use in western Europe occurs from the first half of the 14th century. The 15th century saw increases both in the size and numbers of artillery pieces in use in Europe[272].

The 14th century sees the beginning of a significant change in military emphasis in Ireland. The Statute of Winchester of 1285 was enacted in Ireland in 1308 as a legislative attempt to encourage an adequate supply of arms and proficiency in their use among the colonists. The wealthier landholders were still required to equip themselves to function as cavalry but all those whose property was valued at between 40s and 100s yearly were required to have bows and arrows[273]. This seems to represent a much larger social grouping than the potential archers defined some 50 years earlier in Geoffrey de Geneville's provisions for Meath (see above) and may indicate a deliberate effort to enlarge the pool of archers, as it almost certainly did in England. It is well known that from the late 13th century the importance of archery was increasingly emphasised in England, so much so that the longbow is regarded as the veritable "national weapon" of late medieval England. Other forms of troops, notably the hobelar, were largely replaced by both mounted and foot archers, although nobility and gentry continued to function mainly as heavy cavalry. English historians such as Prestwich argue that the early years of Edward III's reign (1327-77) witnessed a fundamental shift in English military policy toward smaller, better equipped armies in which the infantry were

271. Contamine, *War in the Middle Ages*, pp. 150-172.
272. *Ibid.*, pp. 128, 132-37, 139-42, 148-49.
273. Berry, *Statute and ordinances: John to Henry V*, p. 256.

dominated by archers[274]. English forces of the later medieval period are usually described as consisting entirely of men-at-arms and archers in ratios of between 1:3 and 1:7 (see below).

The same is true of English forces in Ireland. From the mid-14th century the chief governors of Ireland almost invariably employed more or less permanent retinues, usually English and composed exclusively of men-at-arms and archers; in the 15th century the royal army was composed almost exclusively of archers (see Chapter 2). These retinues clearly have an important place in the military history of medieval Ireland but they are in many respects a foreign phenomenon and do not fully reflect the military situation in Ireland, which was more complex. There are indications in the mid-14th century that Ireland was lagging behind England in shifting its military emphasis to archery (see Chapter 2), although in time official thinking followed England and shifted to an almost exclusive reliance on archery for the colony's defence. Frame, noting the limited usefulness of traditional heavy cavalry in Irish conditions, claims that the numbers of men-at-arms in Irish armies "declined steeply during the fourteenth century"[275]. Nevertheless account rolls of justiciars' expeditions within Ireland in 1331-33 and 1341-42 suggest that their forces were largely of cavalry, both light and heavy. Archers are rarely mentioned, although some were undoubtedly included in the infantry; at one point in a 1342 campaign the entire complement of foot was 50 archers[276]. Furthermore, the replacement of the hobelar by the mounted archer (which happened almost universally in England from the 1330s) was not really paralleled in Ireland, where references to hobelars continue to occur into the 15th century[277].

15th and 16th century documents speak of the indigenous military forces of the Pale almost entirely in terms of cavalry and archers. In the 1470's, when the colony had to provide for its own defence for the first time in a century and a half, the retinues which it established consisted solely of archers and smaller numbers of horsemen or "spears"[278]. The report on the *State of Ireland, and Plan for its Reformation*, dated 1515 but possibly largely based on the late

274. Prestwich, *Armies and warfare in the Middle Ages*, pp. 117-19.
275. Frame, *The Dublin government and Gaelic Ireland*, pp. 2-3.
276. *43rd Report of the Deputy Keeper of the Public Records in Ireland*, pp. 53-57; *47th Rep.*, p. 64; *53rd Rep.*, pp. 44-46; *53rd Rep.*, pp. 45-46.
277. Frame, *The Dublin government and Gaelic Ireland*, p. 5; E. Tresham (ed.), *Rotulorum patentium et clausorum cancellariae Hiberniae calendarium: Vol. i, pars 1: Hen. II - Hen. VII* (Dublin, 1828), p. 193a: no.168.
278. J.F. Morrissey (ed.), *Statute rolls of the parliament of Ireland: reign of King Edward IV* (Dublin, 1939), pp. 131-37; 189-95.

15th/early 16th century work *Salus Populi* of Pander, bemoans the fact that the Anglo-Irish colonists had "refusyd ther owne armure and waypyn, that is to saye, speres and bowes, after thEnglyshe maner, wher wyth they dyd wynne and conquyre the landes"[279]. "Speres and bowes" in this context can be taken as shorthand for cavalry and archers.

Evidently matters were not quite as bad as the writer claimed, however, for later in the 16th century the military capacity of the Pale is still described primarily in terms of cavalry and archers. In 1548 a force to be raised by the lords of the Pale at Trim is given as 120 archers and 52 horse, assisted by 60 kern[280]. Even within the Pale, there is clear evidence in the 16th century for a definite distinction between the core areas of Meath and Dublin, whose military turnout consisted almost entirely of archers and horsemen after the English fashion, and the more peripheral areas of Kildare, Westmeath and Louth, whose turnout mainly featured Irish-style horsemen, gallowglass and kern. This is clearly seen in ordinances enacted during the Fitzgerald revolt in 1534 and in the Lord Deputy's instructions for a hosting of the Pale counties at Rathescar, (Co. Louth?) in 1556[281].

Other forms of infantry were also employed, however, even in the Pale. A force from the town of Drogheda in 1468 included, in addition to 500 archers, 200 "polaxes & pans"; "pans" is suggested to refer to panches, or breastplates, while "polaxes" probably covers a variety of staff weapons including bills, halberds and glaives as well as poleaxes[282]. Such weapons, largely derived from agricultural implements, were the armament of the lowest ranks of late medieval infantry, below even the archers in the military pecking order. Thus the 1515 report recommends that "every man, that cannot shoote with an arrowe, ne spere, be chargeyd with byll or glaye"[283]. The Drogheda force of infantry with staff weapons and archers represents a typically English "bills and bows" formation[284].

279. *State papers published under the authority of His Majesty's Commission, Vol. ii: King Henry the Eighth, Part III* (London, 1834), p. 12.
280. *Calendar of the State Papers of Ireland, 1509-73*, p. 84.
281. *State papers...Henry the Eighth, Part III*, pp. 212-14; J.T. Gilbert (ed.), *Facsimiles of national manuscripts of Ireland*, Part IV.i (London, 1882), App. V.
282. D. Mac Iomhair, 'Two old Drogheda chronicles', *Journal of the Co. Louth Archaeological Society* **15**, (1961-64), p. 91.
283. *State papers...Henry the Eighth, Part III*, p. 19.
284. See G.A. Hayes-McCoy, *Irish battles* (London, 1969), pp. 57-58.

The 1515 report also recommends that the "rude comyn folke" be taught to use crossbows or guns, since (in contrast to the longbow) these weapons could be mastered with a minimum of training[285]. Firearms were ultimately to revolutionise every aspect of warfare. Although artillery pieces had been sporadically used in Ireland since 1361, it was only in the late 15th century that both artillery and handguns become in any sense a significant feature of warfare in Ireland. By c.1480 it seems that the earl of Desmond could muster a "battle" (battalion) of crossbowmen and gunners; even more surprisingly there is a reference to an O'Donnell shooting an O'Rourke with a gun in 1487, indicating that at least some of the Gaelic Irish were already using guns at this date[286]. In 1521 Lord Lieutenant Surrey made effective use of artillery in campaigning against O'Connor and O'Carroll in Offaly but it was noted that O'Connor had gunners (possibly handgunners) of his own who did a certain amount of damage to the English[287].

Artillery is generally thought to have come of age in Ireland in the FitzGerald revolt of 1534-35 but the development of handguns in Ireland has yet to be assessed[288]. The 1515 report recommended an English retinue for the Lord Deputy which included "100 gonners, all on horsseback"; the author also stated (in terms which ironically echo what the Irish parliament of 1460 said about the longbow; see Chapter 2) that

> the wylde Iryshe and Englyshe rebelles of all this lande, dothe dreade
> more, and fereyth the sodden shote of gonnes muche more, then the
> shotte of arrowes, or any other shotte of kynde of waypyn in this
> worlde[289].

However, it was not until well into the second half of the 16th century that handguns were decisively adopted by English armies in Ireland (see below) and it may well be that this change occurred even later for native Irish forces.

The competition between archery and cavalry as the cornerstone of military strategy is a major theme of most English medieval military histories. It is of less relevance in later medieval Ireland, however, as in many parts of the colony both archery and cavalry seem to have been largely overtaken by the military system which had evolved in the Gaelic areas of the country. Official policy does not always reflect

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285. *State papers...Henry the Eighth, Part III*, p. 20.
286. S. de hOir, 'Guns in medieval and Tudor Ireland', *Irish Sword* 15 (1982-83), pp. 80-82; G.A. Hayes McCoy, 'The early history of guns in Ireland', *Journal of the Galway Archaeological and Historical Society* 18 (1938-39), pp. 47-52.
287. *State papers...Henry the Eighth, Part III*, pp. 79-80.
288. Hayes McCoy, 'The early history of guns in Ireland', pp. 53-56.
289. *State papers...Henry the Eighth, Part III*, pp. 19-20.

reality on the ground and it is clear that outside of the core of the Pale, Anglo-Irish magnates tended increasingly to adopt Gaelic military techniques in the later medieval period. The earls of Kildare, for instance, relied almost exclusively on gallowglass and kern in the later 15th and early 16th centuries, even as chief governors. The 1515 report on the *"State of Ireland..."* complained bitterly of Kildare as Deputy that instead of a proper retinue, defined as "a strong garde on horsseback of sperys and bowes, well garnyssheid, after the Englyshe maner", he made use of "a multytude of Iryshe galloglagheis, and a multytude of Iryshe kernne and speres, with infynyt nombre of horsseladdes"[290].

Even the Butlers of Ormond followed the Irish pattern, to the extent that the earls of Ormond had to take a series of measures in the 15th and 16th centuries to regulate the billeting of gallowglass and kern on the counties of Kilkenny and Tipperary[291]. In the 1535 campaign against Fitzgerald, Lord Deputy Skeffington employed "1000 kerne, many horsemen, and galloglas" and it was noted by Councillors Aylmer and Alen that the war "must be most executed by kerne". In this case, however, the reason for the reliance on kern seems to have been their greater capacity to endure the hardships of winter campaigning[292].

The Anglo-Irish nobility themselves seem to have continued to fight as horsemen more or less in the English manner (see below) but it is not clear what was the normal mode of fighting of late medieval Anglo-Irish commoners outside of the Pale. There is little evidence that they provided substantial bodies of archers or other infantry but it seems unlikely that they were classed as kern. Perhaps the reality is that outside of the Pale and the towns, the Anglo-Irish commoner was a rare breed in the late Middle Ages. The 1515 report bemoans the fact that "the moste parte of all thEnglyshe tenauntes hadde avoydeyd the lande" because of the extortions of coyne and livery; as a result "all Englyshe mennis landes" were largely occupied by Irish tenants, with serious implications for the security of the colony[293]. If this claim bears any resemblance to the truth the reason both for the apparent lack of an English-style popular archery tradition outside the Pale and for the use of Gaelic-style troops by Anglo-Irish magnates becomes obvious.

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290. S.G. Ellis, *Reform and revival: English government in Ireland, 1470-1534* (Woodbridge, 1986), pp. 54-55; *State papers...Henry the Eighth, Part III*, pp. 12-13.
291. C.A. Empey and K. Simms, 'The ordinances of the White Earl and the problem of coign in the later Middle Ages', *Proceedings of the Royal Irish Academy* 75C (1975), pp. 167-71, 174-78.
292. *State papers...Henry the Eighth, Part III*, p. 261, 265-66.
293. *Ibid.*, p. 12.

Contemporary sources identify three types of warrior in Gaelic Irish forces of the late Middle Ages: the noble warrior (usually a horseman), gallowglass and kern[294]. As noted previously, noble horsemen, kern and foreign mercenaries are all attested in Ireland by the early 12th century, if not even earlier. Thus there is little that is new in the composition of Gaelic military forces of the later medieval period and, as will be seen later, the same can be said about military tactics. In the later medieval period the Gaelic nobility normally fought on horseback and were, for Simms, "the real striking force in an Irish troop"; Watt stresses the quality of the horses available to such nobles[295]. However, one annalistic entry concerning a late 15th century Ó Domhnaill army seems to indicate that the horsemen's role was secondary to that of the gallowglass: According to *AFM* (*s.a.* 1495) it was the function of the axe men (*tuagh*; presumably gallowglass or Irishmen performing the same function) to make a standing fight (*fri hairisemh & fri hiombualadh*) while the function of the horsemen (*marcach*) was to follow up the rout and take prisoners (*fri tograimh & tarrachtain lochta madhma*). Simms sees the horsemen's role as more important than this, especially in the highly mobile combat of the raids which were so prominent a part of medieval Irish warfare.

While gallowglass, as such, were first employed in Ireland in the 13th century, they can hardly be regarded as a new phenomenon but rather represent a continuation of the tradition of employing Scandinavian and Hiberno-Norse mercenaries. The continued use of gallowglass mercenaries down to the late 16th century has left a substantial body of historical and archaeological evidence behind. Relatively plentiful contemporary descriptions establish, at least for the 15th and 16th centuries, that gallowglass were well-armoured foot soldiers armed with sword and/or axe, knife and spears or darts[296]. Again, it should be stressed that in terms of armour and weaponry, this picture differs little from that of well-armed Hiberno-Norse warriors in pre-Norman sources such as *Cogadh* and *Caithréim*. Similarly, the picture of late medieval kern derived from a range of historical and archaeological sources (see below) is not very different from Giraldus' description of Irish warriors in the late 12th century[297] or even

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294. See S. O Domhnaill, 'Warfare in sixteenth-century Ireland', *Irish Historical Studies* 5 (1946), pp. 36-38; Simms, 'Warfare in the medieval Gaelic lordships', pp. 104-07; Harbison, 'Native arms and armour in medieval Gaelic literature', pp. 280-83.
295. Simms, 'Warfare in the medieval Gaelic lordships', p. 106-08; Watt, 'Gaelic polity and cultural identity', pp. 329-30.
296. E.g. G.A. Hayes McCoy, *Scots mercenary forces in Ireland* (Dublin and London, 1937), pp. 102-06; A. McKerral, 'West Highland mercenaries in Ireland', *Scottish Historical Review* 30, No. 109 (1951), pp. 10-13; Simms, 'Warfare in the medieval Gaelic lordships', pp. 106-07; Harbison, 'Native arms and armour in medieval Gaelic literature', p. 282.
297. O'Meara, *The history and topography of Ireland*, p. 101: "they go naked and unarmed into battle ... They use ... short spears, two darts and big axes...".

to 9th century descriptions of the typical warrior's arsenal of a shield, a sword and one or two spears (see above). The major difference in this case is that the 9th century warriors were nobles and the late medieval kern were not; this apart, however, kern can perhaps be seen as in some respects a late medieval continuation of the Gaelic warrior tradition of the early medieval period.

Armour

To late medieval English eyes, the Anglo-Irish, even within the Pale, tended to use forms of armour and weapons which were seen to be suspiciously "Irish" and a series of official documents bemoan this. Perhaps the best known, the 1515 report on the *State of Ireland...*, makes the claim that

> Englyshe men hath refusyd ther owne armure and waypyn, that is to saye, speres and bowes, after thEnglyshe maner, wher wyth they dyd wynne and conquyre the landes, and hathe chosen to them harneys and armoyre, speres and bowes, after the Iryshe maner, wherby they hathe loste unto lytyll all the lande[298].

Archaeological evidence for the armour and weapons of late medieval Ireland goes some way to explain such statements, while not entirely supporting them. Anglo-Irish effigies of the period 1450-1570 almost invariably depict an armour consisting of a pair of plates (an early form of plate armour for the torso) over a mail habergeon, with separate plate defences for arms (cowters, vambraces) and legs (cuisses, poleyns, greaves) and a visored bascinet (helmet) worn over a mantle of mail (pisane) covering throat and shoulders. This style of armour would, in broad European terms, normally be dated to around the late 14th century yet it appears on Irish effigies throughout the late medieval period and into the second half of the 16th century. Indeed some effigies, such as the Eustace effigy, apparently of early 16th century date, at Ballymore Eustace, Co Kildare and the Grace effigy of 1552 at St Canice's cathedral, Kilkenny, depict armour of even earlier appearance. Hunt gives prominence to the 1515 report and other similar statements in discussing whether these effigies should be regarded as artistic anachronisms, and concludes that such contemporary statements provide strong confirmation for the accuracy of the sculptural evidence[299].

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298. Cosgrove, 'The emergence of the Pale', p. 12.
299. Hunt, *Irish medieval figure sculpture*, pp. 16, 61-67, 76-77, 153, 189, Pls. 142, 153.

Hunt, in fact, suggested that in some respects the Anglo-Irish armours are actually not as outdated as has been claimed and may not have been very different from contemporary provincial usage in England or on the continent[300]. Nevertheless they were apparently sufficiently different from state-of-the-art standards in centres of power in England to give rise to the common late 15th/16th century statements that the Anglo-Irish had adopted Irish armour. In reality, it is impossible to argue that there is anything "Irish" (in the sense of Gaelic Irish) about these armours. Such little information as we have suggests that the prevailing style of armour at this date among the Gaelic Irish and their gallowglass mercenaries was slightly but perceptibly different from the Anglo-Irish pattern. Such subtle distinctions, however, were quite possibly lost on prejudiced English observers who were only too ready to attribute anything different to pernicious Irish influences.

Armour was not unknown even among the pre-Norman Gaelic nobility and its prevalence among the Irish no doubt increased gradually from the Anglo-Norman invasion. A small number of late medieval effigial monuments show Gaelic nobles in armour, and these provide perhaps the best evidence for the types of armour worn. There is little to distinguish the forms of armour depicted on these Gaelic effigies from those on the more numerous Anglo-Irish effigies but some differences do exist. Of course one should not expect Gaelic/Anglo-Irish distinctions to be rigidly and uniformly maintained, but the fact that distinctions can be discerned at all is significant and indicates that the Gaelic effigies are not merely slavish copies of the latter. The main differences are:

(a)   Habergeons on Gaelic effigies tend to be longer, descending almost to the knees - almost a hauberk, in effect - as are the aketons underneath; Anglo-Irish effigies display short habergeons with no aketon visible.

(b)   Gaelic effigies tend not to have "pair of plate" defences over the habergeon or separate plate defences for legs and arms. The latter were presumably unnecessary because of the greater length of the habergeon.

(c)   Bascinets on Gaelic effigies are usually not visored.

As noted above, these are not hard and fast distinctions. The effigy of Malachy MacOwny O'More (1502) at Abbeyleix displays armour precisely similar to Anglo-Irish effigies of the "Ossory school". The early 16th century MacGillapatrick effigy at Fertagh, Co Kilkenny displays both a pair of plates and plate defences on the legs,

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300. *Ibid.*, pp. 66-67.

although otherwise it conforms to the Gaelic pattern[301]. Furthermore the finest example of this "Gaelic" pattern is the effigy at Glinsk, Co. Galway, traditionally thought to represent a member of the Anglo-Irish Burke family. This attribution tends to find support in the fact that at least one of the figures illustrated in the later 16th century manuscript, the *Book of the Burkes* appears in similar armour. Few Anglo-Irish families were more likely to be influenced by Gaelic culture than the Burkes of Connacht, however, and they should probably not be considered typical of the Anglo-Irish as a whole. The exceptional nature of the Glinsk effigy is borne out by the fact that the sword depicted is a Gaelic/gallowglass form not noted on any other Anglo-Irish effigy[302].

The armour of the Glinsk effigy may paradoxically be taken as a particularly good example of what was likely to be worn by late medieval Gaelic nobles. This is confirmed by Harbison's survey of narrative descriptions of armour from Gaelic literature of this period, which present a strikingly consistent picture, as far as the main details are concerned. Each subject described wears a coat of mail (*lúirech*), probably a hauberk rather than a habergeon, over an aketon or gambeson (*cotún*) with a pisane (*sgabal/muince*) on the neck and shoulders and a helmet (*cathbharr/clogat/cinnbeirt*) on the head. The descriptions quoted by Harbison range in date from the late 13th/early 14th century to the 17th century and their consistency, backed up by the effigies and other representational evidence presented by Harbison, suggests that this set of equipment was that typically worn by Gaelic nobles[303]. An unvarying, regulated uniformity of equipment is not to be expected, however.

Not only was the armour of Gaelic nobles similar to that of their Anglo-Irish counterparts but it was also practically indistinguishable from that worn by their gallowglass mercenaries. The armour on the Glinsk effigy is exactly similar to that worn by figures thought to be gallowglass on the late 15th century O'Connor tomb-front at Roscommon. These figures in turn closely resemble those on the tomb-front at Dungiven, Co. Derry, also identified as gallowglass; the only difference between the Glinsk and Dungiven figures is that the latter have no habergeons over their aketons, in which they follow the example of the main effigy on this tomb, thought to represent an O'Cahan[304]. Dürer's drawing of Irish warriors, dated 1521, includes two armoured figures who most likely (because of their weaponry) represent gallowglass but could

301. *Ibid.*, p. 198, Pl. 156; p. 166, Pl. 152; p. 150.
302. *Ibid.*, p. 150, Pl. 169; Harbison, 'Native arms and armour in medieval Gaelic literature', Fig.8; Halpin, 'Irish medieval swords', pp. 205-07.
303. Harbison, 'Native arms and armour in medieval Gaelic literature', pp. 174-80; Figs 1-8.
304. Hunt, *Irish medieval figure sculpture*, p. 216, Pl. 250-51; p. 131, Pl. 248-49; pp. 130-31, Pl. 168.

equally be considered as Irish nobles on the basis of their armour, which is practically identical to that displayed on the effigies at Glinsk and at Dungiven (see Fig. 4). The evidence of the O'Cahan tomb at Dungiven and Dürer's drawing, suggesting that on occasion the body armour was merely an aketon without mail hauberk, recalls *Caithréim's* early 12th century description of the warriors of Munster fighting in their *cotúin* without other armour, a practice also noted in other parts of Europe[305].

Weaponry

The figures represented on the Anglo-Irish effigies discussed above are, of course, almost entirely aristocratic and would have fought as horsemen. As with their Anglo-Norman predecessors, their main weapon would have been the lance or spear; indeed horsemen are frequently referred to in late medieval documents as "spears"[306]. Unfortunately we know nothing about the forms of spears or lances used at this date. We do not even know whether later medieval Anglo-Irish horsemen normally used the cavalry charge with couched lances or fought as Gaelic-style cavalry, holding spears overarm; official references to the Anglo-Irish using "speres...after the Iryshe maner" suggests that the latter may have been the case on occasion, although it could alternatively be a reference to different forms of spear[307]. The other main weapon of Anglo-Irish horsemen was the sword, which is well represented on effigies. The swords depicted are, in the main, single-hand swords as would be expected for horsemen. They are remarkable chiefly in that they are consistently different from either of the known series of surviving swords, which are both clearly of Gaelic/gallowglass background; the Anglo-Irish swords conform more closely to common European styles but no surviving examples are known[308]. The only other weapon commonly carried by Anglo-Irish horsemen were daggers, depicted on the Tuite effigy of 1363 at Kentstown and the Preston effigy of *c.*1540 at Stamullen, both in Co. Meath. Daggers of various forms, in fact, constitute practically the only surviving weaponry of this period which can be considered of Anglo-Irish background[309].

The equipment of late medieval Anglo-Irish commoners must be derived from historical sources. Archers obviously were armed with bows and arrows, but other

305. Bugge, *Caithreim Cellachain Caisil*, pp. 64-66; Blair, *European armour*, pp. 32-33.
306. E.g. Morrissey, *Statute rolls: Edward IV,* pp. 131-37; *State papers...Henry the Eighth, Part III*, pp. 12, 22.
307. *Historic Manuscripts Commission Report*, no.9 (1883-84), Appendix, p. 272; *State papers...Henry the Eighth, Part III*, p. 12.
308. Halpin, 'Irish medieval swords', pp. 193-94, 215-16.
309. Hunt, *Irish medieval figure sculpture*, pp. 206-07, Pl. 113; p. 215, Pl.146; Halpin, *Irish medieval weapons*, pp. 35-36.

weapons and armour are also indicated. The 1515 report recalls that the normal weaponry and armour of commoners had always been "bowes and arrowes, after thEnglyshe maner (i.e. longbows), swerdes and buklers (small shields), jakkes (body armour, generally a canvas doublet into which iron plates were sewn or fixed) and salettes (helmets)" and this is largely confirmed by other sources. In 1454 Dublin's city council ordered that all apprentices must possess bows, arrows and swords before being admitted as freemen, while merchant's apprentices must in addition have a jack and sallet. An act of parliament in 1495 specified a jack, sallet, English bow (i.e. longbow) and arrows as the basic equipment to be possessed by the commons or provided by the nobility to yeomen in their households[310]. The poorer commons were probably armed with staff weapons such as bills and glaives, as noted earlier; little is known of the forms of such weapons in use in late medieval Ireland. It is likely that little, if any, armour was worn by such forces. Ordinances enacted in 1534 during the Fitzgerald revolt specified the armour and weapons of three classes of commoners:

- those with goods of £10-£20 value were to have "a jacke or coote of defence, a bowe, a sheve of arrowes, and a byll, a sallet, or a sculle"

- those with goods of £4-£10 value were to have "a bowe, halfe a shefe of arrowes, a byll, and a sallet, or a scull"

- hired men earning above 13s 4d yearly were to have "a byll and a scull, or bowe and arrowes"[311].

In terms of weapons, as with armour, there is little difference (at least on paper) between the later medieval Gaelic nobility and their Anglo-Irish counterparts. Later medieval accounts almost invariably describe Gaelic noble horsemen as armed with spear, shield, sword and knife and as wearing mail armour and helmets. In the contemporary descriptions presented by Harbison every noble warrior is described as armed with a sword and one or more spears, which may be taken as the basic equipment of any noble Irishman (as it was since the pre-Viking period)[312]. Many of the warriors are also described as having daggers and javelins. However, there is clear evidence that right to the end of the Middle Ages the Gaelic horseman did not use his spear in the couched position - indeed the lack of saddle and stirrups would not have permitted this - but rather held it in an overarm position, either for throwing or thrusting[313]. Thus it is unlikely that Gaelic horsemen functioned as true heavy cavalry in terms of exploiting

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310. *State papers...Henry the Eighth, Part III*, p. 12.; J.T. Gilbert (ed.), *Calendar of ancient records of Dublin*, vol. i (Dublin, 1889), pp. 141-42; F. Vesey (ed.), *The statutes at large, passed in the parliaments held in Ireland*, vol. i: 1310-1612 (Dublin, 1765), p. 48.
311. *State papers...Henry the Eighth, Part III*, pp. 208-09.
312. Harbison, 'Native arms and armour in medieval Gaelic literature', pp. 174-80.
313. *Ibid.*, p. 281; Simms, 'Warfare in the medieval Gaelic lordships', p. 106.

the cavalry charge - although in the later medieval period it is also open to question whether their Anglo-Irish counterparts did. The weapons carried by Irish horsemen serving under Thomas Butler, prior of Kilmainham, at the siege of Rouen in 1418 did not impress a contemporary French chronicler, who noted that they were "without any arms that could much hurt the French whenever they might meet them", although he did remark on their excellent horsemanship[314].

The gallowglass have left a particularly strong mark on the archaeological record in terms of weaponry. A number of surviving medieval axeheads, clearly late versions of the Viking tradition and including two fine ceremonial weapons, may plausibly be considered as gallowglass weapons, although use by the Gaelic Irish as well cannot be ruled out[315]. Furthermore a substantial body of swords, representing over a third of all post-Norman swords known from Ireland and previously dated to the 16th century, can be shown to be mainly of 15th century date, ultimately of Scottish origin and almost certainly gallowglass weapons, although there is evidence that the Irish also used them[316]. The general difficulties in relation to spearheads, mentioned previously, prevent any surviving gallowglass spear forms from being identified. Nevertheless in archaeological terms Scottish influence in the known assemblage of later medieval weaponry is remarkably prominent, and even if gallowglass were not the actual owners of the surviving weapons in every case, they must be seen as the primary cause of this Scottish influence. This provides very strong evidence for the importance of the gallowglass as a factor in later medieval Irish warfare.

16th century descriptions of kern depict them as unarmoured and armed with a sword or knife, perhaps bow and arrows, a number (usually three) of spears or darts and a shield[317]. Illustrations such as Dürer's drawing of 1521 (Fig. 4), an anonymous English woodcut of *temp.* Henry VIII[318] and those in Derricke's *Image of Ireland* of 1581, confirm the written evidence. Figures who may probably or certainly be identified as kern are shown without any armour and armed with swords, knives, long-

314. A. Cosgrove, 'England and Ireland, 1399-1447', in Cosgrove, *Medieval Ireland 1169-1534*, pp. 527-28.
315. Halpin, *Irish medieval weapons*, pp. 80-86; see also G.A. Hayes-McCoy, 'The *galloglach* axe', *Journal of the Galway Archaeological and Historical Society* 17 (1937), pp. 101-121 and A. Mahr, 'The *galloglach* axe', *Journal of the Galway Archaeological and Historical Society* 18 (1938), pp. 66-68.
316. Halpin, 'Irish medieval swords', pp. 195-207; J.G. Mann, 'A late medieval sword from Ireland', *Antiquaries' Journal* 24 (1944), pp. 94-99; G.A. Hayes-McCoy, *Sixteenth-century Irish swords in the National Museum of Ireland* (Dublin, 1977).
317. O Domhnaill, 'Warfare in sixteenth-century Ireland', p. 37; Harbison, 'Native arms and armour in medieval Gaelic literature', p. 281.
318. Reproduced in Halpin, 'Irish medieval swords', Pl. VI.

handled axes and spears. This is further confirmed by archaeological evidence, which includes a series of distinctively Irish 16th century swords, a number of battle axes of Scottish/Irish type and ultimate Viking origin and a large number of long, single-edged knife-daggers, the *scian* or skeine of medieval sources. All of these strikingly resemble weapons depicted in the illustrations of kern.

Tactics

The changes in warrior types of the later Middle Ages pose several interesting questions in relation to tactics. For instance, in the European context the main functions of corps of archers at this date included stopping cavalry charges and breaking up massed bodies of armoured men-at-arms, but it is highly unlikely that Anglo-Irish or English archers in Ireland ever had to face such situations. What, therefore, were their tactical functions? Hayes-McCoy argues that at Knockdoe in 1504 the earl of Kildare employed the archers and billmen of the Pale in a typically English formation (billmen in the centre, flanked by bodies of archers) to withstand the onslaught of Ulick Burke's Irish and gallowglass infantry[319]. Knockdoe, however, stands out as perhaps the only occasion in the later medieval period when such tactics could have been employed in Ireland. Nevertheless, given the tremendous power of the longbow and the flexibility with which it could have been used, good archers would undoubtedly have proved invaluable in almost any tactical situation and it is likely that the archers of the Pale and of the governors' retinues saw much effective service in the context of patrols, raids and skirmishes which largely defined warfare in later medieval Ireland.

The increasing use of Gaelic troops, or troops after the Gaelic manner, by the Anglo-Irish magnates, which seems to have become almost universal by the later 15th century, raises another question: Was there any difference in the tactical use to which such troops were put by Anglo-Irish, as opposed to Gaelic lords? Almost certainly the answer is in the negative and it is likely that the Anglo-Irish came to use Gaelic-style troops precisely because they were increasingly adapting to Gaelic-style warfare and tactics. Indeed a combination of environmental, demographic and economic factors must inevitably have left the Anglo-Irish with very little option but to make this adaptation. Lydon notes that "the taking of preys of cattle became almost as much a part of Anglo-Ireland as it traditionally was of Gaelic Ireland", and that "taking preys of cattle was now a principal feature of Irish warfare, amongst the Anglo-Irish no less than in Gaelic Ireland"[320]. Lucas suggests that Anglo-Irish magnates, even of such standing

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319. G.A. Hayes-McCoy, *Irish battles*, pp. 57-61.
320. J.F. Lydon, *Ireland in the later Middle Ages* (Dublin, 1973), pp. 69, 133.

as the earl of Ormond, may have adopted the Gaelic custom of the "inauguration raid", a cattle raid on a neighbouring rival territory made by a new ruler in order to signal his accession to power[321]. Frame notes that even the 'official' wars waged by the government in Dublin "were mostly of a similar type" to the traditional Gaelic cattle raid[322].

However, we have seen that right to the end of the Middle Ages the Anglo-Irish commons of the Pale heartlands of Dublin and Meath maintained a distinctively English military tradition based on archery. Was the same true of their lords, both within and without the Pale? Did the Anglo-Irish nobility themselves fight like English men-at-arms or like Gaelic mounted nobles? There is almost no information available to help answer this question but apart from anything else sheer lack of numbers must have made it difficult for the Anglo-Irish to fight in an English mode, which demanded co-ordinated action by substantial numbers of men-at-arms, whether mounted or dismounted. The implication that the Anglo-Irish nobility probably fought more in a Gaelic than an English mode must, however, be taken only as the most tentative of suggestions.

The Gaelic military "revival"

One of the major features of the later medieval period in Ireland was a Gaelic recovery which saw substantial areas of the country, occupied in the initial Anglo-Norman advance, reverting to Gaelic control. Many writers have suggested that this recovery was at least partly based upon a military "revival", which saw the Gaelic Irish for the first time able to match the Anglo-Irish militarily. Hayes-McCoy presented the battle of Dysert O'Dea in 1318 as an indicator of profound changes which had taken place, presumably during the 13th century: Increasing militarisation and improved military technology (mainly increased use of armour) had produced a situation where, for the first time, the Gaelic Irish were able to stand firm in an open fight against the Anglo-Normans and defeat them. Other historians such as Frame and Lydon have also pointed to contact and conflict with the Anglo-Normans and with Scottish gallowglass mercenaries as a contributory factor in this Gaelic military revival[323].

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321. Lucas, *Cattle in ancient Ireland*, pp. 146-47.
322. Frame, 'Military service in the lordship of Ireland', p. 101.
323. Hayes-McCoy, *Irish battles*, pp. 35-46; Frame, 'War and peace in the medieval lordship of Ireland', pp. 123-24; J.F. Lydon, 'A land of war', in Cosgrove, *Medieval Ireland 1169-1534*, pp. 240-41.

The changes visible in the 14th century may not have been quite as revolutionary as Hayes-McCoy seems to suggest, however. The Irish were able to inflict military defeats on the Anglo-Normans long before 1318; two occasions which spring to mind are Áth-in-Chip in 1270 and Thurles, as early as 1174. Although we know nothing about the forces or tactics involved in these battles, they should serve to warn us not to underestimate the military and tactical capacity of the Gaelic Irish in the 13th and even 12th centuries. It is simplistic to imagine that prior to a certain date (when armour had become sufficiently widespread) the Gaelic Irish were incapable of matching the Anglo-Normans in open battle.

Irish leaders were by no means unique in regarding battle as a risk best avoided unless one was confident of success[324]. Armour, although undoubtedly important, was just one of the factors which might tip the balance of advantage in favour of one or other side in battle. Other factors, such as favourable terrain or numerical superiority, were available on occasion to the Gaelic Irish from the very outset of the Anglo-Norman invasion. In any given situation a leader, whether Gaelic or Anglo-Norman, would normally choose either to seek battle or to avoid it on the basis of an assessment of where the overall balance of advantage lay. Thus, for instance, when marching from Waterford to Dublin in 1170, Strongbow, even though he led a relatively large Anglo-Norman force and the army of Diarmaid MacMurchada, chose to take to the Wicklow mountains in order to avoid confrontation with the waiting forces of Ruairi Ó Conchobhair[325]. Flanagan points out that in the lead up to Ó Conchobhair's defeat of the Anglo-Normans at Thurles in 1174, it was Ó Conchobhair who marched into Munster "to seek battle"[326].

Simms' reconstruction of the battle of Dysert O'Dea provides a useful corrective to Hayes-McCoy's and brings out more fully the complexities of such situations. She notes, firstly, that in the running warfare preceding the battle it was Muircheartach Ó Briain who sought to bring about a direct confrontation, presumably because he calculated that the balance of advantage in such an encounter favoured him. Richard de Clare - in what might be described as typically Irish fashion - apparently avoided battle and resorted to harrying his opponents' lands. Subsequently, de Clare went onto the offensive and attacked Ó Briain's weaker vassal Conchobhar Ó Dea who (again in typically Irish fashion) made use of natural defences of woods and water to avoid de Clare. However, when de Clare split his force into three raiding parties (in what Simms

324. Prestwich, *Armies and warfare in the Middle Ages*, p. 186.

325. Orpen, *The song of Dermot and the earl*, ll. 1575-1731.

326. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', p. 67.

calls "a very Irish manner") Ó Dea, recognising that the balance of advantage had swung in his direction, abandoned his defensive posture and attacked de Clare's reduced force, killing de Clare. Ó Dea then had to retreat into a wood again as the full Anglo-Irish force descended on him but later re-emerged into the open when reinforced by Ó Conchobhair and Ó hEithir. The arrival of Muircheartach Ó Briain finally decided the outcome of the battle in favour of the Gaelic leaders. It is clear from Simms' account that the course taken by the battle was not planned by either side; it may not be wise, therefore, to make too much of Dysert O'Dea as an indicator of patterns of military development in medieval Ireland[327].

Nevertheless Hayes-McCoy's thesis is probably broadly correct. There is little doubt that the new influences of the late 12th and 13th centuries, particularly the experience of fighting both against and alongside Anglo-Norman forces, refined and improved the military organisation and military technology of Gaelic Ireland and transformed its gradual progress towards a military system comparable with contemporary Europe. Approximate parity with the Anglo-Irish in terms of military resources and technology seems to have been reached by the end of the 13th century and possibly even earlier, although there is no evidence for any significant tactical developments or departures. Most warfare of the late medieval period was a matter of one magnate against another (whether Gaelic or Anglo-Irish) and fell into the pattern of raid and counter-raid described by Simms. The only battles generally considered worthy of the name between 1350 and 1550 were Piltown in 1462 and Knockdoe in 1504, in both of which the leading roles were taken more by Anglo-Irish than by Gaelic magnates. Moreover, with the exception of Richard II's campaigns of 1394-95, the Gaelic Irish did not have to face any intensive English campaigning until the 16th century. Thus the situation did not demand any major adaptations or innovations of the Gaelic Irish and it is not surprising that, when faced by a Tudor onslaught in the mid-16th century, they responded in an essentially defensive manner which differed little from the tactics of earlier centuries[328]. It is only at the end of the 16th century that evidence of Gaelic Irish adaptations to the new situation can be detected.

In the absence of large-scale English intervention, the Gaelic Irish were in a strong position once an approximate parity of military technology with the Anglo-Irish had been reached. Indeed by the later 15th century, as we have seen, the authorities were complaining that the Anglo-Irish were using "Irish" armour and weapons, rather

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327. K. Simms, 'The battle of Dysert O'Dea and the Gaelic resurgence in Thomond', *Dal gCais* 5 (1979), pp. 59-66.

328. See O Domhnaill, 'Warfare in sixteenth-century Ireland', pp. 42-43.

than English. While this perception was, in many respects, simplistic and inaccurate, it reveals how much the playing field had been levelled. All things being more or less equal in terms of weaponry and armour, other factors could tip the balance of military advantage. In particular, superior manpower resources may well be the main explanation for the Gaelic "military revival" of the late Middle Ages, since Gaelic leaders of this period could frequently command larger forces than Anglo-Irish magnates could hope to match. The 1515 report on the *State of Ireland...* expressed this reality when bemoaning the adoption of weapons and armour "after the Iryshe maner" by the Anglo-Irish; it saw this as a cause of the demise of the colony, "for Iryshe men be in nombre 10 againste one, and be more conneing and better in therre owne warre, then Englyyshe men"[329].

Nowell's survey of the strength of Irish forces, dated *c.*1480[330], estimates the total forces of Gaelic chieftains at over 3,300 horsemen, 15,700 kern and 41 "battles" representing approximately 3,000 gallowglass, with the same number of retainers[331]. All told this adds up to some 25,000 men. The 1515 Report on the *State of Ireland...* gives even higher figures for the potential armies of the Gaelic "regions", of which there were about 60. It estimates the forces of the 60 "regions" as varying from 40 horsemen and 200-300 kern, for the smallest, up to 500 horsemen, 500 gallowglass and 1,000 kern, for the largest; a typical figure was given at 200 horsemen and 600 kern. No totals were presented but multiplying the "typical" figure by 60 gives a total of 48,000 men. These figures also tally with those produced by Ó Domhnaill for Gaelic *tuatha* of the late 16th century[332]. Thus Nowell's 25,000 should probably be viewed as, if anything, a conservative figure; Brady likewise describes as conservative the figure of 24,000 given in a mid-16th century document[333]. Even so, 25,000 men represents a resource of manpower far in excess of what was available to the Anglo-Irish and immeasurably greater than any army which the government of the colony was ever able to put in the field. Nowell stated that the Pale was "scant hable to susteyne the warres of 3 Irishmen", meaning, presumably, that the military resources of the Pale (presumably including the royal army) were only equivalent to those of three Irish chieftains[334].

329. *State papers...Henry the Eighth, Part III*, p. 12.
330. D.B. Quinn and K.W. Nicholls, 'Ireland in 1534', in T.W. Moody, F.X. Martin and F.J. Byrne (eds), *Early modern Ireland, 1534-1691* (Oxford, 1976), p. 32, n.3.
331. L. Price, 'Armed forces of the Irish chiefs in the early 16th century', *Journal of the Royal Society of Antiquaries of Ireland* 62 (1932), p. 206.
332. *State papers...Henry the Eighth, Part III*, p. 5; O Domhnaill, 'Warfare in sixteenth-century Ireland', pp. 33-34.
333. C. Brady, 'The captains' games: Army and society in Elizabethan Ireland', in Bartlett and Jeffery, *A military history of Ireland*, p. 146.
334. Price, 'Armed forces of the Irish chiefs', p. 202.

Of course the Anglo-Irish colony never had to face anything like the full military potential of Gaelic Ireland but even the forces of a single chieftain with his allies could be very considerable. Archbishop Swayne noted in c.1428 that MacMurchada was ravaging Kildare with a force of over 3,000 armoured men, each "arrayde of the gyse of this contre that is owry man acton habirchon pischane basnete" (i.e. each one in full mail armour with helmets)[335]. If this really represented the number of *armoured* men, then one should probably assume the presence of at least the same number of unarmoured kern. It was undoubtedly obvious to Swayne's contemporaries that this was a force which the entire Anglo-Irish colony would be hard pressed to match and certainly was far beyond the resources of the local communities of Kildare and Carlow. It is not surprising that Lord Lieutenant Grey was counselled not to attempt to cross swords with MacMurchada, who ultimately had to be bought off.

In 1449 four Ulster chieftains, not including the great lords Ó Néill and Ó Domhnaill, were able to provide the Duke of York with almost 3,000 men, the majority of them "well harnyssed on hors and fot" (i.e. armoured), while in 1468 three relatively minor Ulster chieftains were able to lead 2,400 men in an attack on Drogheda[336]. In 1521 Lord Lieutenant Surrey reported that O'Neill and "Prior McGuinness" were to have led a force of "400 horsmen, 400 galoghglas and 800 kerne" to join him in campaigning against McMelaghlyn. The campaign was aborted, however, much to Surrey's regret, as he noted ruefully that O'Neill's force (rather than his own) would have cowed the Irish into submission. Also in 1521, Surrey was dismissive of O'Donnell's claim to have employed 3,000 "Irish Scottes" on the grounds that he could not have afforded the wages involved. Two years later, however, Kildare, freshly returned from a campaign in the north, stated that "Hew McNeile, and others...besides ther awn retynue, had 1500 Scottes in wages"[337].

There is no obvious reason to suppose that Gaelic chieftains of the late 15th/16th centuries had access to significantly larger numbers of warriors than their 13th/14th century predecessors[338]. On the other hand, it is likely that the Anglo-Irish population declined from the later 13th century onwards. Thus the Gaelic Irish may have enjoyed an increasing superiority of numbers from the 14th century. Cosgrove is probably correct in stating that:

335. D.A. Chart, *The register of John Swayne* (Belfast, 1935), p. 109.
336. E. Curtis, 'Richard, duke of York, as viceroy of Ireland 1447-1460; with unpublished materials for his relations with native chiefs', *Journal of the Royal Society of Antiquaries of Ireland* **62** (1932), p. 166; D. Mac Iomhair, 'Two old Drogheda chronicles', p. 91.
337. *State papers...Henry the Eighth, Part III*, pp. 82-83, 99.
338. Frame, *The Dublin government and Gaelic Ireland*, p. 469.

if the colony was unable to gain any permanent advantage from the campaigns [of various English governors' retinues], its [Gaelic] enemies were sufficiently disunited to ensure that there would be no combination large enough to threaten its survival. Warfare, therefore, was generally on a small scale, piecemeal, confused and indecisive[339].

Nevertheless, simple superiority of numbers may well have ensured a general drift of military advantage in favour of the Gaelic Irish and this may prove to be a very significant factor in explaining the Gaelic military recovery of the later medieval period, insofar as there was such a recovery.

339. A. Cosgrove, 'The emergence of the Pale, 1399-1447', in Cosgrove, *Medieval Ireland 1169-1534*, pp. 542-43.

CHAPTER 2:
ARCHERY IN MEDIEVAL IRISH WARFARE

The pre-Viking period

The bow has been used in Ireland since prehistoric times. Evidence in the form of flint and stone arrowheads survives from the Neolithic and early Bronze Age periods, although so far we know little about the forms of bows in use in these periods, a fragment of a yew bow from Drumwhinny Bog, Kesh, Co. Fermanagh being the only known extant prehistoric bowstave from Ireland[1]. Webb suggests, on the basis of the length of this fragment, that it comes from a handle-reinforced bow, although he notes that the reinforcement of the handle area could have been very simple[2]. A number of exceptionally fine bows of prehistoric date are known from Britain; a recent study, indeed, has suggested that one of these, the Neolithic bow from Meare Heath in Somerset, is "a better weapon than the...medieval longbow"[3].

However, as with north-western Europe generally, the practice of archery seems to have declined in Ireland in the later prehistoric period. Clark and Mercer have each demonstrated that archery equipment occurs only very rarely in the later Bronze Age and the Iron Age in north-west Europe, although they differ in their suggested explanations for this phenomenon. Clark suggested that the decline in the importance of archery from earlier prehistoric times may have been due to the impact of the new range of weapons (notably swords, rapiers and spears) which became available as a result of advances in bronze metallurgy. Mercer, on the other hand, argued that prehistoric archery was largely employed for hunting and suggested that its decline in the Bronze

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1. E.g. M. Herity and G. Eogan, *Ireland in prehistory* (London, 1977), pp. 42-43, Figs 13, 16; E. Anderson, 'Flint and stone tools', in M. Ryan (ed.), *The illustrated archaeology of Ireland* (Dublin, 1991), p. 37; A. Sheridan, 'The first farmers', in Ryan 1991, p. 49. W. Glover, 'A prehistoric bow fragment from Drumwhinny Bog, Kesh, Co. Fermanagh', *Proceedings of the Prehistoric Society* 45 (1979), pp. 323-27.
2. A handle-reinforced bow is one where the central handle area is strengthened by the addition of an extra piece of wood, or by a binding, or simply by leaving extra wood in shaping the bow; A. Webb, 'Prehistoric bows from Ireland', *Journal of the Society of Archer-Antiquaries* 23 (1980), pp. 20-21.
3. J.G.D. Clarke, 'Neolithic bows from Somerset, England, and the prehistory of archery in north-western Europe', *Proceedings of the Prehistoric Society* 29 (1963), pp. 50-98; C.A. Bergman, E. McEwen and R. Miller, 'Experimental archery: projectile velocities and comparison of bow performances', *Antiquity* 62 (1988), p. 668.

Age may have been due to a decline in the economic importance of hunting[4]. These differing views centre on the function of prehistoric archery, whether for warfare or hunting, and underline the fact that this is as yet little understood.

Whatever the relative merits of these arguments, there is little evidence that any late Bronze Age or Iron Age cultures in north-western Europe made serious use of the bow. This is reflected in Ireland where there is no evidence for archery between the early Bronze Age and the Early Christian period, i.e. from roughly 1500 BC to 800 AD. Even in the Early Christian period, the bow was apparently unknown prior to the Viking invasions. Archaeological evidence is totally lacking while only one possible documentary reference to archery in pre-Viking Ireland has been noted. This occurs in the record of the killing in 702 of Irgalach mac Conaing, king of Síl nAeda Sláine, by a warrior from a British fleet at Inis Mac Nesain (Ireland's Eye, off Howth); it notes how the warrior had previously seen a vision of himself killing the largest boar of a herd of pigs (i.e. Irgalach and his army), "with one blow of an arrow (*d'ainbhuille saighde*)[5]. Apart altogether from the fact that the warrior concerned was British rather than Irish, the uncertainty over the date of this source, whether 8th century or later, makes it an unsafe basis on which to argue that the bow was used in Ireland before the advent of the Vikings.

The Viking and Hiberno-Norse periods (*c*.800-1169 AD)

At the dawn of the study period the indications are that archery had been effectively unknown in Ireland for some two millennia and it seems that the Vikings must be credited with the reintroduction of the bow and arrow. In apparent contrast to western Europe, Scandinavia (along with northern Germany) displays a strong tradition of archery from the Roman Iron Age (c200-400 AD) onwards. Danish bog finds of this period, notably Nydam, Vimose and Kragehul, have produced an extremely important assemblage of bows and arrows[6]. During the Viking period the bow was widely used

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4. Clarke, 'Neolithic bows from Somerset', p. 84; R.J. Mercer, 'Metal arrow-heads in the European Bronze and early Iron Ages', *Proceedings of the Prehistoric Society* **36** (1970), p. 203.
5. Radner, *Fragmentary annals*, p. 51.
6. Clarke, 'Neolithic bows from Somerset', pp. 88-89; M. Todd, *The northern barbarians 100 B.C. - A.D. 300* (Oxford, 1987), pp. 155-56; K. Beckhoff, 'Die eisenzeitlichen Kriegsbogen von Nydam', *Offa* **20** (1963), pp. 39-48; K. Raddatz, 'Pfeilspitzen aus dem Moorfund von Nydam', *Offa* **20** (1963), pp. 49-56; G. Rausing, *The bow: Some notes on its origin and development*

both in Scandinavia itself and among Scandinavian settlers in many parts of Europe and although Bradbury has argued that the importance of archery to the Vikings has been exaggerated because of the influence of later medieval Scandinavian folklore, it could be argued that the very existence of such traditions is significant[7].

In Ireland, the use of the bow by the Vikings and their Hiberno-Norse descendants is attested above all by the bows and hundreds of arrowheads discovered in archaeological excavations in Dublin (including Kilmainham/Islandbridge), Waterford and Limerick, in contexts of the 9th to 12th centuries. But documentary evidence is also plentiful. Indeed the Irish word for a bow, *bogha*, is a Norse loan-word, although curiously enough the word for an arrow, *saiget*, seems to be an earlier borrowing from the Latin *sagitta*[8]. The most informative early references to Viking archery occur in the so-called "Osraige Chronicle" which Radner detected in the *Fragmentary Annals of Ireland*. Although a mid-11th century date is likely for the final compilation of these annals, Radner suggests that the "Osraige Chronicle" could have been put together within living memory of the reign of Cerball mac Dunlaing, king of Osraige, who died in 888[9]. This implies a 10th century date, at the latest, with the strong possibility that authentic details of 9th century events are included.

The first clear reference to Viking archery in this chronicle occurs *s.a.* 851 in an entry relating to the arrival of a Danish fleet off the Irish coast; a Norse ship sent out to enquire as to the Danes' intentions is greeted by "a great shower of arrows (*saighdibh*). A probable reference to the Norse themselves as archers occurs *s.a.* 866 in the account of the defeat of a Norse raiding party by Cennetig son of Gaethine, king of Loiches, which describes arrows (*saighde*) and spears being fired between the two armies at the opening of the battle, although without specifically stating that the arrows were fired by the Norse. An unambiguous reference to the Norse as archers occurs *s.a.* 867 in the record of the killing of Oisle, son of the king of Norway who, it is noted

> "outshone the Irish in casting javelins and in strength with spears [and] outshone the Norwegians in strength with swords and in shooting arrows (*i ndiubhragadh saighead*)".

(Lund, 1967), pp. 57-58.
7. R. Hardy, *Longbow: A social and military history* (2nd edn, Portsmouth, 1986), pp. 28-30; Bradbury, *The medieval archer*, p. 23.
8. E.G. Quin (ed.), *Dictionary of the Irish language* (Dublin, 1983), 78, 517.
9. Radner, *Fragmentary annals*, pp. xxiv, xxvi.

The chronicle later (*s.a.* 869) depicts the Norse taking turns in shooting at (*fora dhiubargan*) the decapitated head of a chieftain of the Laigin; presumably bows are implied here[10].

Other narratives also provide evidence for Norse archery. It is significant that as early as the 9th century the tale *Cath Maige Tuired* includes "the rattling and jingling of the quivers" (*saicidbolc*) among the noises of a battle against the Formorians, for whom the Norse almost certainly provided the author's model[11]. The 12th century author of *Cogadh*, describing the weapons of the Norse at Clontarf, mentions before any others their "sharp, swift...barbed (*frithbaccanacha*)... murderous, poisoned arrows (*saigti*)" and their "polished, yellow-shining bows (*bogada blathi blabuidi*)". In the 12th century too, *Caithréim* refers to the "slender arrows (*caelshoighet*)" and the "whistling shots of their arrows (*sianuirchair a soighet*)" of the Norse. It also refers to archery being used by the Norse in a naval battle in Dundalk bay, the Norse fleet being described as a "firm fold of bows (*boghadh*)"[12].

The documentary evidence suggests that the military use of archery by the Vikings was mainly confined to the preliminary exchanges of missiles which frequently characterised the outset of a battle. The account in *Osr.* of the 866 battle, referred to above, notes an initial phase of long range combat in which "many arrows were loosed" before the rival armies came to blows at close quarters[13]. *Caithréim* describes a battle at Limerick in similar terms, beginning with an exchange of "stones and slender arrows (*caelshoighet*) and pointed spears" before the rival armies met in hand-to-hand combat[14]. Similar tactics are described in naval encounters - note, for example, the "great shower of arrows" which greeted the Norse ship investigating the Danish fleet off the Irish coast in 851 (see above). The naval battle at Dundalk in *Caithréim*, noted above, is also characterised by "bloody, sharp showers", presumably of arrows and it is also specifically noted that ships exchanged showers of arrows, stones, javelins and spears until they came close enough to fight hand-to-hand[15]. This pattern in the use of

10. Ibid., pp. 89, 123-25, 127, 137-39.
11. W. Stokes, 'The second battle of Moytura', *Revue Celtique* 12 (1891), 99; P. Mac Cana, 'The influence of the Vikings on Celtic literature', in B. O'Cuiv (ed.), *Proceedings of the International Congress of Celtic Studies* (Dublin, 1962), 94; see T. Ó Cathasaigh, '*Cath Maige Tuired* as exemplary myth', in P. de Brun, S. Ó Coileáin and P. Ó Riain (eds), *Folia Gadelica: Essays presented to R.A. Breathnach* (Cork 1983), p. 1, for a discussion of the date of this text.
12. Todd, *Cogadh Gaedhel re Gallaibh*, pp. 159-61; Bugge, *Caithréim Cellachain Caisil*, pp. 64, 99.
13. Radner, *Fragmentary annals*, pp. 123-25.
14. Bugge, *Caithréim Cellachain Caisil*, p. 64.
15. Bugge, *Caithréim Cellachain Caisil*, pp. 99, 104.

archery has also been noted in contemporary battles of the Vikings elsewhere, and of the Anglo-Saxons[16]. The sources do not reveal whether Viking armies included specialist archers, or whether the bow was merely an additional weapon carried by some warriors, although it may be significant that no term which might be translated as "archer" has been noted. There is certainly no evidence for the deployment and tactical use of units of archers.

Native Irish archery

While the evidence suggests that the Irish did not use the bow before the Viking period, it is unlikely that they never learned to use it from the Norse. By the 12th century *Cogadh* was using the bow-shot as a unit of measurement and bows and quivers (*bolgshaighid*) were among the valuables bequeathed to the church by Toirdelbach ua Conchobair on his death in 1156[17]. Archaeological evidence for archery among the Gaelic Irish is, however, very limited. Representations of archers occur on three 9th/10th century high crosses at Monasterboice, Kells and Durrow but as with documentary references it is possible that such depictions are based on Viking, rather than Irish archers[18].

Direct archaeological evidence, in the form of actual bows and arrows, is equally rare. Only a handful of arrowheads (at most six, possibly only four) are known from native Irish sites of this period. One of these, an arrowhead from the stone fort of Leacanabuaile, Co. Kerry is, on typological grounds, most likely to be later medieval in date and, indeed, it has been independently suggested that the site may be of later medieval, rather than Early Christian date[19]. The majority of the remainder are arrowheads of a Scandinavian type which can be dated from the 9th to 12th centuries[20]. Three of these (one from Lagore crannog, Co. Meath and two from Dunbell raths, Co. Kilkenny) are old finds with no datable context; the fourth is from the stone fort of Cahercommaun, Co. Clare, which Hencken dated to the 9th century (although this would not be accepted uncritically by modern archaeologists)[21]. The presence of these

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16. Roesdahl, *The Vikings,* p. 144; Hooper, 'Anglo-Saxon warfare on the eve of the conquest', p. 93; Hooper, 'The Anglo-Saxons at war', p. 199.

17. Todd, *Cogadh Gaedhel re Gallaibh,* pp. 91, 177; *A. Tig.*

18. Rynne, *Irish iron weapons of pre-Norman times,* p. 27.

19. S.P. Ó Ríordáin and J.B. Foy, 'The excavation of Leacanabuaile stone fort, near Caherciveen, Co. Kerry', *Journal of the Cork Historical and Archaeological Society* 46 (1941), Fig.1:4; S.P. Ó Ríordáin, *Antiquities of the Irish countryside,* (London, 1979), p. 32.

20. Type 1: Nos. 67, 68, 73 and 74 (see Chapter 3).

21. H. O'Neill Hencken, *Cahercommaun: a stone fort in county Clare,* (Dublin, 1938), pp. 2-3, 53; Fig.32:728; see N. Edwards, *The archaeology of early medieval Ireland* (London, 1990), 9-11,

Scandinavian-type arrowheads at Lagore, Dunbell and Cahercommaun can as plausibly be attributed to the activities of Viking or Hiberno-Norse archers as to Irish. Indeed, it is not impossible that the Lagore arrowhead could, as Rynne suggested, be related to the Viking attack of 934 which Hencken felt might mark the end of his Phase II of occupation of the crannog[22]. Thus the probable arrowhead from the stone fort of Carraig Aille II, Co. Limerick, dated between the 8th and 11th centuries may represent the only (and exceptional) evidence for use of the bow on a native Irish site of this period[23].

There is, however, a final piece of archaeological evidence relevant to this discussion, which is by far the most intriguing. One of Europe's finest early medieval longbows was found on the floor of the primary house of the late 10th-early 11th century crannog at Ballinderry, Co. Westmeath and can be dated probably to the later 10th century. The bow was no isolated find, however, for Ballinderry produced a veritable arsenal of typical Viking weaponry, including a sword, battleaxe, two spearheads and a socketed knife or single-edged spearhead. Hencken was quite definite in considering Ballinderry as a native Irish, rather than Viking settlement and this interpretation remains essentially undisputed[24]. It is thus safest to consider the Ballinderry material as a graphic example of the extent to which Viking weaponry could on occasion be adopted by the Irish, but whatever the background to the gathering of these weapons at Ballinderry, there can be little doubt that the bow is ultimately of Viking background.

Taking all the evidence together, particularly that from Ballinderry and Carraig Aille, it would be unwise to exclude the possibility that the Gaelic Irish did make some use of the bow in the Hiberno-Norse period. However, the overall thrust of the historical and archaeological evidence, by its very silence, strongly indicates that any Gaelic use of the bow was so insignificant in military terms as to be negligible.

17 for discussion of the dating of Cahercommaun.
22. Rynne, *Irish iron weapons of pre-Norman times*, pp. 27, 90; Hencken, 'Lagore crannog', pp. 5, 7.
23. S.P. Ó Ríordáin, 'Lough Gur excavations: Carraig Aille and the 'Spectacles'', *Proceedings of the Royal Irish Academy* **52C** (1948-50), pp. 108, 110; Fig.10: nos 421, 527; this object was unfortunately not locatable in the National Museum of Ireland and thus has not been examined by the writer.
24. H. O'Neill Hencken, 'Ballinderry crannog no.1', *Proceedings of the Royal Irish Academy* **43C** (1935-37), pp. 127, 138-39, 143, 156, 214, 225-26; Fig. 8:D.

The Anglo-Norman period (1169-c1350)

The Anglo-Norman conquest

In view of the definite evidence for Hiberno-Norse archery and possible evidence for limited Irish archery, the bow can hardly have been entirely unknown to the Irish on the eve of the Anglo-Norman conquest. Nevertheless when confronted by Anglo-Norman archers the Irish were, in the words of Giraldus, "paralysed and panic stricken by...the sudden wounds inflicted by our arrows"[25]. It may be that what terrorised the Irish was not bows in themselves, but the effectiveness with which they were used by the Anglo-Normans. While the Vikings and Hiberno-Norse had used bows in Ireland, there is nothing to suggest that they ever employed dedicated *corps* of archers as the Anglo-Normans did, and thus the Irish had probably never experienced anything like the firepower of the Anglo-Norman archers. It is surely significant that for the first time the sources use a specific term for "archer"; indeed, two terms are used, *arcarius* and *sagittarius*, the distinction between which is not clear (see below).

Archers were an important part of most Norman and Anglo-Norman armies. Norman archery is thought to have had a mixed Viking and Frankish background and Hastings, in 1066, has been described as the first medieval European battle in which archery demonstrably played a major role. There is general acceptance that William the Conqueror's army included a large number of archers, armed with both ordinary bows and crossbows, who made a significant contribution to his victory. The bow was also widely used in post-Conquest England, as is strikingly illustrated by the possibility that between 1066 and 1200 no fewer than three kings of England - Harold, William Rufus and Richard I - may have died from arrow wounds[26]. It is thus not surprising that archers were present in large numbers in the forces that invaded Ireland in 1169 and thereafter; they were described by Giraldus as drawn "from among the military elite of Wales (*de electa Guallie iuventute*)". Indeed analysis of the contingents for which detailed figures are given by Giraldus reveals that archers account for over 85% of the total and whatever about the precise figures, there seems little reason to doubt the accuracy of the proportions involved[27].

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25 Scott and Martin, *Expugnatio Hibernica*, p. 231.

26. Bradbury, *The medieval archer*, pp. 23-26, 34, 41-55; E.G. Heath, *Archery: a military history* (London, 1980), pp. 105-10; Hardy, *Longbow*, pp. 33-36; Prestwich, *Armies and warfare in the Middle Ages*, pp. 325-26.

27. Scott and Martin, *Expugnatio Hibernica*, pp. 31, 51, 57, 65, 151, 161, etc.; see also Chapter 1 above.

Giraldus' use of the terms *arcarius* and *sagittarius* is a puzzle since both normally have the same meaning, "archer" (the former derived from *arcus* "bow", the latter from *sagitta* "arrow"). Giraldus clearly had some distinction in mind when listing *arcarii* and *sagittarii* separately in the same forces. Scott and Martin interpret the distinction as between mounted and foot archers, presumably because *sagittarii* is on several occasions qualified by *pedestri* ("foot")[28]. Nevertheless there are, strictly speaking, no grounds for translating *arcarius* as "mounted archer"; it means simply "archer". The possibility cannot be ruled out that some other distinction was intended, for example a distinction between ordinary self-bow archers and crossbowmen (although one might expect a term such as *[ar]balistarius* to be used in this case). This is particularly frustrating because if Giraldus was distinguishing between mounted and foot archers it would be a point of great interest for military history. There is little evidence elsewhere for the use of mounted archers in Anglo-Norman warfare at this date, although Prestwich argues that "mounted archers were, if not common, certainly not unknown" in the 12th century. Mounted archers are recorded as being used at the battle of Bourgtheroulde in 1124, but ironically, in view of the discussion of Giraldus' terminology above, the term employed is not *arcarii* but *sagittarii*, qualified by *equitii/equestrii*[29].

Unfortunately Giraldus says very little about the role played by these archers in the conquest of Ireland; they are hardly mentioned in the many descriptions of battles in the *Expugnatio*. This should almost certainly be interpreted as an example of the aristocratic prejudice against archers (invariably commoners) and in favour of the largely aristocratic cavalry, noted by Bradbury in medieval sources[30]. A rare exception to this rule is the account of Fitz Stephen's assault on Wexford in 1169, where Giraldus describes the archers watching from a distance while "armed men" (presumably *milites*) attempted to force entry into the town; the archers' role was presumably to provide covering fire, preventing the defenders from attacking the *milites* outside the walls[31]. The *Song of Dermot and the Earl* depicts Fitz Stephen, retreating from Osraige in 1169, deploying a company of archers to ambush the pursuing Irish and also describes archers being used to fire from the walls of Dublin on the besieging army of Askulv in 1171[32].

28. E.g. ibid., pp. 31, 51, 141, 151, 161; Prestwich, *Armies and warfare in the Middle Ages*, p. 115, makes this assumption explicitly.
29. Prestwich, *Armies and warfare in the Middle Ages*, p. 135; Bradbury, *The medieval archer*, p. 50, n.27, 28.
30. Bradbury, *The medieval archer*, pp. 1-3, 40, 76.
31. Scott and Martin, *Expugnatio Hibernica*, 33.
32. Orpen, *The song of Dermot and the earl*, ll. 692-707, 2347-52.

Giraldus' only other comments on the use of archers concerns their role in protecting formations of *milites* from sudden Irish attacks:

> Besides, in any fighting in Ireland we must be particularly careful to ensure that archers are always incorporated in the mounted formations, so that the damage caused by the stones with which they [the Irish] usually attack heavily armed troops at close range...may be averted by volleys of arrows from our side[33].

This has been interpreted as referring to archers escorting *milites* on the march but nothing in the text demands this and his comments could equally well refer to combat situations. Giraldus may well be indicating a tactic of incorporating archers in squadrons of *milites* in battle, in order to counteract the superior mobility of the Irish over the more ponderous *milites*[34]. The *Song* may provide support for this theory in its account of the three companies, led by Strongbow, Miles de Cogan and Raymond le Gros, which sortied from Dublin to raise Ó Conchobhair's siege in 1171; each company consisted of 40 knights, 100 sergeants and 60 archers[35]. This is also a well attested Norman tactic elsewhere; Cook notes the importance of infantry, particularly archers, in supporting and protecting the cavalry in many Anglo-Norman armies. At Hastings, William the Conqueror's three divisions were apparently each drawn up in three lines, with archers to the fore, heavy infantry behind them and cavalry at the rear, an arrangement strongly reminiscent of Strongbow's at Dublin in 1171[36].

The use of combinations of *milites* with archers should not be regarded as new tactics developed during the Irish campaigns, or even in the Welsh marches. Such tactics in fact fit perfectly comfortably into the known pattern of 12th century Anglo-Norman warfare. Bradbury has discussed a series of battles of the first half of the 12th century, both in England and France, in which Anglo-Norman forces made use of *milites* (both mounted and dismounted) and archers. Bradbury concludes that the tactic of dismounting *milites* and combining them with archers was designed to enable infantry formations to hold or stop a cavalry charge, an aim which was clearly of little

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33. Scott and Martin, *Expugnatio Hibernica*, p. 249.
34. R. Rogers, 'Aspects of the military history of the Anglo-Norman invasion of Ireland 1169-1225', *Irish Sword* 16 (1984-86), pp. 137-39; Prestwich, *Armies and warfare in the Middle Ages*, p. 135, sees this proposed incorporation in mounted formations as further evidence that these *arcarii* were themselves mounted.
35. Orpen, *The song of Dermot and the earl*, ll.1885-96.
36. D.R. Cook, 'The Norman military revolution in England' in R. Allen Brown (ed.), *Proceedings of the Battle conference on Anglo-Norman studies I. 1978* (Ipswich, 1979), pp. 100-01; Beeler, *Warfare in feudal Europe*, p. 94.

relevance in the conquest of Ireland, but he also points out that in at least three of the six battles discussed, archers made a very significant contribution to the outcome[37].

Regardless of whether the context of Giraldus' comments is battle or marching, the use of 85% of one's force purely to protect the other 15% seems an improbable use of resources, and the sheer numbers of archers involved suggests that their role extended far beyond this. Against unarmoured opponents with little experience of archery, such as the Irish were, the impact of large numbers of archers acting in a co-ordinated manner could have been enormous. In a particularly relevant parallel, both Strickland and Gillingham note the "devastating effect" of Anglo-Norman archers against unarmoured Scots at the battle of the Standard in 1138[38]. These assessments further encourage one to think that the importance of archers in the Anglo-Norman conquest of Ireland has been underestimated. It seems inconceivable that the Anglo-Normans would not have exploited the obvious potential of their archers in battle. Otway-Ruthven, almost alone among Irish historians, suggested that the archers were possibly even more important than the cavalry in the initial Anglo-Norman campaigns, and Gillingham has no doubts - "certainly it was not cavalry which dominated so many [English] campaigns in Wales and Ireland in the twelfth century; it was armour and firepower" (i.e. archers)[39].

The 13th and early 14th centuries

The 13th century is a critical and controversial period for the history of archery in Britain, where the influence of Giraldus appears to have contributed to a distorted view of the development of archery[40]. As is well known, English military archery based on the longbow emerged in the 14th century as an extremely potent force in warfare, not only in Britain but in much of Europe[41]. Historians, beginning with Oman and Morris, have emphasised two factors in the development of this archery tradition. The first is the contribution of the very Welsh archers who were involved in the invasion of Ireland and are graphically described by Giraldus in his *Iter Cambriae* and *Descriptio Cambriae*; the Welsh are important particularly because of the type of bow they are

37. Bradbury, *The medieval archer*, pp. 39-57; see also Prestwich, *Armies and warfare in the Middle Ages*, p.129.
38. M. Strickland, 'Securing the north: invasion and the strategy of defence in twelfth-century Anglo-Scottish warfare', in M. Chibnall (ed.), *Anglo-Norman studies XII: Proceedings of the Battle Conference, 1989* (Woodbridge, 1990), p. 192 & n.101; J. Gillingham, 'Conquering the barbarians: War and chivalry in twelfth-century Britain' ,*The Haskins Society Journal, Studies in Medieval History* 4 (1992), p. 74.
39. Otway-Ruthven, *History of medieval Ireland,* p. 44; Gillingham, 'Conquering the barbarians', p. 75.
40. Bradbury, *The medieval archer*, 75-76.
41. Prestwich, *Armies and warfare in the Middle Ages*, pp. 136-37, 324-25.

supposed to have used - the longbow. The second factor is the role of Edward I (1272-1307), who recognised the potential of the longbow as used by the Welsh and introduced large numbers of Welsh archers into his armies, while at the same time encouraging the use of the longbow among the English peasantry[42].

The influence of Giraldus is evident in Morris' statement that "Gerald's pride in his countrymen was justified by the ... successes of the English, who from them [i.e. the Welsh] ... learnt archery and the tactics suited to archers". Oman claimed that the Welsh "were certainly provided with [the longbow] as early as A.D. 1150", a statement which was then and is still unsupported by any documentary or archaeological evidence and can only have been made on the basis of a misreading of Giraldus' accounts. Oman further argued that "to Edward I the long-bow owes its original rise into favour ... His long experience in Welsh campaigns led him ... to introduce a scientific use of archery", while Morris claimed that

> Edward was making some effort to create an efficient bow-armed English infantry, at least from 1265 onwards, if not earlier ... The task before Edward was to improve his men in the use of [the longbow], to accustom them to get a longer and stronger reach, and to arm with it an increasing proportion of all his foot.

Although English military archery did not realise its full potential until 20-30 years after his death, Edward's policies are seen as so crucial to its development that one writer has dubbed him "the father of the military longbow"[43].

Both main points of this theory can be shown to be based on at best inadequate evidence. Bradbury argues that Welsh archery has been given inordinate prominence because of the influence of Giraldus' writings, combined with the mistaken belief that there is little evidence for archery in 12th and 13th century England. In fact, there is abundant evidence for the widespread use of the bow, particularly in warfare, in Anglo-Norman England. Clarke, indeed, has pointed out that any indigenous Celtic or Viking background for Giraldus' Welsh archery is highly unlikely, and that the only conceivable background is Anglo-Norman, following on the Norman conquest of

42. C. Oman, *The art of war in the Middle Ages A.D. 378-1515* (Oxford and London, 1885), pp. 96-99; J.E. Morris *The Welsh wars of Edward I* (Oxford, 1901), pp. 32-34, 99-104; see also R.E. Oakeshott, *The archaeology of weapons* (London, 1960), pp. 293-96; Heath, *Archery: a military history*, pp. 112-15; Hardy, *Longbow*, pp. 36-38, 41-50.
43. Morris, *The Welsh wars of Edward I*, pp. 18, 32-33, 99; Oman, *The art of war in the Middle Ages*, pp. 98-99; Hardy, *Longbow*, p. 41.

England[44]. It should also be noted that Giraldus himself never stated that the Welsh were the only archers in Britain; he merely claimed that "the men of Gwent...are more skilled with the bow and arrow than those who come from other parts of Wales"[45]. This Welsh tradition of archery should be seen, therefore, not as something unique, but as a fortuitously well documented example of what was common to England as well.

Bradbury also dismisses the idea that Edward was the first English king to make serious use of archery. Even the distinctive tactic of 14th century English armies, the use of dismounted men-at-arms and archers in combination, was prefigured in the tactics of Anglo-Norman armies of the early 12th century. The only really new element in the 14th century was the great increase in the number of archers employed, which greatly magnified their impact, but it is doubtful how much credit can be given to Edward for that[46]. It has been argued that Edward brought huge numbers of infantry, including large proportions of Welsh, on his Scottish campaigns of the late 1290's and early 1300's. However, Prestwich, the leading modern authority on the campaigns of Edward I, points out that after the Falkirk campaign of 1298 the numbers of infantry used by Edward in Scotland fell rapidly and that "the king and his advisers had by the end of the reign...abandoned their belief in the value of large numbers".Furthermore, while it seems true that the infantry of the Scottish wars were mainly archers, there is no evidence that Edward ever made any particular effort to train or equip them, or even specifically to recruit archers rather than other types of infantry[47].

Prestwich rejects suggestions that Edward's infantry were a decisive factor in such battles as Orewin Bridge (1282) or Maes Moydog (1295) in Wales, in Gascony (1294-97) or at Dunbar or Irvine (1296-97) in Scotland. Falkirk (1298) has been viewed as the first major victory of Edward's Welsh-inspired archers, but Prestwich points out that the sources are in dispute over whether infantry or cavalry were responsible for the decisive breakthrough. What is clear, however, is that the Welsh played no significant role at Falkirk and that "the contribution of archery to that success was made by the bowmen of Derbyshire, Lancashire and Cheshire". In the follow-up campaign of 1300

44. Bradbury, *The medieval archer*, pp. 71-83; see also "Strongbow" (P.V. Harris), 'A somewhat slanted history', *Journal of the Society of Archer-Antiquaries* 22 (1979), pp. 3-6; Clarke, 'Neolithic bows from Somerset', pp. 88-89.
45. L. Thorpe (trans.), *Gerald of Wales: the journey through Wales and the description of Wales* (London, 1978), pp. 112-13.
46. Bradbury, *The medieval archer*, pp. 55, 57, 83-86, 88-90.
47. M. Prestwich, *War, politics and finance under Edward I*, (London, 1972), pp. 95-99, 105, 107; see also Prestwich, *Armies and warfare in the Middle Ages*, p. 117.

Edward specifically excluded the Welsh from his summons to attend, which Prestwich suggests may have been on account of their conduct at Falkirk. There were no Welsh in Edward's army for the 1301 campaign (although a second army led by his son included Welsh foot) nor in the forces for the 1303-04 campaigns. This seems to give the lie to any suggestion that Edward was using the Welsh to teach the English how to use the longbow in his Scottish campaigns. In assessing the reasons for Edward's use of Welsh foot in Scotland, Prestwich does not see archery as significant and stresses instead their experience of guerrilla warfare in rough country and the fact that they were less likely to desert than local north English levies. He concludes that

> the overall picture of the infantry forces in Edward I's armies is not particularly impressive. The evidence for the much vaunted tactics of combining infantry and cavalry in one line of battle is unconvincing...The tactics that were to win the battles of Crecy and Poitiers were worked out in the Scotch wars of the early years of Edward III's reign, not in the campaigns of Edward I[48].

The question of the development of the longbow is intimately bound up with what we may call the Oman/Morris theory, and as will be seen in Chapter 4, the suggestion that the longbow was invented in Wales is even more untenable than the idea of military archery being introduced to England by Edward I. The Oman/Morris explanations are far too simplistic; Bradbury is surely closer to reality in viewing the development of English military archery as a long and gradual process, going back at least to the Conquest and possibly further, and not confined to any one area[49].

Given this background, any decline in the practice of archery in the Anglo-Irish colony in the 13th century is very unlikely. Although there is a wealth of archaeological evidence for the use of the bow in Anglo-Norman Ireland during the 13th century, documentary evidence appears relatively scarce, largely because of the absence of narrative sources comparable to Giraldus. This makes the situation somewhat more difficult to interpret, but the continued importance of archery is indicated by documentary as well as substantial archaeological evidence. There are frequent references to archers, bows and arrows in the surviving pipe roll of 1211-1212[50]. A.

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48. Prestwich, *War, politics and finance*, pp. 95-97, 107-110, 112; Prestwich, *Armies and warfare in the Middle Ages*, pp. 133, 306; M. Prestwich, *Edward I* (London, 1988), p. 485.
49. Bradbury, *The medieval archer*, pp. 71-88.
50. O. Davies and D.B. Quinn, 'The Irish pipe roll of 14 John, 1211-12', Supplement to *Ulster Journal of Archaeology* 4 (1941), 15, 47, 55, 59, 61, etc.

Conn. gives a graphic account of the death in 1230 of Donn Óc Mac Airechtaig (an ally of Fedlimid Ó Conchobair) at the hands of Richard de Burgo's forces, with five arrows in his body. By the middle of the 13th century the enrolled membership of Dublin's guild merchant included several individuals with the surnames *Archer* and *Balistarius* (crossbowman), which at this date can normally be taken as indicative of actual occupations. In addition the roll includes an arrowmaker, William Faber, *sub anno* 1227-28 and a bowmaker, David Drake, *sub anno* 1237-38. Thus there is clear evidence for craftsmen manufacturing bows and arrows and also, apparently, for professional or full-time archers in 13th century Dublin[51].

A 13th century poem on the walling of New Ross, which is dated 1265 and apparently displays genuine local knowledge, makes these claims for New Ross:

> For the townspeople have... / plenty of good crossbow men (*arblasters*) / and for hand bows (*arc de main*) plenty of good archers (*archers*). / Never in any town where I have been / did I see so many good sheaves of arrows (*glenne*), / so many crossbows (*arblastes*) hanging on the walls / or so many bolts (*qarels*) ready for use...

The poet states that the town could muster 363 crossbowmen and 1200 other archers. Even allowing for poetic licence this seems to provide the strongest possible evidence for the importance of archery in the defence of a 13th century Irish town[52].

As noted in Chapter 1, sources of the later 13th and early 14th centuries seem to indicate lower proportions of archers than were normal during the Anglo-Norman invasion, but there are reasons to believe that these sources significantly under-represent the real importance of archery. The proportions of archers in the Irish expeditions sent to assist in English campaigns in Scotland between 1296 and 1335 are often obscured by the indiscriminate description of all infantry forces as "foot". We know, however, that the Irish contingent in Edward I's Scottish campaign of 1300 numbered between 315 and 377, of whom a maximum of 18 were cavalry (hobelars) and all the rest were archers, while the expedition of 1307 included 360 foot armed with "bows and spears and other defensive arms"[53]. Much the same is true for the Bruce invasion of 1315-18;

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51. P. Connolly and G. Martin, *The Dublin guild merchant roll, c.1190-1265* (Dublin, 1992), pp. 23, 44, 57, 71, 72, 91, 105.

52. H. Shields, 'The walling of New Ross: a thirteenth-century poem in French', *Long Room* 12-13 (1975-76), ll. 168-77, 180-87.

53. J.F. Lydon, 'Irish levies in the Scottish wars, 1296-1302', *Irish Sword* 5 (1961-62), pp. 208, 214:Table 1; J. Mills (ed.), *Calendar of the justiciary rolls of Ireland, 1305-1307* (Dublin, 1914), p. 333.

evidence for archery is confined to chance remarks such as the description in *A. Clon.* in 1315 of the armies of Bruce and of Richard de Burgh, earl of Ulster, separated from each other by the Bann but resorting to "daily shooting of arrows of both sides of the river". Archery may have received legislative stimulus in 1308 when the Statute of Winchester of 1285 was enacted in Ireland, requiring all men of the colony to have arms and armour in accordance with the value of their property. While the wealthier landholders were to equip themselves to function as cavalry, those whose property was valued at between 40s and 100s yearly were required to have bows and arrows[54].

The lack of detailed information makes it difficult to assess the relative importance of archers in Anglo-Irish forces of the 13th and early 14th centuries, but it appears that the emphasis on cavalry (both hobelars and the traditional heavy cavalry of knights/men-at-arms) increased during this period (see Chapter 1). This emphasis on cavalry is illustrated by the fact that the standing retinue which justiciars were required to provide for themselves consisted entirely of men-at-arms and that Ireland's main contribution to English forces of the period, the hobelar, was a horseman[55].

Gaelic Irish archery

During the 13th century, too, we get annalistic references to individuals killed by Irish archers, indicating that for the first time the Irish were beginning to make widespread use of the bow, clearly in response to its use by the Anglo-Normans. This process apparently began in the late 12th century, as Giraldus notes that the Irish, having been terrorised by Anglo-Norman archery at first, "gradually became skilled and versed in handling arrows and other arms"[56].

The late medieval period (c.1350-1600)

The age of the longbow

The 14th century saw the beginning of the great age of the English longbowman. Two victories over the Scots, at Dupplin in 1332 and Halidon Hill in 1333, are seen as

54. Berry, *Statutes and ordinances: John to Henry V*, p. 256.
55. A.J. Otway-Ruthven, 'The chief governors of medieval Ireland', *Journal of the Royal Society of Antiquaries of Ireland* 95 (1965), p. 230; A.J. Otway-Ruthven, *A history of medieval Ireland* (London, 1968), p. 147.
56. E.g. *A.L.C. s.a.* 1221; *A.F.M. s.a.* 1235, 1288; *A.U. s.a.* 1243; *A.I. s.a.* 1311; Scott and Martin, *Expugnatio Hibernica*, p. 231.

portents of things to come[57] but it was in France that the full potential of English military archery was revealed, during the Hundred Years' War that broke out in 1337. Huge numbers of archers were recruited by Edward III; at the siege of Calais in 1347 he had over 20,000 in a total force of some 32,000[58]. Credland notes that between 1353 and 1360 Edward purchased almost 20,000 bows and 24,000 sheaves of arrows (equivalent to more than half a million arrows). Prestwich sees this as part of a determined effort by the Crown to improve the equipment of his infantry, which up to that date had been of very mixed quality. In 1416 Henry V introduced an Act prohibiting the use of aspe (poplar) wood for manufacture of pattens or clogs in order to preserve supplies for arrow manufacture and the number of arrows purchased by the Crown increased dramatically, from some 150,000 in 1418 to over 425,000 in 1421[59]. In the later stages of the war, in the early 15th century, the proportion of archers to cavalry in English armies tended to be at least three to one and was often higher, while during the Wars of the Roses it tended to be as high as seven to one[60].

The firepower of these massed bodies of archers was decisive in most English successes of the Hundred Years' War. It has been estimated that at Crecy in 1346 Edward III's army of 12,000-13,000 men included 7,000-8,000 archers, who may have shot off up to half a million arrows during the battle. At Agincourt in 1415, although actual numbers were lower, the proportion of archers may have been even higher - some 5,000 in a total force of about 6,000 is suggested. Largely because of the impact of English archers, French armies also made substantial use of mounted archers armed with longbows from the later 14th century; in the 15th century French armies usually had two mounted archers to every man-at-arms, while mounted archers were also used, although less frequently, in Italy, Spain, Burgundy and Germany[61].

57. Bradbury, *The medieval archer*, pp. 88-89; Hardy, *Longbow*, pp. 51-53; Prestwich, *Armies and warfare in the Middle Ages*, p. 318, suggests that the battle of Faughart of 1318, in which "archers clearly played a significant part in the battle", may be an even earlier marker of the development of new tactics by the English. However, this view is based on Orpen's (*Ireland under the Normans* iv, pp. 200-26) account of Faughart and ultimately on the Irish tract, *Cath Fhochairte Brighite*, which is now considered to be a modern forgery; see J. Duffy, *The date and authorship of* Cath Fhochairte Brighite (Unpublished M. Litt. thesis, University of Dublin, 1987).

58. Hardy, *Longbow*, pp. 75-76; Prestwich, *Armies and warfare in the Middle Ages*, pp. 117-18.

59. A.G. Credland, 'The medieval war arrow', *Journal of the Society of Archer-Antiquaries* 25 (1982), pp. 28-29; Prestwich, *Armies and warfare in the Middle Ages*, pp. 133-34, 139-41.

60. Bradbury, *The medieval archer*, p. 151; Hardy, *Longbow*, p. 121; Prestwich, *Armies and warfare in the Middle Ages*, p. 118; A. Ayton, 'English armies in the fourteenth century', in A. Curry and M. Hughes (eds), *Arms, armies and fortifications in the Hundred Years War* (Woodbridge, 1994), pp. 32-33; A. Curry, 'English armies in the fifteenth century, in Curry and Hughes, *Arms, armies and fortifications in the Hundred Years War*, pp 45-47.

61. Hardy, *Longbow*, pp. 66-69, 113-18; Bradbury, *The medieval archer*, pp. 116-38, 141-42, 144-46;

Such was the impact of these English archers that they may have been an important factor in the development of plate armour, which offered greater protection against arrows than chain mail and which became almost universally worn in Europe very quickly after c1350[62]. Oakeshott accounts for the effectiveness of the longbow in terms of its range (up to 400 yards), its accuracy of aim and penetrative power and its rapidity of discharge - a longbowman could shoot several arrows in the time taken by a crossbowman to shoot one. It is suggested that in the 14th century the longbow could actually outshoot the crossbow and while the development of steel bows in the 15th century gave the crossbow the edge in terms of range, it did so at the expense of a further reduction in shooting speed so that the practical advantage of the longbow in warfare was, if anything, increased[63]. Throughout the 14th, 15th and early 16th centuries archery was of central importance in English military tactics and large numbers of archers formed the backbone of English armies. It may safely be assumed that at this period these men were all armed with longbows, which were manufactured in huge quantities, with laws passed to ensure proficiency in their use among the peasantry. If the notion of the longbow as England's national weapon was essentially a product of post-medieval nostalgia, it was, nevertheless, surely a well founded one[64].

Impact on Ireland: The royal army

Inevitably these developments affected Ireland and this can be seen from the mid-14th century on two levels. Firstly, the Anglo-Irish government made repeated efforts to encourage the use of the longbow among the colonists, clearly with the aim of developing a entire social class of archers on the English model. The more immediate response, however, was to use English archers for the defence of the colony. As early as 1331 it was proposed to provide the justiciar, Anthony de Lucy, with an additional retinue of 80 archers, while in 1339 a retinue of 200 English archers was proposed for the incoming justiciar, Thomas de Charleton[65]. It is not certain whether these proposals ever materialised but it is known that between 1344 and 1346 the justiciar Ralph d'Ufford campaigned in Ireland with an English retinue of 40 men-at-arms and 200 archers, as well as Irish troops. The composition of d'Ufford's forces reveals differences

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Contamine, *War in the Middle Ages*, p. 129; H. Riesch, 'Yew exploitation and long-bow trade in the 16th century', *Journal of the Society of Archer Antiquaries* **39** (1996), p. 5, Fig. 1.
62. Oakeshott, *The archaeology of weapons*, pp. 297, 283-84.
63. *Ibid.*, pp. 297-98; Bradbury, *The medieval archer*, p. 150; Hardy, *Longbow*, p. 75.
64. Heath, *Archery: a military history*, pp. 118ff, 124; Hardy, *Longbow*, pp. 128-29; Bradbury, *The medieval archer*, p. 160.
65. R. Frame, 'The justiciarship of Ralph Ufford: Warfare and politics in fourteenth-century Ireland', *Studia Hibernica* **13** (1973), p. 13 n.32; *Cal. Pat. Rolls 1338-40*, p. 355.

between Ireland and England at this date; the English troops consisted entirely of men-at-arms and archers (both mounted and foot), but the local forces, both Anglo-Irish and Gaelic, are described in traditional terms as men-at-arms, hobelars and "foot". While the "foot" almost certainly included some archers, the impression remains that Ireland was more conservative than England in shifting its military emphasis to archery[66].

The retinues of Charleton and d'Ufford are significant as the first examples of what was to be a feature of later medieval Ireland: in addition to the 20 men-at-arms which they were to provide from their salaries the chief governors of the colony tended to be provided with retinues of English troops paid for by the English exchequer[67]. The known details of the actual or proposed retinues of later medieval chief governors (see Table 1) reveal a steady increase in the importance of archers. In the later 14th century they usually accounted for two-thirds to three-quarters of the entire retinue - and sometimes more - and the numbers involved were often quite large. The largest force of archers ever seen in medieval Ireland was Richard II's army of 1394. The contemporary chronicler Froissart put the force at 30,000 archers and 4,000 men-at-arms, but Lydon estimated the total at 8,000-10,000, of whom no more than 1,500 were cavalry; this implies at least 6,000-8,000 archers[68].

The proportions of archers in chief governors' retinues increased markedly in the early 15th century and for most of that century the royal army in Ireland was composed almost exclusively of archers (see Table 4). Matthew suggests that the basic standing force in the absence of supplementary English troops, at least in the early 15th century, was 12 men-at-arms and 60 archers, but Richardson and Sayles and Ellis state that a retinue of 300-500 archers was regarded as the minimum acceptable[69]. It even appears that the government was not the only employer of English archers. In 1398 the bishop of Annaghdown was given royal licence to retain 200 archers obtained by him in England, because he could not administer his bishopric without them[70]. Where the bishop got the resources to maintain such a force is a mystery, but it seems that he did

66. J.F. Lydon, *The lordship of Ireland in the Middle Ages*, (Dublin, 1972), pp. 177, 197-98; Frame, 'The justiciarship of Ralph Ufford', pp. 44-47.
67. Lydon, *The lordship of Ireland*, p. 211; H.G. Richardson and G.O. Sayles, *The Irish parliament in the Middle Ages*, (Philadelphia, 1952), pp. 81-83, 228-29.
68. J.F. Lydon, 'Richard II's expeditions to Ireland', *Journal of the Royal Society of Antiquaries of Ireland* 93 (1963), pp. 141-43.
69. E. Matthew, 'The financing of the lordship of Ireland under Henry V and Henry VI', in T. Pollard (ed), *Property and politics: essays in later medieval English history* (Gloucester, 1984), pp. 105-06; Richardson and Sayles, *The Irish parliament in the Middle Ages*, p. 228 n.9; S.G. Ellis, *Reform and revival: English government in Ireland, 1470-1534* (Woodbridge, 1986), p. 48.
70. *Cal. Pat. Rolls 1391-96*, 301.

so for some indeterminate length of time. Cosgrove's conclusion that "when the administration had adequate forces at its disposal it could enforce submissions by Irish chieftains with comparatively little difficulty" can be seen as testimony to the effectiveness of these retinues of archers. This is further supported by Archbishop Swayne's appeal, probably to the Duke of York, to send 400 archers to Ireland to restore the peace in 1427[71].

Date	Chief Governor	Retinue
1331	Anthony de Lucy	80 archers[72]
1338	Thomas de Charleton	200 archers, 2 horsemen[73]
1344	Ralph d'Ufford	207 archers, 40 men-at-arms[74]
1346	Walter de Bermingham	50 archers, 10 men-at-arms[75]
1349	Thomas de Rokeby	40 archers, 20 men-at-arms[76]
1357	Amaury de St Amand	100 archers, 40 men-at-arms[77]
1361	Duke of Clarence	670 archers, 197 men-at-arms[78]
1369	William of Windsor	300 archers, 200 men-at-arms[79]
1372	Robert of Ashton	100 archers, 60 men-at-arms[80]
1376	Earl of Ormond	200 archers, 120 men-at-arms[81]
1385	Robert de Vere	1000 archers, 500 men-at-arms[82]
1389	John Stanley	400 archers (300 mounted)[83]
1395	William le Scrope	800 archers, 200 men-at-arms[84]
1399	John Stanley	300 archers, 99 men-at-arms[85]

Table 4: Chief governors' retinues, 1331-1399

71. A. Cosgrove, 'The emergence of the Pale, 1399-1447', in A. Cosgrove (ed.), *Medieval Ireland 1169-1534* (Dublin, 1987), p. 544; Chart, *The register of John Swayne*, pp. 110-11.
72. Frame, 'The justiciarship of Ralph Ufford', p. 13 n.32
73. *Cal. Pat. Rolls 1338-40*, p. 355.
74. *Cal. Pat. Rolls 1343-45*, p. 227.
75. *Analecta Hibernica* 2, pp. 210-11; *Cal. Pat. Rolls 1345-48*, p. 156.
76. A.J. Otway-Ruthven, 'Ireland in the 1350's: Sir Thomas de Rokeby and his successors, *Journal of the Royal Society of Antiquaries of Ireland* 97 (1967), p. 47.
77. *Analecta Hibernica* 2, p. 208; J.T. Gilbert, *History of the viceroys of Ireland,* (Dublin & London, 1865), p. 211.
78. P. Connolly, 'The financing of English expeditions to Ireland, 1361-1376', in J.F. Lydon (ed.), *England and Ireland in the later Middle Ages: essays in honour of Jocelyn Otway-Ruthven* (Dublin, 1981), p. 105; however, J.A. Watt, 'Gaelic polity and cultural identity', in Cosgrove, *Medieval Ireland 1169-1534*, p. 386 gives figures of 1250 archers and 350 men-at-arms.
79. Connolly, 'The financing of English expeditions', p. 111.
80. Richardson and Sayles, *The Irish parliament in the Middle Ages*, pp. 81-82.
81. *Cal. Pat. Rolls 1374-77*, p. 336.
82. Gilbert, *History of the viceroys*, p. 253.
83. Lydon, *The lordship of Ireland*, p. 211
84. D. Johnston, 'The interim years: Richard II and Ireland, 1395-1399', in Lydon, *England and Ireland in the later Middle Ages,* p. 176.
85. Richardson and Sayles, *The Irish parliament in the Middle Ages*, pp. 228-29, n.9.

1406	Stephen le Scrope	300 archers, 50 men-at-arms[86]
1414	Earl of Desmond	300 archers, 60 men-at-arms[87]
1423	Richard Talbot	60 archers, 12 men-at-arms[88]
1425	Earl of Ormond	60 archers, 12 men-at-arms[89]
1428	John Sutton	500 archers, 24 men-at-arms[90]
1431	Thomas Stanley	500 archers, 24 men-at-arms[85]
1438	Lionel Welles	300 archers[91]
1442	Earl of Ormond	300 archers[91]
1462	Roland FitzEustace	300 archers[92]
1467	Earl of Worcester	500 archers[93]
1471	Duke of Clarence	500 archers[94]
1474	Gilbert Debenham	400 archers (500 archers in 1475)[93]
1477	William Sherwood	200 archers[93]
1478	Henry Grey	300 archers[93]
1479	Robert Preston	40 archers, 20 men-at-arms[85]
1481	Earl of Kildare	80 archers, 40 men-at-arms[85]
1494	Edward Poynings	495 archers, 90 gunners, 68 men-at-arms and others[95]
1496	Henry Deane	330 English soldiers, probably archers, 100 kern[96]

Table 4 (contd.): Chief governors' retinues, 1406-1496.

The provision of retinues of English archers at the expense of the English exchequer was discontinued in 1479 but revived in 1494 when Sir Edward Poynings brought over 420 archers, bringing the total royal army in Ireland to 650, of whom 495 were archers[97]. Kildare rule was reinstated thereafter, however, and English forces were not used on a large scale in Ireland again until the Fitzgerald revolt of 1534-35. While details are scarce, it is clear that archers were again prominent in these forces. In 1535, for instance, the Lord Deputy, Sir William Skeffington, claimed that an English force of 60 mounted archers had put to flight "Silken" Thomas with 860 horsemen, gallowglass

86. *Cal. Pat. Rolls 1405-08*, p. 237
87. J. H. Wylie, *The reign of Henry the fifth*, vol. 1 (Cambridge, 1914), p. 61.
88. Cosgrove, 'The emergence of the Pale', pp. 544-45.
89. Gilbert, *History of the viceroys*, p. 321.
90. Otway-Ruthven,, *A history of medieval Ireland*, p. 365.
91. R.A. Griffiths, *The reign of King Henry VI* (London, 1981), pp. 413, 437 n.76.
92. D.B. Quinn, 'Guide to English financial records for Irish history, 1461-1558, with illustrative extracts, 1461-1509', *Analecta Hibernica* **10** (1941), p. 36.
93. D.B. Quinn, 'Aristocratic autonomy, 1460-94', in Cosgrove, *Medieval Ireland 1169-1534*, pp. 600-05.
94. Quinn, 'Guide to English financial records', p. 43
95. A. Conway, *Henry VII's relations with Scotland and Ireland 1485-1498* (Cambridge, 1932), pp. 78, 167.
96. D.B. Quinn, 'The hegemony of the earls of Kildare, 1494-1520', in Cosgrove, *Medieval Ireland 1169-1534*, p. 645.
97. Richardson and Sayles, *The Irish parliament in the Middle Ages*, p. 228; Conway, *Henry VII's relations with Scotland and Ireland*, pp. 78, 167.

and kern[98]. As late as 1567 English archers were still being sent to Ireland and ironically it is at this date, in the twilight of the age of military archery, that we get the only detailed description of the archers who had been such a part of Irish history for over two centuries: A company of 50 Lancashire archers assembled at Chester to be shipped to Ireland were described as dressed in deerskin jerkins and iron skullcaps, over which were worn blue cassocks and red caps, and armed with yew bows, sheaves of arrows in cases, swords and daggers[99]. It is unfortunate that the surviving records rarely specify whether the archers in these retinues were mounted. We know, however, that 300 of the 400 archers brought by John Stanley in 1389 were mounted and it is likely that there was a high proportion of mounted archers in most of these retinues. The mobility of mounted archers must have made them particularly effective in Irish conditions.

Indigenous Anglo-Irish archery

A centralised royal army could only achieve a limited amount in medieval Ireland, however, and the Anglo-Irish colonists were always only too well aware of the need to provide for their own defence. Not surprisingly, they increasingly emphasised archery from the 14th century onwards. The Irish parliament of 1460 must have expressed contemporary perceptions in stating that

> the defence of the English nation of this land from the danger and malice of the Irish enemies of the same land rests and depends on English bows, which to the said enemies give the greatest resistance and terror of any weapon of war used in the said land[100].

Although it is likely that archery was part of the colonists' folk culture from the outset of the colony, the later medieval period saw repeated legislative efforts to encourage and indeed compel the development of a large pool of proficient archers among the colonists. In 1308 the Statute of Winchester established the longbow as the weapon of the tenantry of moderate substance (the "yeoman" of English legal terminology) and required them to equip themselves with bows and arrows. The famous Kilkenny parliament of 1366 issued an instruction to the commons of the colony to "apply and accustom themselves to use and draw bows and throw lances", rather than indulge in other pastimes[101].

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98. *Cal. Carew Mss 1515-74*, p. 64.
99. 'The manuscripts of Lord Kenyon', *Report of the Historic Manuscripts Commission* 14 (1894), Appendix, Part IV, p. 587.
100. H.F. Berry (ed.), *Statute rolls of the parliament of Ireland: reign of King Henry VI* (Dublin, 1910), pp. 647-49.
101. Berry, *Statutes: King John to Henry V*, pp. 256, 439.

Legislative attempts to encourage archery reached a peak in the later 15th century when several parliaments passed laws requiring, *inter alia:*

- that every man of the colony provide himself with a longbow and arrows
- that every lord or large landowner provide bows and arrows for his servants and maintain on his property one fully equipped mounted archer for every 20l. of lands or property held
- that every town of more than three houses was to erect a pair of butts at which the inhabitants were to practice archery on each feast day between March and July[102].

The supply of longbows was a recurring problem, parliament noting in 1460 that the colony was "very nearly destitute" of bows. While the laws just mentioned required individuals to provide themselves with bows, a law was also passed in 1473 (and re-enacted in 1495 and 1516) compelling merchants importing goods from England to bring with them longbows for sale in Ireland, in proportion to the value of their merchandise[103]. The Anglo-Irish administration was concerned that because of the difficulty of obtaining longbows, the colonists were tending to use shorter "Irish" bows (discussed in more detail in Chapter 4, below). The preamble to the 1515 bill to re-enact the 1473 law stated that

> in defaulte of long bowys, diverse of the King's subjects applie themselfs
> to Irishe Archery as using Irishe bowys and Irishe spers, which inducith
> them to Irishe disposition[104].

Many of these acts echoed ones previously enacted in England itself[105] and this may have been a more or less perfunctory operation, but it is clear that they did have some impact. The act compelling merchants to import longbows was actually being enforced up to the late 16th century, when complaints were made that it was being abused[106]. Moreover, there is evidence of archery butts in several towns, the location of which can often be traced with a greater or lesser degree of precision. In Dublin, "Hoggen butts" was located on or near Hoggen (now College) Green, just east of the walled medieval town[107]. Drogheda apparently had at least two butts; D'Alton notes one

102. Berry, *Statute rolls: Henry VI*, pp. 647-49; H.F. Berry (ed.), *Statute rolls of the parliament of Ireland: reign of King Edward IV* (Dublin, 1914), pp. 293-98; Vesey, *The statutes at large, passed in the parliaments held in Ireland, vol. i, 1310-1612,* p. 48.
103. Berry, *Statute rolls: Henry VI,* p. 647; Morrissey, *Statute rolls: Edward IV,* p. 99; Quinn, 'Guide to English financial records', p. 13.
104. *Report of the Historic Manuscripts Commission* 9 (1883-84), Appendix, 272.
105. E.g. Hardy, *Longbow,* p. 128.
106. *Cal. Carew Mss 1575-88,* p. 401.
107. J.T. Gilbert, *A history of the city of Dublin,* iii, (Dublin, 1859), p. 3: C. Haliday, *The Scandinavian kingdom of Dublin,* 2nd edn. (Dublin, 1884), pp. 166-69.

in the town fosse, at the north-east corner of the town walls on the Louth side, while there is also a record of a "Blinde butts" near the south-west corner of the town on the Meath side[108]. An area in Kilkenny, just outside the town walls on the north-west, is still known as "The Butts" or "Butts Green", while the survival of a placename, "the Butts" at Knocktopher, Co. Kilkenny may well also indicate the location of a medieval butts[109].

In the case of Waterford, not only can one butts (and possibly a second) be confidently located but its outline can still, to a certain extent, be detected in the modern morphology of the town. In 1564 John Lewes, a Waterford citizen, received a royal pardon for having accidentally killed another man while practising with his bow at an archery butts called "the Shortcourse"[110]. Shortcourse still exists today on the south side of Ballybricken Green, just outside the western walls of the medieval town, and early maps indicate that it originally extended from Ballybricken Green to Barrack Street. Although built over, the unusual width of this street suggests that it preserves, at least in part, the outline of the medieval archery butts. Indeed, the presence of a second archery butts in Waterford may be inferred from the name of the adjacent townland to the south of Barrack Street, "Longcourse", although no documentary references to such a butts are known to the writer.

As the evidence for butts underlines, archery was particularly promoted in the colony's towns. Dublin's city council ordered in 1454 that all apprentices must possess bows and swords before they could be admitted as freemen of the city, and in 1469 ordered that half of the city's annual murage grant be spent on bows and arrows for the defence of the city[111]. At this time, also, Dublin's civic officials included two "receivers for bows" and the city had a fraternity or guild of St Edmund, the brethren of which were apparently responsible in some sense for the supply of arrows to the city. Clark and Refaussé, indeed, suggest that this guild was responsible for the manufacture of arrows, but otherwise little is known about it[112]. There is evidence from the mid-16th

108. J. D'Alton, *The history of Drogheda*, vol. i (Dublin, 1844), pp. 104-06; T. Gogarty (ed.), *Council Book of the Corporation of Drogheda*, vol. i (Dundalk, 1915), pp. 29ff.
109. W. Carrigan, *The history and antiquities of the diocese of Ossory*, vol. iii (Dublin, 1905), p. 192; K.M. Lanigan and G. Tyler (eds), *Kilkenny: Its architecture and history* (2nd edn., Belfast, 1987), p. 87; J. O'Hanlon, *Lives of the Irish saints...*, vol. ii (Dublin, 1875), p. 258.
110. *11th Rep. Dep. Keeper Pub. Recs Ireland*, 104: no. 648.
111. Gilbert, *Calendar of ancient records of Dublin*, i, pp. 283, 333.
112. *Ibid.*, pp. 330, 325 (dated 1466); M. Clark and R. Refaussé (eds), *Directory of historic Dublin guilds* (Dublin, 1993), p. 41. The dedication to St Edmund can hardly be coincidental, as this saint is said to have been martyred by being shot to death with Viking arrows, a scene frequently found in English medieval art (e.g. Hardy, *Longbow*, 31; Bradbury, *The medieval archer*, 17).

century that Dublin had a formal guild of bowyers and fletchers, which must undoubtedly have had earlier origins; this may have been the guild of St Edmund but since the latter's activities appear to have been restricted to the distribution of arrows, a separate guild of bowyers may be indicated[113]. In 1493 Henry VII granted 40s annually to be spent on bows and arrows for distribution among the commons of Dublin, and as late as 1554 the city council was requiring all Dublin merchants, on returning to the city from England, to bring with them "a dossyng of ewe bowis" or face a fine of 40s[114].

The promotion of archery was by no means confined to Dublin, or even to the towns of the Pale. Henry VII, in 1486-87, also made a grant for the purchase of 200 bows, 400 sheaves of arrows (a sheaf contained 24 arrows) and 400 bowstrings for the defence of Waterford[115]. In 1455, when the town of Ardee was granted the right to summon the inhabitants of Co. Louth to the defence of the county and to fine those who refused the summons, it was stated that the fines were to be spent on bows and arrows for the defence of the town[116]. Even in a town as remote from the Pale as Galway, the corporation in 1527 forbade the townsmen to play quoits or hurling, "but onely to shute in longe bowes, short crosboues and hurlinge of dartes or speres"[117]. The effect of measures such as these is hard to gauge, but there are indications, as shall be seen, that archery was more widely practised in the towns than in the surrounding countryside.

The importance of an indigenous corps of archers became particularly evident in the late 15th century as the provision of English troops could no longer be relied upon. In 1471 the Irish parliament responded to the withdrawal of the earl of Worcester and his English archers with a plan for a new retinue of 80 archers, presumably indigenous, to be jointly financed by the chief governor (the earl of Kildare) and the Pale counties of Dublin, Meath, Louth and Kildare[118]. A large but temporary force of 160 archers and 63 men-at-arms, financed by a levy on the Pale, was proposed in 1473 and in the following year came a plan for a more permanent force, the Brotherhood of St. George. This plan

The 15th century wall painting at Knockmoy abbey, Co. Galway, thought to represent the martyrdom of either St Sebastian or St Christopher, is perhaps more likely to depict the martyrdom of St Edmund.

113. In 1560 the city council ruled that "no forren bowier ne flaicher shall wurk ne sell any bowes, shaftes or arrowes tyll they agree with the company of the said occupacion being fremen of this cittie", J.T. Gilbert (ed.), *Calendar of ancient records of Dublin*, vol.ii (Dublin, 1891), p. 8.
114. Gilbert, *Calendar of ancient records of Dublin*, i, pp.141-42, 436.
115. Quinn 'Guide to English financial records', p. 51.
116. Berry *Statute rolls: Henry VI*, pp. 315-17.
117. J.T. Gilbert, 'Archives of the town of Galway - Queen's College, Galway', *Report of the Historic Manuscripts Commission* 10 (1885), Appendix V, p. 402.
118. Berry *Statute rolls: Edward IV*, pp. 715-17.

envisaged 13 of the leading nobles of the Pale leading a force of 120 mounted archers, 40 men-at-arms and 40 pages, financed by a new custom on merchandise sold in Ireland, but the Brotherhood can hardly have functioned at this date as English retinues were restored from 1474 to 1479 and the custom which was to finance the Brotherhood was abolished in 1477[119]. English retinues were again discontinued in 1479 and the new Deputy, Robert Preston, was left with only 40 archers and 20 men-at-arms financed by the Irish exchequer and again, presumably indigenous. In 1481 this retinue was doubled for the earl of Kildare and the Brotherhood of St George was revived, and apparently constituted the colony's main defence force until its final abolition by Poynings after 1494[120]. Thus even in the absence of English retinues the emphasis on archery was maintained.

A change occurred after Poynings' departure, however, as the earls of Kildare as chief governors until the mid-1530's tended to provide their own retinues composed mainly of gallowglass and kern rather than archers. Quinn notes that even in the 1480's Kildare was using hired gallowglass and kern in addition to his official retinue of archers and cavalry, and suggests this was because the official force was not adequate for the major interventions made by Kildare in all parts of the country. Another reason may have been the suspicion that the official force, largely composed of men of the Pale, could not be counted upon to co-operate in some of the ventures which Kildare undertook for purely personal gain in this period. Thus the replacement of archers by gallowglass and kern may have been done largely for political considerations and may reveal little about the perceived military value of the different forces[121].

A Pale phenomenon?

Nevertheless, this change in the late 15th century must raise questions about the success of the efforts to foster archery among the Anglo-Irish colonists. There is evidence that in the relatively stable and Anglicised heartlands of the Pale a tradition of yeoman archery on the English pattern may indeed have developed. For instance, when the county of Louth was raided by O'Reilly, McCabe and McBrady in 1468 the town of Drogheda sent 500 archers and 200 armoured men with poleaxes to resist the raiders; this was a typically English "bills and bows" force but in this case they were apparently

119. Morrissey, *Statute rolls: Edward IV*, pp. 131-37, 189-95; Quinn, 'Aristocratic autonomy, 1460-94', pp. 604-05.
120. Richardson and Sayles, *The Irish parliament in the Middle Ages*, pp. 228-29; Morrissey, *Statute rolls: Edward IV*, pp. 741-47; Quinn 'Aristocratic autonomy, 1460-94', p. 607; Ellis, *Reform and revival*, p. 53.
121. Ellis, *Reform and revival*, p. 54; Quinn 'Aristocratic autonomy, 1460-94', p. 607-08.

all men of Drogheda[122]. This tradition, however, appears to have been restricted, in the later Middle Ages, to a relatively small area at the core of the Pale. The 1515 report on the *State of Ireland...* specifically states that

> archery is fayled amonges all the Kinges subgettes of this lande,
> except among suche as dwellyth in the cytye of Dublyn and towne of
> Droghda, and suche as dwelleyth betwyxt bothe towarde the see coste

The author stresses the need to repopulate Gaelicised areas with English settlers

> for hyt is necessary that all that partyes be inhabyt with Englyshe men,
> not only to noryshe our Englyshe langage, but also to encrese archery,
> wherby the lande was conquered, and in defaulte of archery, unto lytyll,
> the lande is loste[123].

Ordinances enacted during the Fitzgerald revolt in 1534 further bear out a distinction between the core of the Pale and other areas. Within the Pale, the senior clerics and the towns, including Dublin and Drogheda, were ordered to provide troops specified as "able archers, or gonners" to accompany the Deputy on hostings. On the other hand the counties of Uriel, Kildare and Carlow and the "marches" of Meath and Dublin, as well as some Gaelic chieftains such as O'Farrell in Longford and MacMurrough in south Leinster, were to support gallowglass and kern who would accompany the Deputy on campaign[124]. A similar pattern is reflected in the Lord Deputy's instructions in 1556 for a hosting of the Pale counties to campaign in Ulster: A total of nearly 1200 men were to be summoned and it is noticeable that the contribution from the core counties of Meath and Dublin was to consist almost entirely of mounted archers, with 60 "archers and gunners" from the city of Dublin, while the bulk of the force were horsemen and kern drawn mainly from the more peripheral counties of Westmeath and Louth, and from Irish allies[125]. There is no reason to believe that the 1534 ordinances gave rise to this military distinction between Meath/Dublin and the more outlying areas of the Pale; rather, they merely recognised and regulated for the existing reality.

Outside of the Pale it is likely that the Irish military pattern of horsemen, gallowglass and kern was almost universally employed. Even the relatively Anglicised Butlers of Ormond followed the Irish pattern to the extent that the earls of Ormond had

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122. Mac Iomhair, 'Two old Drogheda chronicles', p. 91.
123. *State papers...King Henry the Eighth, Part III*, pp. 19-20, 24.
124. *State papers...King Henry the Eighth, Part III*, 212-14.
125. Gilbert, *Facsimiles of national manuscripts of Ireland*, Part IV.i, Appendix V.

to take a series of measures in the 15th and 16th centuries to regulate the billeting of gallowglass and kern on the counties of Kilkenny and Tipperary[126]. The earl of Kildare apparently made significant use of archers, presumably men of the Pale, at the battle of Knockdoe in 1504; Hayes McCoy suggested that he drew them up in the classic English pattern, in wings flanking his main body of billmen. But in general the earls of Kildare relied almost exclusively on gallowglass and kern in the late 15th and early 16th centuries, as is rather ironically reflected in "Silken" Thomas' force of horsemen, gallowglass and kern apparently being put to flight in 1535 by a much smaller force of English archers[127].

A document written in the reign of Henry VIII, but possibly quoting Pandar's *Salus Populi* of the late 15th/early 16th century, comments on the decline of traditional English archery among the Anglo-Irish thus:

> some regret that the English who, after their country manner, used to use bows, arrows, swords, bucklers, jacks and salets and foil the enemy therewith have now abandoned these and use Irish bows and darts; whereby the enemy, being far more now in number and more expert, speedily reduce the subject to a weak state[128].

In 1533 the Council of Ireland noted that "oon other decaie of this lande is in defaulte of Inglish inhabitauntes, which, in tymes past, were archers..."[129].

At official level, however, efforts to promote archery continued. Ordinances enacted during the Fitzgerald revolt in 1534 specified the armour and weapons of three classes of commoners:

- those with goods of £10-£20 value were to have "a jacke or coote of defence, a bowe, a sheve of arrowes, and a byll, a sallet, or a sculle"
- those with goods of £4-£10 value were to have "a bowe, halfe a shefe of arrowes, a byll, and a sallet, or a scull"
- hired men earning above 13s 4d yearly were to have "a byll and a scull, or bowe and arrowes".

126. Ellis, *Reform and revival*, p. 54; Empey and Simms, 'The ordinances of the White Earl', pp. 167-71, 174-78.
127. Hayes McCoy, *Irish battles*, p. 60; Ellis, *Reform and revival*, pp. 54-55; *State papers...King Henry the Eighth, Part III*, p. 234.
128. *Cal. State Papers Ireland 1601-03*, p. 675.
129. *State papers...King Henry the Eighth, Part III*, p. 163.

The continued prominence given to archery is notable and is even more clearly seen in another of the ordinances:

> that no Englysshe man, dwellynge within the harte of the Inglyshe pale, do take any speare with hym to the felde,...excepte he take a bowe and arrowes, upon peyne of forfayture...6s 8d, and losyng of his spere[130].

Further telling comments occur in a report sent by John Alen to Cromwell in 1535; after noting that the army in Dublin lacked bows, arrows and bowstrings, he stated that "if the money and bowis (bows) come, we shall besiege Maynoth on Saint Mathies day next; otherwise that appointment can not take effecte"[131].

Gaelic and Scottish archery

The use of the bow by the Gaelic Irish, first noted in the 13th century, continued in the later medieval period, as is demonstrated by several annalistic records of the killing or injuring of prominent individuals by Irish archers[132] and by contemporary accounts of Irish warriors and battles. John de Perilhos, visiting Ireland in 1397, noted the use of bows by Ó Néill's warriors[133]. *A. Conn.*'s account of a skirmish at Loch Labain (Co. Roscommon) in 1405 between Ó Conchobair Donn and Tadc mac Diarmata, king of Moylurg, notes that bows were used on both sides, mac Diarmata himself being killed by an arrow. An account of Irish chieftains' forces by the English writer Nowell, dating to the 1480's, notes that both the common footsoldiers or kern and the "knaves" (i.e. pages) of the gallowglass tended to be armed with bows[134]. The use of bows by kern is confirmed by Sentleger in 1543, by Spenser in 1596 and by Dymmok in *c.*1600[135]. Archery clearly became deeply ingrained in Gaelic military tradition, so much so that it even survived the demise of that tradition. Prints of Irish soldiers serving in Swedish armies of the Thirty Years' War, dated 1631, depict them (and refer to them) as armed with bows, as well as muskets and long knives; indeed, of the ten figures illustrated by Hennig, no fewer than seven are armed with bows, suggesting that the bow had acquired major importance in the Gaelic armoury[136].

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130. *State papers...King Henry the Eighth, Part III*, pp. 208-09, 213.
131. *Ibid.*, p. 229.
132. E.g. *A. Conn. s.a.* 1401, 1422, 1463; *A.F.M. s.a.* 1501; *A.U. s.a.* 1529.
133. J.P. Mahaffy (ed.), 'Two early tours in Ireland', *Hermathena* **xviii** (1914-19), p. 7.
134. Price, 'Armed forces of the Irish chiefs', p. 206; see Quinn and Nicholls, 'Ireland in 1534', p. 32 n.3 for revised dating of this text.
135. D.G. White, 'Henry VIII's Irish kerne in France and Scotland, 1544-45', *Irish Sword* 3 (1957-58), p. 213; W. L. Renwick (ed.), *A view of the present state of Ireland, by Edmund Spenser* (Oxford 1970), p. 57; R. Butler (ed), *A treatice of Ireland; by John Dymmok* (Dublin, 1842), p. 7.
136. J. Hennig, 'Irish soldiers in the Thirty Years' War', *Journal of the Royal Society of Antiquaries of*

In the 16th century there is also evidence for the use of the bow in Ireland (mainly in Ulster) by Scottish mercenaries; these are to be distinguished from the gallowglass, who do not seem ever to have been archers. Blackmore notes that archery was still actively pursued in Scotland, especially in the Highlands, well into the 17th century[137]. The earliest record of Scottish archers in Ireland is in 1524, when Magnus Ó Domnaill and a party of Scots went shooting arrows (*soighdeoracht*) in a night raid on the camp of the earl of Kildare and Conn Ó Néill, who were on a joint expedition into Tir Conaill. The killing of Eoghan Ó Néill by Scottish archers is recorded in 1534 and in 1545 a large force of Scots in Ireland were described as being armed with "long swords and long bows and few guns". In 1551 Matthew O'Neill, baron of Dungannon, while assisting Marshal Bagenal, "met with a hundred Scots...who withstood him with shot of arrow"[138].

The effectiveness of Scottish archers was most clearly seen in 1584 when a force of 2400 Scots, of whom 1100 were archers, landed in Ulster. Lord Deputy Perrot noted soon afterwards that "the Scotts bowmen have done more hurt in the skirmishes then our shott have done" and such was the Scots' impact that it prompted the English administration into efforts to reverse the trend towards the abandonment of archery in the army and among the general populace (see below)[139]. Scottish archers figured prominently in the great Ulster wars of the 1590's; they are listed among Maguire's forces in 1593 and in O' Neill's in 1595 and in 1598, when his personal retinue included "100 naked Scots with bows"[140]. A 17th century biography of Hugh O'Donnell describes how he ambushed English troops near Sligo in 1595 with 100 horsemen and 300 foot armed with bows, while *A.F.M.* notes the "swarms of sharp arrows" shot by O'Donnell's forces at the battle of the Curlew mountains in 1599[141]. It is not specified whether O'Donnell's archers were Irish or Scottish.

The end of military archery
The military significance of archery began a slow decline from the early years of the 16th century and Flodden in 1513, or alternatively the lesser known Anglo-Scottish

Ireland 82 (1952), pp. 33-36; Pls V-VII.
137. Harbison, 'Native arms and armour in medieval Gaelic literature', p. 282; H.L. Blackmore, 'The bow in the British army, 1627', *Journal of the Society of Archer-Antiquaries* 33 (1990), p. 8.
138. *A. Conn. s.a.* 1524; *A.F.M. s.a.* 1534; White, 'Henry VIII's Irish kerne', p. 222; *Cal. State Papers Ireland 1509-73*, p. 119.
139. *Cal. State Papers Ireland 1574-85*, p. 524; C. McNeill, 'The Perrot papers', *Analecta Hibernica* 12 (1943), p. 15.
140. *Cal. State Papers Ireland 1592-96*, pp. 112, 385, 389; *Cal. Carew Mss 1589-1600*, p. 287.
141. D. Murphy (ed.), *Beatha Aodha Ruaidh Ui Dhomhnaill* (Dublin, 1893), p. 101.

encounter at Pinkie Cleugh in 1547, are regarded as the last English victories in which the longbow played a decisive role[142]. The nemesis of the longbow was of course the gun, which was constantly increasing in efficiency at this date. The advantage of firearms lay not in range or penetrative power, but simply in that they could be used effectively by almost anyone with little or no training whereas military archery, to be effective, required highly trained men and in large numbers. Maintaining this large pool of trained archers was a constant struggle for English kings, requiring almost a medieval form of cultural engineering. Nevertheless Henry VIII made strenuous efforts throughout his reign (1509-47) to encourage the use of the longbow and maintain archery as a major component of his armies and it was probably not until the reign of Elizabeth (1558-1603) that guns replaced the longbow on a large scale[143]. By the end of the 16th century the longbow had effectively been abandoned as a weapon by English armies. It has been suggested that Charles I (1625-49) made some attempts to restore the longbow and that it was actually used on a small scale by both sides in the English Civil War of the 1640's. Credland, however, dismisses this suggestion, arguing that the only combatants in the Civil War who regularly carried bows were Scottish highlanders[144].

In Ireland the fate of archery again followed, in broad terms, the English pattern as the use of guns increased slowly but steadily from the end of the 15th century onwards[145]. Falls noted that English foot companies in Ireland in 1561 were composed of roughly equal numbers of archers and harquebusiers (the harquebus was an early form of gun), whereas by 1596 they were composed entirely of musketeers and pikemen. He identified the 1570's as the crucial decade in which the longbow was replaced by the musket[146]. The arrival in Ulster in 1584 of a large body of Scots archers, who seem to have outshot the English musketeers, led to a temporary reversal of this trend. The Lord Deputy sent for additional troops from England, specifying that a proportion of them be "good bowmen"; he also ordered the erection of butts for archery practice in every parish and proposed to enforce again the law of 1473 requiring merchants to import longbows, which were "growing dear and scarce". Ironically, just

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142. Hardy, *Longbow*, p. 131; A.G. Credland, 'The longbow in the sixteenth and seventeenth centuries', *Journal of the Society of Archer-Antiquaries* 32 (1989), pp. 9-10.
143. Hardy, *Longbow*, pp. 131-35; Bradbury, *The medieval archer*, 155.
144. Hardy, *Longbow*, pp. 141-43; A.G. Credland, 'Bow and pike', *Journal of the Society of Archer-Antiquaries* 29 (1986), p. 11; see also Blackmore, 'The bow in the British army, 1627', pp. 4-12.
145. See S. de hÓir, 'Guns in medieval and Tudor Ireland', *Irish Sword* 15 (1982-83), pp. 81-85.
146. C. Falls, *Elizabeth's Irish wars* (London, 1950), p. 39; C. Falls, 'The growth of Irish military strength in the second half of the sixteenth century' *Irish Sword* 2 (1954-56), p. 104.

at this date the Deputy was being advised in Dublin to alter this law, to require the importation of guns rather than bows because merchants who did import longbows "cannot get any money for them of any merchant here, because they are not used here, nor had in estimation"[147].

There are some other indications that archery was not completely abandoned in the late 16th century (the Gaelic Irish and their Scottish allies, of course, continued to use the bow to the very end of the century). A number of land leases dating between 1561 and 1609 contain provisions requiring the maintenance of English archers on the properties to be leased; as late as 1609 the earl of Thomond's grant of Holmpatrick priory Co. Dublin required him to maintain there "six fit and sufficient archers, or bowmen of the english nation, or born within the pale of the kingdom of Ireland"[148]. The garrison of Dungarvan castle Co. Waterford included archers as late as 1597, while English forces attacking the crannog of Loghrorcan Co. Armagh in 1601 used incendiary arrows[149]. This, however, was possibly an isolated incident and Dungarvan seems for some reason to have been an exceptional case - apart from Carlow it was the only Irish castle in a list of 1576 to have archers in its garrison[150]; moreover the lease clauses requiring archers may have been no more than outdated legal conventions, although this cannot certainly be established.

What is certain is that the currents of change were running irreversibly against military archery in the late 16th century. In 1591 Sir George Carew, Master of the Ordnance for Ireland, proposed the replacement of a bowyer and other "needless artificers" with "others more necessary, [such] as armourers...", and by 1610, when the Treasurer of Wars for Ireland was instructed to abolish the obsolete offices of fletcher and archer in the army, it can be taken that military archery in Ireland was a thing of the past[151].

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147. *Cal. Carew Mss 1575-88*, pp. 384, 392, 401, 417; McNeill 'The Perrot papers', p. 15.
148. *11th Rep. Dep. Keeper Pub. Rec. Ireland*, p. 65: no.311 (dated 1561); *ibid.*, p. 91: no.527 (dated 1563); *ibid.*, p. 95: no.556 (dated 1563); *12th Rep.*, p. 79: no.2154 (dated 1572); J.C. Erck (ed.), *A repertory of the inrolments of the patent rolls of Chancery in Ireland, commencing with the reign of King James I* (Dublin, 1846-52), pp. 178-79 (dated 1605); *ibid.*, p. 402 (dated 1607-08); *ibid.*, pp. 739-40.
149. *17th Rep. Dep. Keeper Pub. Rec. Ireland*, p. 50: no.6070; F. Moryson, *An itinerary..,* 3 vols (London, 1617), ii, p. 97.
150. *Cal. Carew Mss 1575-88*, pp. 44-45.
151. *Cal. Carew Mss 1589-1600*, p. 52; *Cal. State Papers Ireland 1608-10*, p. 451.

PART TWO

ARCHAEOLOGY

CHAPTER 3:

THE ARROWHEAD

Introduction

A total of 854 definite or possible arrowheads, all of iron, have been included in this study; almost 80% of these are from datable excavated contexts, which cover the period from the 9th century to the late 15th/16th century. The following typological analysis is concerned with three main issues - the form and features of projectile heads, their chronology and their functions. Consideration of function raises a number of methodological questions which are best discussed in advance of the actual typological analysis. The view is taken in this analysis that the primary attribute determining the classification of projectile head types is the form of the blade, which is essentially related to the projectile's function. Function, in this context, has two main aspects:

- Can the projectile head be classified as an arrowhead (i.e. derived from a projectile used with a wooden self bow), or as the head of a crossbow bolt, or as some other form of projectile head?

- Was the projectile head intended for use in warfare, in hunting/sport, or both?

It will be noted in the following discussion that the term "projectile head" is often used in place of "arrowhead". This reflects the fact that it cannot automatically be assumed that the objects discussed are arrowheads, since missile weapons other than the simple wooden bow were clearly used in medieval Ireland. The crossbow immediately springs to mind in this regard, but there is also evidence for other, larger projectile machines. Furthermore the most important projectile weapon in medieval Ireland was the spear, in all its various forms, and some arrowhead types are, in effect, miniature versions of spearheads. In such cases the distinction between large arrowheads and small spearheads is often far from obvious.

At first glance, some of the projectile heads included in this study seem too large to be considered arrowheads. In some cases there is little difficulty in recognising this. Many spearheads are essentially of similar form to the Type 2 arrowhead[1] but size and weight clearly place them in a different category; so too, a Type 1 projectile head from Fishamble St, Dublin (E190:3578) must, on the basis of its size and weight (64g), be

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1. See below for discussion of arrowhead types.

considered a spearhead. Nevertheless, it is often difficult to define precise parameters distinguishing arrowheads from other projectile heads, but two features - the weight of the projectile head and the diameter of the socket - may be useful indicators. Arrowheads should, in general, fall within certain weight limits, while the socket diameter can be instructive if it reflects the size of the original shaft. Unfortunately, the present condition of the projectile heads often hinders accurate assessment of their original weight or socket diameter and even where these are known, there is no certainty about the parameters which can be taken to indicate use as an arrowhead.

Socket diameter

As a working assumption a 13mm socket diameter limit is adopted in the present study as the maximum for arrowheads. This figure is based on the maximum diameters of surviving medieval arrowshafts, which are normally under 12mm[2]. If anything, the 13mm upper limit may well be too high, as even surviving late medieval arrowshafts in England, which are likely to have been used with longbows and thus would have to be relatively thick, are not known to be more than 11-12mm in maximum diameter. It can, therefore, be suggested with some degree of confidence that projectile heads with socket diameters greater than 13mm are unlikely to be conventional arrowheads, and were most likely used with crossbows or other projectile machines. Such machines have received little detailed study, especially for the earlier Middle Ages, and therefore little can be said about the parameters which might distinguish crossbow boltheads and other projectile machine heads. Thus it is possible, for example, that projectile heads with socket diameters of less than 13mm are actually crossbow boltheads. Projectile heads with socket diameters of 18mm or greater are excluded from the study.

A histogram of surviving external socket diameters (Chart 2) peaks at the 8-9mm range, which accounts for just over 50% of the total, while a further 25% is split almost evenly between the next nearest diameters, 7mm and 10mm. Socket diameters over 13mm represent only 3% of the total, and it would seem reasonable to suggest that these can be considered as heads of missiles fired from crossbows or even larger machines (the largest examples, up to 17mm in socket diameter, seem too large in diameter even to have been mounted on crossbow bolts).

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2. W.F. Paterson, 'Mary Rose - a preliminary report'. *Journal of the Society of Archer Antiquaries* 23, (1980), pp. 29-34; W.F. Paterson, 'Mary Rose - a second report'. *Journal of the Society of Archer Antiquaries* 24, (1981), p. 4-6; Hardy, *Longbow*, p. 5.
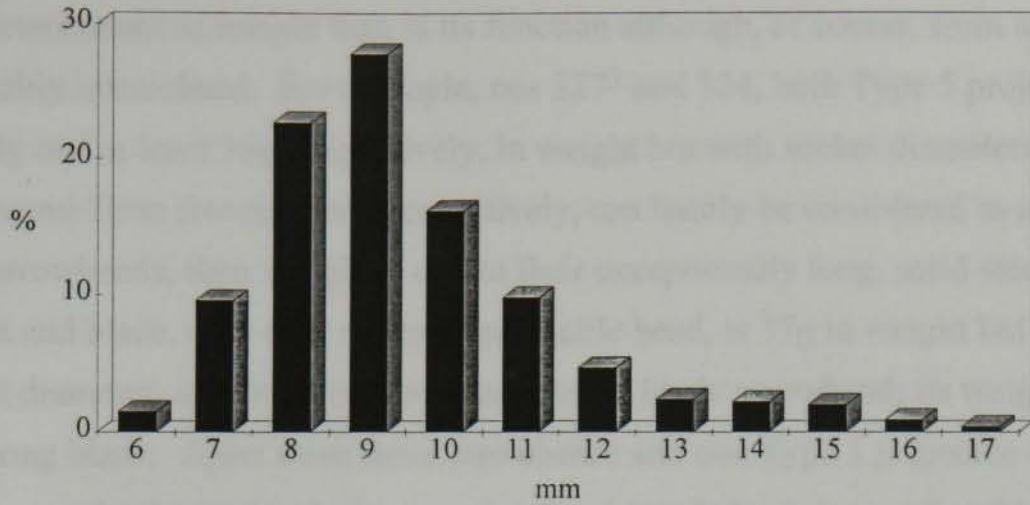
Chart 2: External socket diameters (in mm) by percentage; all periods.

Weight

There is obviously an upper weight limit beyond which an arrow is simply too heavy to be shot effectively from a bow, but this will vary depending on the strength of the bow. The weights of the Dublin projectile heads could be measured or estimated with reasonable confidence in 565 cases.

Projectile head weights (g)
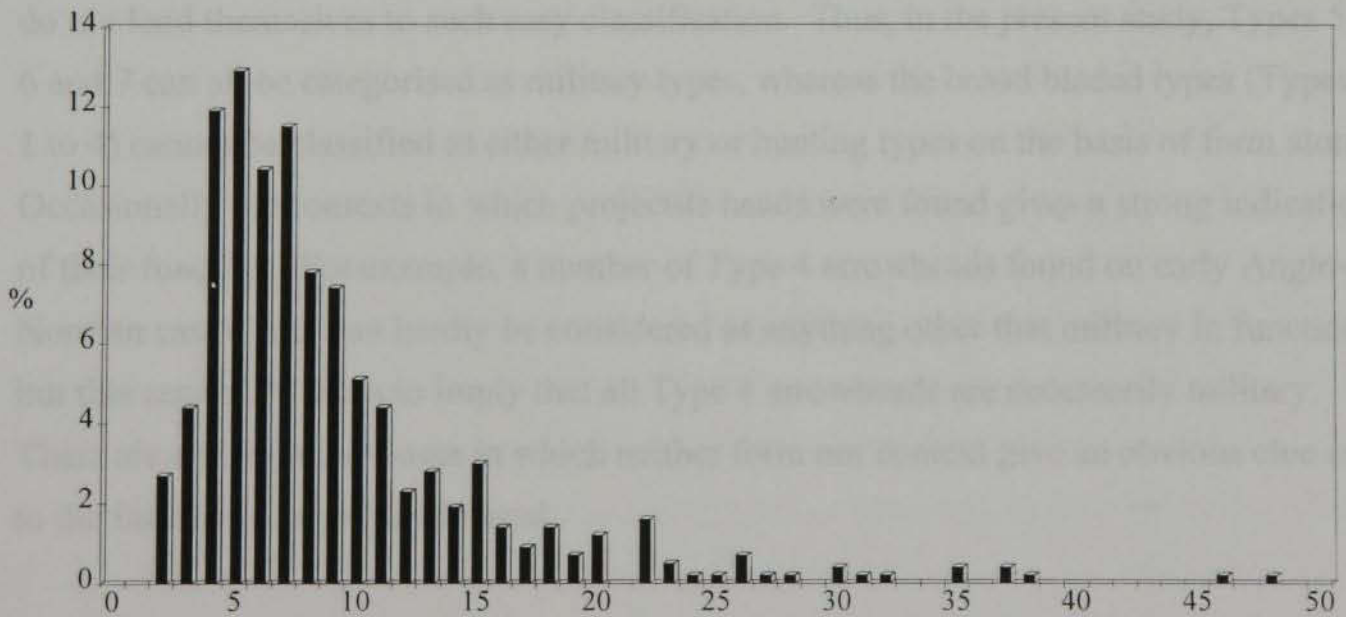
Chart 3: Available weights of projectile heads in grammes *(no. 766 [63g] is excluded).*

These weights range from 2g to 63g, but almost 90% are 15g or less and there is a particular concentration of almost 50% in the 4g-7g range (Chart 3). Less than 2% of the total are over 30g in weight and could, perhaps, be argued on this basis that 30g is an effective maximum weight limit for arrowheads, but this would be to over-simplify

matters. It will be seen below that the form of a projectile head may be more important as a determinant of weight than is its function although, of course, form and function are inevitably interrelated. For example, nos 327[3] and 324, both Type 5 projectile heads, are 48g and at least 35g, respectively, in weight but with socket diameters of only 11mm and 7mm (incomplete), respectively, can hardly be considered as anything other than arrowheads; their weight is due to their exceptionally long, solid stems between socket and blade. No. 455, a Type 7 projectile head, is 37g in weight but only 12mm in socket diameter, and thus must be considered a likely arrowhead; its weight is due to its very long blade. Apart from these arrowheads and one Type 1 projectile head (no. 52), which can also be interpreted as an arrowhead (see below), it is noticeable that all projectile heads over 30g in weight are of Type 7 and are 14mm or more in socket diameter. It seems likely that these are not arrowheads (see Type 7 below).

Military and hunting arrowheads

Despite the difficulties, some confidence is possible, on the whole, about which projectile heads can safely be considered as arrowheads and which must be considered as potentially something different. The second aspect of function, i.e. whether projectile heads were intended for hunting or for military use, poses problems which, in some cases, are even more difficult to resolve. Some projectile head types can readily be categorised as either military or hunting types on the basis of their form, but other types do not lend themselves to such easy classification. Thus, in the present study, Types 5, 6 and 7 can all be categorised as military types, whereas the broad bladed types (Types 1 to 4) cannot be classified as either military or hunting types on the basis of form alone. Occasionally the contexts in which projectile heads were found gives a strong indication of their function. For example, a number of Type 4 arrowheads found on early Anglo-Norman castle sites can hardly be considered as anything other that military in function, but this cannot be taken to imply that all Type 4 arrowheads are necessarily military. There are a great many cases in which neither form nor context give an obvious clue as to the function of a projectile head.

Various suggestions have been made as to how the function of a projectile head can be deduced from its features. It is generally agreed that to be effective, an arrowhead should deliver a wound that is both broad and deep, causing maximum laceration of body tissue and rapid blood loss; this requires relatively large and heavy arrowheads, which are seen as characteristic of arrowheads used in hunting. In warfare,

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3. Projectile heads, bows and arrowshafts are referred to in the text by their Inventory numbers (see Appendix in Volume 2).

however, the use of defensive body armour demanded a different response, in which the ability to penetrate armour was paramount; combined with the general need to shoot from longer distances in warfare, this favoured the development of smaller, more streamlined arrowheads, even though these would cause less grievous wounds than larger arrowheads[4]. Thus in a range of practical experiments, Pope found that the most effective arrowhead in cutting animal tissue was a native American Indian arrowhead of obsidian (equivalent in many respects to prehistoric European flint arrowheads); on the other hand, armour-piercing arrowheads were "not effective in penetrating soft animal tissue... [because] a cutting edge is necessary"[5].

The most recent contribution on this issue, by Lindbom, has concentrated on two attributes in particular, blade width and weight, reflecting the assumption that a hunting arrowhead should be both wider and heavier than a military arrowhead. This seems a reasonable assumption, but defining parameters which might distinguish the two types of arrowhead is an altogether more difficult matter. Referring specifically to Swedish arrowheads of Type 1 form, Lindbom suggests that maximum blade widths of 15mm or less might categorise arrowheads as military and widths of more than 15mm categorise them as hunting points. He also discusses multi-purpose arrowheads (i.e. designed for use either in hunting or warfare), however, which he suggests should be between 14mm and 18mm in blade width[6].

An obvious difficulty with this approach, conceded by Lindbom, is that lines of distinction drawn on the basis of blade width or weight are inevitably arbitrary. Looking at the blade widths of Irish projectile heads of Types 1-4 and 9 (Chart 4), no clear distinction is visible around the 15mm mark. The large majority (84%) of blade widths are relatively evenly spread between 10mm and 23mm, although there is a possible concentration of 42% of the sample in the range from 14mm to 18mm. Following Lindbom, one might suggest that projectile heads with maximum blade widths below 14mm can be categorised as military in function, those with widths above 18mm as hunting heads and those in the 14-18mm range as multi-purpose heads. This, however, would almost certainly be too simplistic. In particular, the evidence of a number of Type 4 arrowheads strongly suggests that in an Irish context, at least, military blades can be over 20mm in width (see Type 4, below).

4. Wegraeus, 'Die Pfeilspitzen von Birka', pp. 23-25.
5. S.T. Pope, 'A study of bows and arrows', *University of California publications in American archaeology and ethnography* 13 (1923), pp. 368-69.
6. P. Lindbom, 'Pilspetsarna från Valsgärde 13', *Tor* 27 (1994), pp. 444.
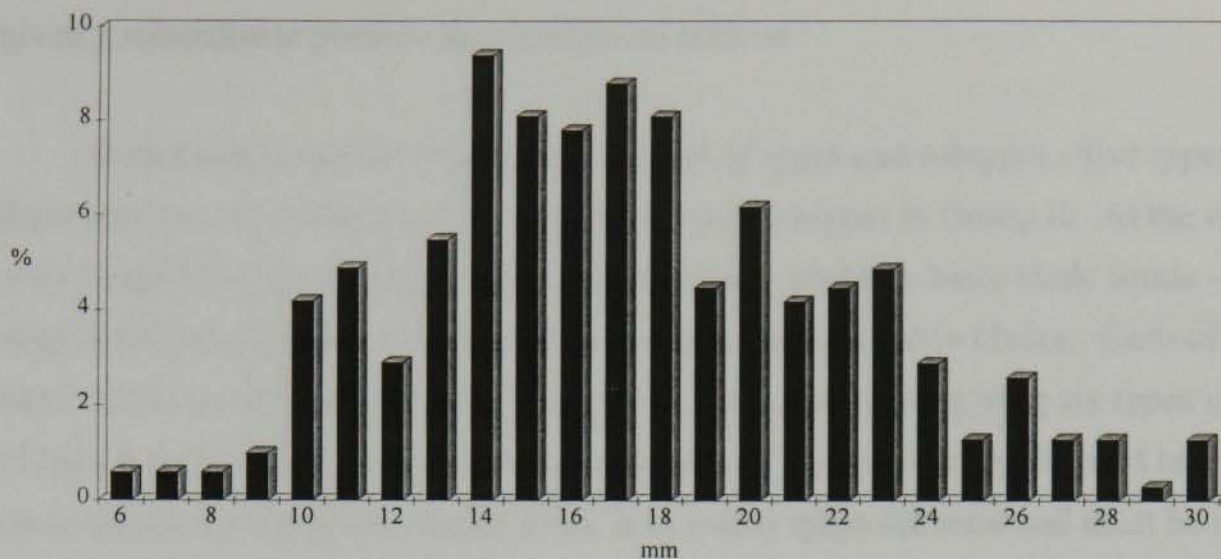
Types 1-4, 9: Arrowhead blade widths

Chart 4: Blade widths of broad-bladed arrowheads (Types 1-4 and 9), in mm.

In terms of weight, the group under 14mm range from 2g to 14g, with an average of 7g; the 14-18mm group range from 4g to 22g with an average of 11g, while the group over 18mm range from 4g to 35g, with an average of 11.5g. Since it is only to be expected, however, that wider projectile heads should tend to be heavier than narrower ones, it is questionable whether weight can be taken as a useful indicator of function. It is thus extremely difficult to find conclusive grounds for distinguishing between military and hunting points among broad-bladed arrowheads. It can probably be argued with confidence that projectile heads with maximum blade widths of less than 14mm (some 20% of the total) were intended for military use. For the remaining 80% of broad-bladed arrowheads, however, there seems to be no certain way of establishing their function on the basis of form alone.

Typology

The Irish projectile heads may be divided into two groups on the basis of the form of the blade (see Fig. 5). Group I are projectile heads with broad, flat, blades, which account for some 41% of the total, while Group II are projectile heads with narrow, spike-like or "bodkin" blades, and account for the other 59% (Chart 5). This division reflects the assumption that the form of the blade is the primary and decisive variable in classifying arrowheads. Other distinctions could be made; for example, within each group both tanged and socketed forms occur and are treated as separate types. However, while distinctions in hafting arrangements are undoubtedly significant, they

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are not of the same decisive functional significance as blade form and are therefore given a subordinate place in the typological scheme.

Both Groups can be divided into a series of types and subtypes - five types and three subtypes in Group I and four types and two subtypes in Group II. At the risk of over-simplification it could be suggested that there are three basic blade forms - leaf-shaped/shouldered blades, triangular blades and narrow bodkin blades. Each of these basic forms is represented by both tangéd and socketed types, giving six types in all (Types 1-4, 6-7 with subtypes). A seventh type (Type 5), although it could technically be considered a triangular bladed form, is in reality quite different and must be regarded as a separate type, while Types 8 and 9 represent new forms of the later Middle Ages.

Projectile head types
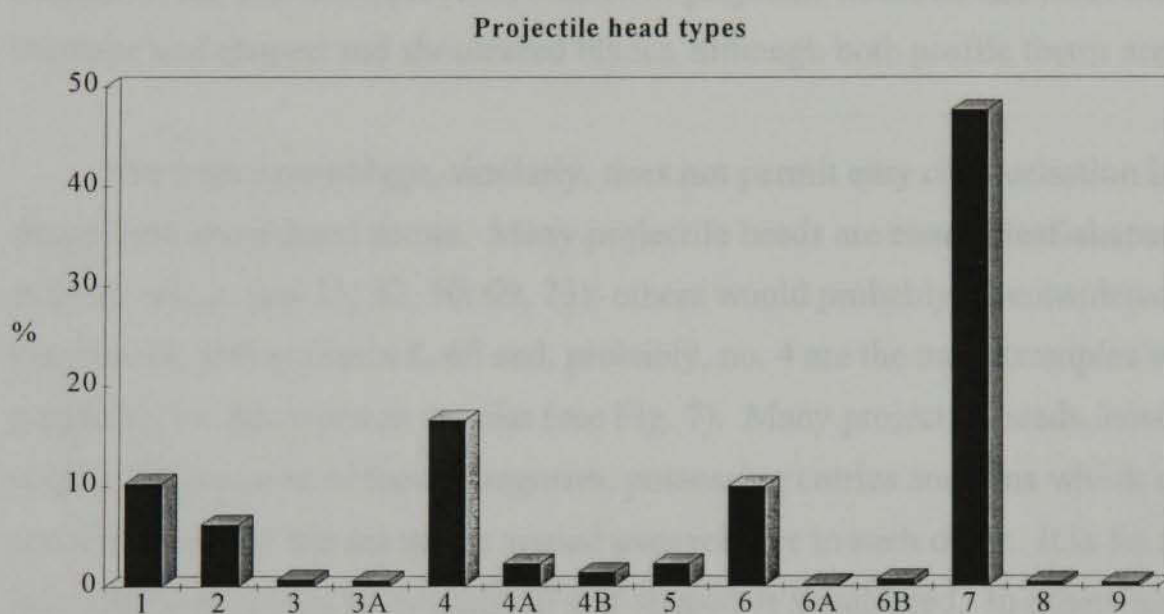
Chart 5: Relative proportions of arrowhead types (by percentage of total).

Type 1: Tanged leaf-shaped/shouldered blades (nos 1-86: *Figs 7-10*).

78 projectile heads with leaf-shaped or shouldered blades display a characteristic tripartite arrangement, with blade and tang separated by a short concave- or parallel-sided stem. A further 8 projectile heads (nos 79-86) can be considered as variants of the Type 1 form but with a simpler arrangement of blade and unstopped tang, without the intervening stem. The type represents approximately 10% of the total number of known Irish medieval projectile heads.

Form

Type 1 is a tanged, broad-bladed projectile head with a blade which may be leaf-shaped or shouldered/angular in outline. Type 1 projectile heads share a common basic form but show considerable variation in size. There are some possible groups, such as

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nos 19, 51 and 54, which are very similar in size as well as form (see Fig. 7), but on the whole there are no convincing subdivisions within the type. Overall lengths range from 54mm to 175mm, but 83% are between 80mm and 150mm. Weights vary from 2g to 35g, but almost 70% are between 9g and 18g; the average weight is 13g.

The presence within Type 1 of both leaf-shaped and shouldered/angular blades raises the question of whether these should be treated as separate types. This issue was examined in detail, but it was decided not to distinguish two types because there is little evidence for any significant distinction in form (other than blade outline), function or chronology between the two groups. Indeed, the precise distinction between leaf-shaped and shouldered blades has rarely been defined and is arbitrary in many respects. Neither of the two main previous studies of projectile heads of this form distinguish between leaf-shaped and shouldered blades, although both profile forms are present[7].

The Irish assemblage, similarly, does not permit easy categorisation into leaf-shaped and shouldered forms. Many projectile heads are clearly leaf-shaped, by any definition (e.g. nos 31, 37, 50, 69, 73); others would probably be considered as shouldered, although nos 8, 66 and, probably, no. 4 are the only examples which could justifiably be described as angular (see Fig. 7). Many projectile heads, however, do not readily fall into one of these categories, possessing entries and runs which are each convex in outline but are set on angled axes relative to each other. It is far from clear whether these should be considered leaf-shaped or shouldered. In other cases, projectile heads present blade outlines which appear shouldered on one side but leaf-shaped on the other, either because of sharpening while the projectile head was in use (e.g. nos 2, 43, 61) or of post-depositional damage or corrosion.

For the purposes of investigating whether there was any evidence of a functional distinction between "leaf-shaped" and "shouldered" blades, the essential distinction was taken to be whether entry and run formed a single convex curve in outline ("leaf-shaped") or two angled segments, whether straight or curved ("shouldered"). On this basis 44 "leaf-shaped" and 39 "shouldered" blades were identified[8]. Comparison reveals that projectile heads with "leaf-shaped" blades tend to be slightly longer (120mm) and therefore heavier (15g) than those with "shouldered" blades (109mm and 11g respectively). Their blades are longer (76mm) than "shouldered" blades (58mm), but

7. Farbregd, *Pilefunn fra Oppdalsfjella*, e.g. Pl. 4-5; Wegraeus, 'Pilspetsar under vikingatid', e.g. Fig. 2.
8. It must be stressed that this classification was adopted purely to permit the exercise in comparison, and would not stand up to serious scrutiny as the basis for a real typological distinction.

this is a product of longer runs[9], as the average entry lengths of both forms are almost identical; if anything, in fact, "shouldered" blades have slightly longer entries (43mm) than "leaf-shaped" blades (41mm). The average widths (16mm) and thicknesses (3mm) of both forms are also identical.

The fact that both blade forms have identical average entry lengths, widths and thicknesses strongly suggests that there is no practical or functional difference between them. This is borne out by a scatter diagram of the "entry triangle" (i.e. the shape defined by entry length and maximum blade width), which reveals no significant difference between the two forms (Chart 6). This entry triangle defines the size and shape of the initial wound made by a projectile head, which may have been an important consideration in the minds of those who made and used these projectile heads.

Type 1 "leaf-shaped" arrowheads

Type 1 "shouldered" arrowheads
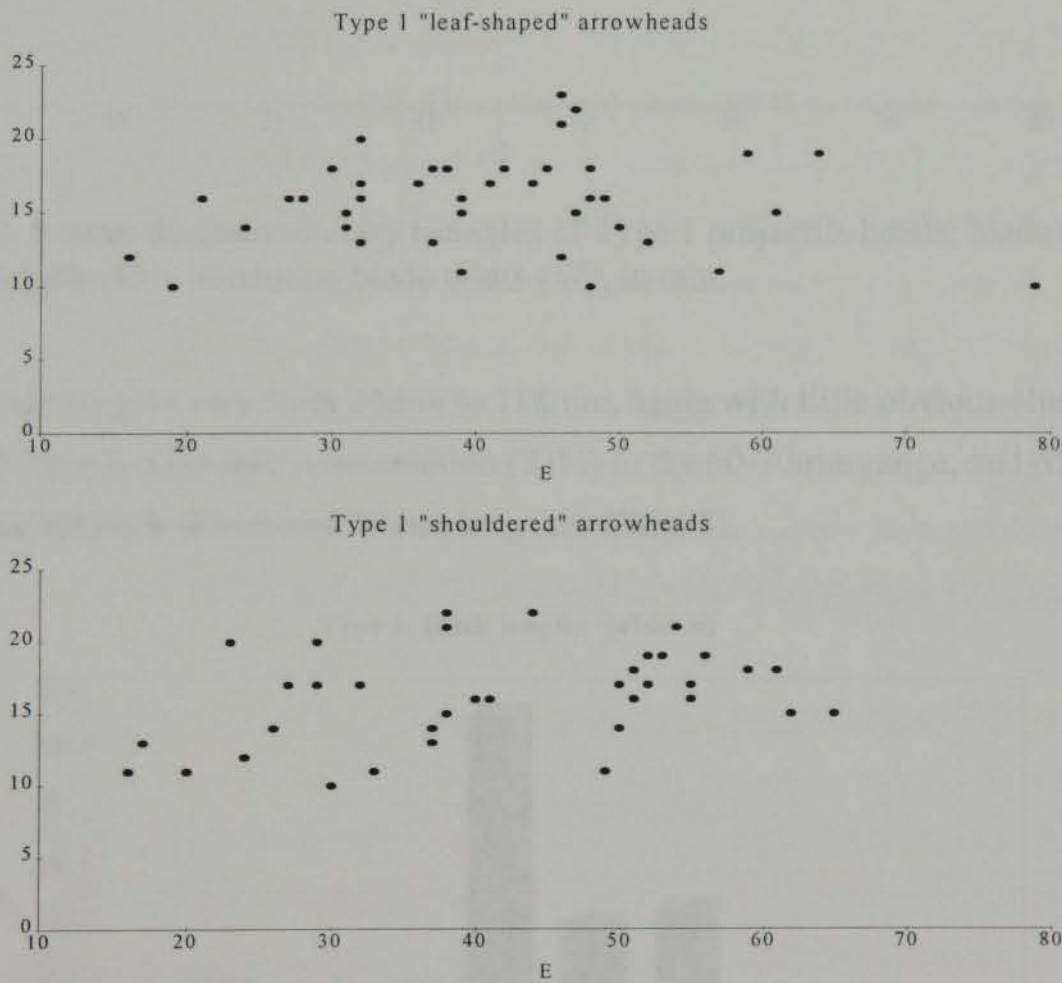
Chart 6: Type 1: Scatter diagrams of entry triangles of "leaf-shaped" and "shouldered" arrowheads: entry length (E) v maximum width (W), in mm.

It is therefore suggested that both "leaf-shaped" and "shouldered" forms would have been regarded in early medieval Dublin as essentially identical, with the variations

9. For purposes of measurement, blades are divided into *entry* and *run*; the entry is the distance from the point to the widest part of the blade, while the run is the distance from the widest part to the socket/stem/tang; see Fig. 6.

in blade outline as no more than inconsequential details. For this reason both forms are included within a single type, Type 1. The type as a whole displays wide variation in blade sizes and proportions, from small, narrow blades such as no. 82 to large, wide blades such as nos 52 (Fig. 8) and 31. A scatter diagram of entry triangles of Type 1 projectile heads as a whole (Chart 7), however, reveals no significant clustering.

Type 1 entry triangles
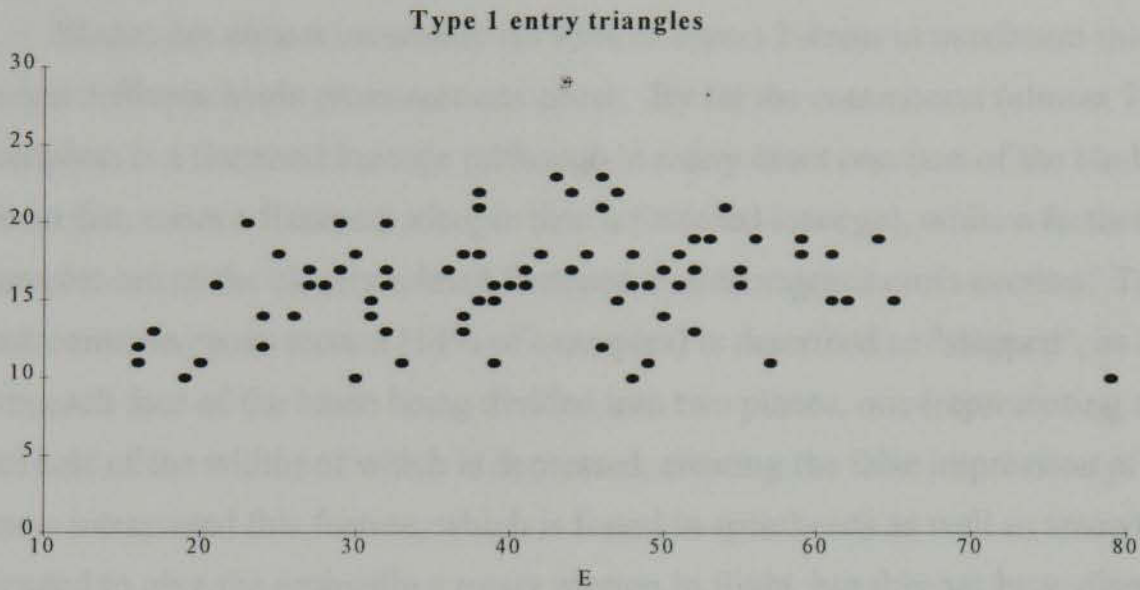
Chart 7: Scatter diagram of entry triangles of Type 1 projectile heads; blade entry length (E) v maximum blade width (W), in mm.

Blade lengths vary from 24mm to 118mm, again with little obvious clustering, although there is a notable concentration (33%) in the 60-70mm range, and 65% of blades are between 60mm and 90mm long (see Chart 8).

Type 1: Blade lengths (x10mm)
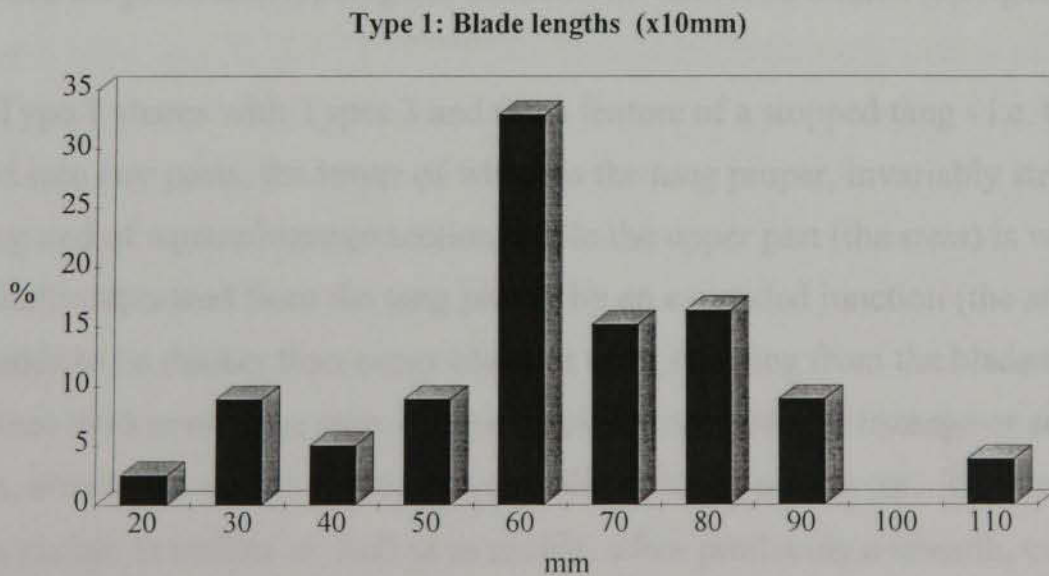
Chart 8: Type 1 blade lengths, by percentage, in 10mm groups.

Blade entry lengths range evenly from 16mm to 81mm and again, 66% are between 30mm and 55mm. Maximum blade widths vary from 10mm to 23mm, with a

notable concentration of over 40% between 16mm and 18mm. Three examples (nos 15, 60 and 83) have a second blade below the first. In each case the second blade is similar in form to the first - both probably leaf-shaped in the case of no. 15, both shouldered in the cases of nos 60 and 83 - and set perpendicularly to it. A further example (no. 1) has a pair of small, pointed wings below the blade, again set perpendicularly to it.

Blades are almost invariably (in 93% of cases) 2-4mm in maximum thickness, but several different blade cross-sections occur. By far the commonest (almost 70% of examples) is a flattened lozenge (although in many cases one face of the blade is beaten almost flat, more a flattened triangle than a flattened lozenge), while a further 15% of examples are of the closely related flattened oval/hexagonal cross-section. The next most common cross-section (14% of examples) is described as "stepped", as it results from each face of the blade being divided into two planes, one (representing slightly less than half of the width) of which is depressed, creating the false impression of a midrib. Rynne interpreted this feature, which is found in spearheads as well as arrowheads, as intended to give the projectile a rotary motion in flight, but this has been dismissed by Swanton, who considers it "a simple and unsophisticated method of increasing longitudinal strength...while simultaneously economising on materials and labour"[10]. All of these cross-sections define a broad, flat blade. The only exception to this pattern, no. 35, is uniquely of triangular section with the faces beaten up to form three raised flanges (Fig. 8). An arrowhead of this form from Birka, in Sweden, is regarded by Wegraeus as of his type D1, equivalent to Type 6 (below) in the present study, which reinforces the point that typological distinctions cannot be treated too rigidly[11].

Type 1 shares with Types 3 and 6 the feature of a stopped tang - i.e. the "tang" is divided into two parts, the lower of which is the *tang* proper, invariably straight, tapering and of square/lozenge section, while the upper part (the *stem*) is wider, thicker and usually separated from the tang proper by an expanded junction (the *stop*). The stem tends to be thicker than either blade or tang, swelling from the blade to a maximum thickness at the stop, at which point it is usually of lozenge or square cross-section, although rounded or thick rectangular sections also occur. This swelling of the stem is visible in outline as well as in profile, often producing a smooth, concave curve to the run/stem unit. Distinguishing between the run of the blade and the stem is often

10. Rynne, *Irish iron weapons of pre-Norman times*, p. 102; M.J. Swanton, *The spearheads of the Anglo-Saxon settlements* (London, 1973), p. 115.
11. Wegraeus, 'Die Pfeilspitzen von Birka', p. 28.

difficult, however, as they frequently merge smoothly, but in this study the junction is taken to be the narrowest point on the run/stem unit.

The purpose of the stop seems obvious - to prevent the tang from penetrating too deeply into the arrowshaft and causing it to split. Surprisingly, although Wegraeus acknowledged this, he also suggested that some arrowheads of this form (hunting arrowheads of his type A1; see below) were shafted with the stop and stem driven down into the shaft, whereas with military arrowheads of the same form, only the tang below the stop penetrated the shaft[12]. This seems most unlikely - apart from the extreme practical difficulty of driving the stop into the shaft, which would almost certainly split it, such a suggestion makes the presence of the stop meaningless, even anti-functional. Peter Lindbom (pers. comm.) has pointed out that the supporting example quoted by Wegraeus - a group of arrows from a Finnish grave at Vivallen - is actually late in date and atypical, and that other Swedish hunting arrows of the Viking period are all mounted with the stop outside the shaft. Only one Type 1 projectile head from Dublin (no. 30: Fig. 8) retains significant traces of its wooden shaft, and it is notable that these traces are on the tang only and definitely do not extend beyond the stop. This is also the case for two other projectile heads, nos 146 (Fig. 14) and 330 (Fig. 20) of Types 3A and 5 respectively, which also retain traces of the shaft.

Dating

The contextual dates of Type 1 projectile heads range from the 9th to late 12th centuries, with the main concentration in the 10th and 11th century (see Figure 11). Two examples (nos 32 and 33: Fig. 8) are apparently from early 13th century contexts. These are the only Irish Type 1 projectile heads which may postdate the 12th century, however, and since their context (waterfront reclamation deposits) could be secondary rather than primary, they may well actually be of pre-13th century date.

Overall, the dating evidence for Type 1 is clearly pre-Norman. This and the fact that 95% of provenanced examples are from Viking or Hiberno-Norse contexts in Dublin, Kilmainham and Waterford, suggest a Viking background for this type, which is further supported by the type's popularity in Scandinavia. Indeed, this is by far the most numerous type in Wegraeus' typology - where it is classed as Type A - accounting for approximately 65% of the study sample of over 1200 Swedish Viking age arrowheads. The form is even more dominant in the material from the graves at Birka

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12. Wegraeus, 'Die Pfeilspitzen von Birka', pp. 21, 32-33; 'Pilspetsar under vikingatid', pp. 203-05.

in Sweden (probably of 9th/10th century date), accounting for over 90% of the total of 450 arrowheads[13]. In Norway, the large majority of arrowheads found at Kaupang are of Type 1 form, while Farbregd has studied a large collection of arrowheads from the mountains of Oppdal, which are almost entirely of Type 1 form. He suggests that the true Type 1 form (i.e. with pointed, stopped tangs) developed in the 8th century, although arrowheads with similar blades but simpler, unstopped tangs are known in the Migration Period (c.400-600 AD)[14]. The eight Irish examples with unstopped tangs (nos 79-86, all from Dublin) would in Scandinavia be considered early, on typological grounds[15]; the contextual dates of the Irish examples, however, are of the 11th and even 12th centuries. The Type 1 form continues in use in Oppdal into Farbregd's Late Middle Ages (i.e. after c.1200 AD), although he notes a loss of symmetry and a decline in workmanship in this later period[16].

In Ireland it is notable that Type 1 was at its most popular, relative to other arrowhead types, in the earliest part of the study period. Type 1 accounts for all but two (i.e. 80%) of the arrowheads from contexts dating prior to 950 AD (Period 1, see Chapter 5), assuming that the material from the Kilmainham/Islandbridge cemeteries falls within this period. At least five arrowheads from Kilmainham / Islandbridge are currently preserved in the National Museum of Ireland and it is notable that all but one are of Type 1 form; two other possible arrowhead fragments, if they are such, are also most likely of Type 1 form[17]. So, too, is the only other Irish arrowhead of possible 9th century date, from the stone fort of Cahercommaun, Co. Clare (no. 74)[18].

Type 1 is also dominant in projectile heads from 9th century Viking burials in Britain, such as those in Scotland and the late 9th/10th century burial at Sonning,

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13. Wegraeus, 'Pilspetsar under vikingatid', Tab. 1; 'Die Pfeilspitzen von Birka', p. 25.

14. C. Blindheim, B. Heyerdahl-Larsen and R.L. Tollnes, *Kaupang-funnene*, Bind I (Oslo, 1981), Pls 33:5, 68:e, 69:e, 83:d; C. Blindheim and B. Heyerdahl-Larsen, *Kaupang-funnene*, Bind II (Oslo, 1995), Pls 7:o, 26:c, 27:f, 35:h; Farbregd, *Pilefunn fra Oppdalsfjella*, 106-07.

15. At the Slavic settlement of Starigard/Oldenberg, on the Baltic coast of north Germany, arrowheads of this form (Kempke's type 1a) are the most frequently occurring in the 9th century, but rapidly disappear thereafter: T. Kempke, 'Zur überregionalen Verbreitung der Pfeilspitzentypen des 8.-12. Jahrhunderts aus Starigard/Oldenberg', *Bericht der Römisch-Germanischen Kommission* **69** (1988), pp. 292-306.

16. Farbregd, *Pilefunn fra Oppdalsfjella*, 107.

17. The acquisition numbers of the fragments in question are Wk.31;W.35;D379 and Wk.24;W31;D381. The exceptional, non-Type 1 arrowhead is of Type 7 (no. 745), a type for which most evidence points to a date after c.950AD, and it is possible that this object was wrongly identified as being from Kilmainham in Wakeman's catalogue of the Museum of the Royal Irish Academy. It may be worth noting that this object has the same acquisition number (Wk.18) as another Type 1 arrowhead (no. 66), which Wakeman describes as being from street cuttings at Christchurch/Fishamble St, Dublin.

18. H. O'Neill Hencken, *Cahercommaun: A stone fort in county Clare* (Dublin, 1938), p. 53; Fig.32:728.

Berkshire, which contained six arrowheads, all apparently of Type 1 form[19]. At Coppergate, in Anglo-Scandinavian York, Type 1 is the most common form among the arrowheads predating the mid-10th century (i.e. Periods 3-4B), accounting for at least 50% of the total[20]. Jessop notes that in Britain this type (type T1 in his typology; see Fig. 1) occurs "predominantly from contexts dating from the 9th-10th centuries"[21]. Taking all this together, it would appear that the Type 1 form was the most popular arrowhead type in use in Ireland in the 9th and early/mid-10th century, and that it continued in use into the 12th century but not beyond. It therefore seems to represent a distinctively Viking and Hiberno-Norse form which was not used by the Anglo-Normans and disappeared fairly quickly after the Anglo-Norman conquest.

Function

The function of Type 1 projectile heads is a vexed matter, as they have been variously described as military arrowheads, as hunting arrowheads or as multi-functional points for both purposes. It has been suggested that in Scandinavia the Viking period witnessed the development of specialised military and hunting arrowheads in place of the multi-purpose points of the preceding Vendel period[22]. All of these, however, whether military, hunting or multi-purpose, are essentially of Type 1 form and distinguishing between the different functions is essentially a hypothetical exercise based on assumptions about the appropriate nuances of blade design.

Wegraeus divided his Type A into two subtypes, A1 (the original multipurpose form, used both for warfare and for hunting) and A2 (a specialised military form, first appearing in the Viking period), on the basis of whether the blade was longer or shorter than the stem (or "neck" [*hals*], as Wegraeus termed it), respectively[23]. This test is not easily repeated because of the frequent difficulty in determining the boundary between blade and stem, and indeed Wegraeus does not precisely define this boundary in his study. If his test is applied to the Irish material using the present writer's definitions (outlined above), all would be classed as of Type A1, but in practice some of the Irish projectile heads (notably no. 4 and possibly also nos 22 and 38) might well be regarded as of Type A2 by Scandinavian archaeologists.

19. V.I. Evison, 'A Viking grave at Sonning, Berks', *Antiquaries' Journal* **49** (1969), p. 333; Fig. 1:f-k; I am grateful to Ms Caroline Richardson for discussion of the arrowheads from the Scottish burials.
20. Ottaway, *Anglo-Scandinavian ironwork from Coppergate*, pp. 710-14; Fig. 309:3905-3919.
21. Jessop, 'A new artefact typology', pp. 193-94.
22. Wegraeus, 'Die Pfeilspitzen von Birka', pp. 23-25; Lindbom, 'Pilspetsarna från Valsgärde '13', 443-44.
23. Wegraeus, 'Pilspetsar under vikingatid', p. 194; 'Die Pfeilspitzen von Birka', pp. 22, 27.

Lindbom, however, has pointed out inconsistencies and other difficulties with Wegraeus' morphological distinction of subtypes A1 and A2, and suggests instead a distinction based mainly on blade width and weight, with maximum blade widths of 15mm or less categorising arrowheads as military and widths of more than 15mm categorising them as hunting points; multi-purpose points should be between 14mm and 18mm in width[24]. In Ireland, 57% of Type 1 projectile heads are between 14mm and 18mm (inclusive) in maximum width (see Chart 9) and, according to Lindbom, might be considered as multi-purpose heads. The remainder are almost equally divided; 23% are less than 14mm in maximum width, while 20% are over 18mm in width.

Type 1 blade widths (mm): all periods
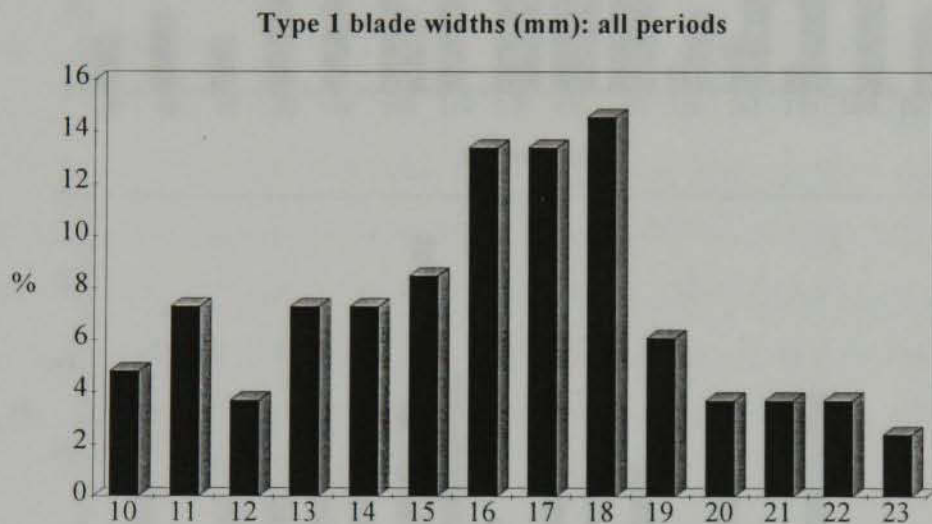
Chart 9:   Type 1 blade widths, by percentage, in mm.

In terms of weight, the group under 14mm range from 2g to 16g, with an average of 8g; the 14-18mm group range from 6g to 22g with an average of 13g, while the group over 18mm range from 10g to 35g, with an average of 21g. It is only to be expected, however, that wider projectile heads should tend to be heavier than narrower ones, and thus it is questionable whether weight is a useful indication of function.

It is instructive to compare the Irish material with Norwegian arrowheads of Type 1 form which can confidently be identified as used for hunting. Viking-period arrowheads from Oppdal, which were used in reindeer hunting, are on the whole considerably larger than the Irish examples in overall length, width and weight (see Chart 10). Mikkelsen illustrates a number of projectile heads of Type 1 form found in house sites at Tøftom, which was apparently a specialised reindeer hunting site of the 9th to 12th centuries[25]; these are closer to the Irish range, being 100-130mm in overall

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24. Lindbom, 'Pilspetsarna från Valsgärde 13', pp. 444-46.
25. Farbregd, *Pilefunn fra Oppdalsfjella*, Pls 4, 5;   E. Mikkelsen, *Fangstprodukter i Vikingtidens og*

length and 15-22mm in width. Nevertheless it remains the case that the Irish Type 1
assemblage, as a whole, is smaller and lighter than the Norwegian hunting forms.

Type 1: Ireland and Oppdal
Overall lengths (mm)

Widths (mm)

Weights (g)
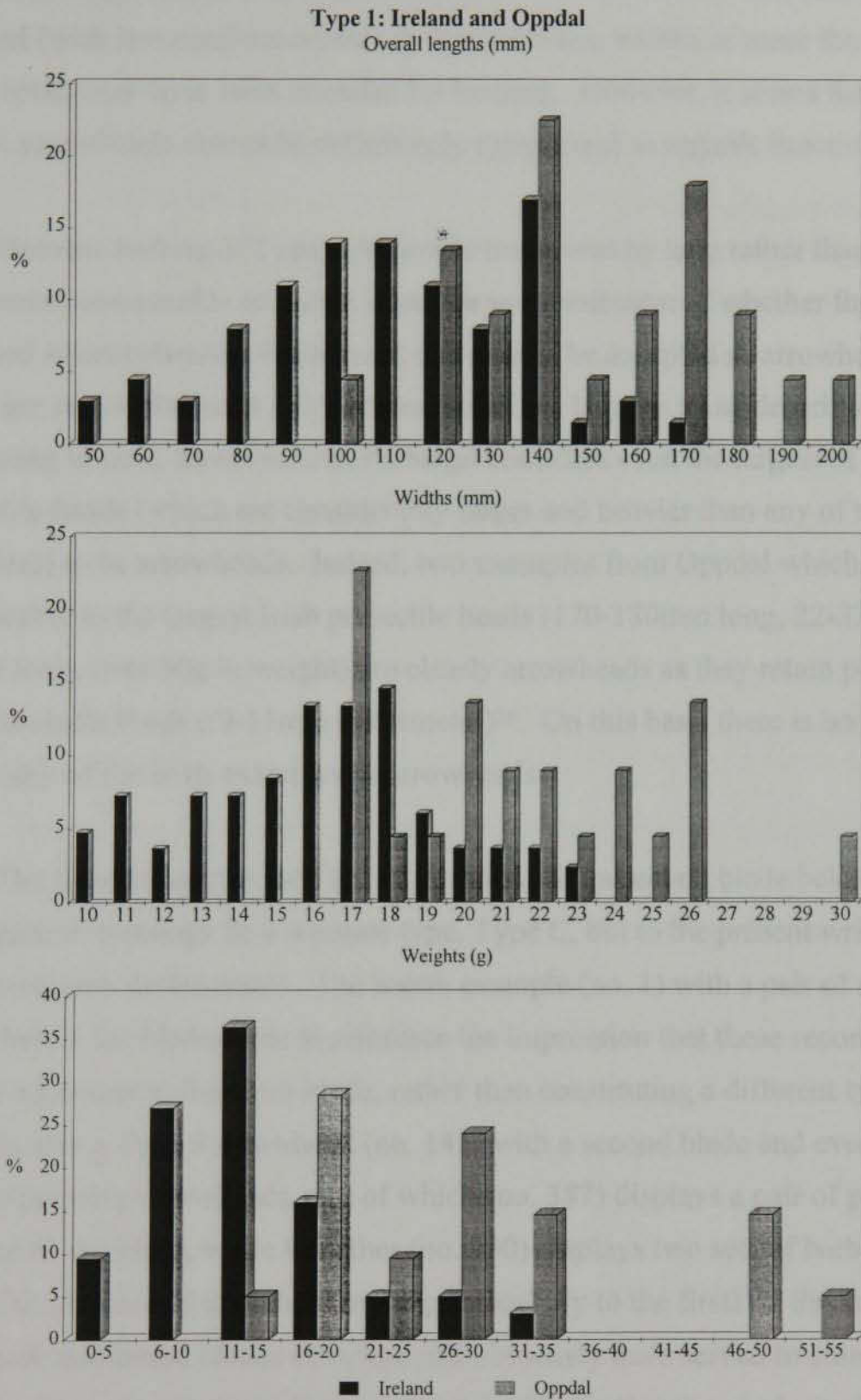

■ Ireland   ▦ Oppdal

Chart 10: Overall lengths, widths and weights of Type 1 projectile heads from Ireland
and Oppdal, Norway, compared.

It remains extremely difficult to find conclusive grounds for distinguishing
between military and hunting points among the Irish Type 1 arrowheads, and it seems

middelalderens økonomi (Oslo, 1994), p. 175 and Fig. 20.

very likely that the type as a whole could equally well have been used for either purpose. It can be argued with reasonable confidence that those arrowheads with maximum blade widths of less than 15mm (29% of the total) were intended for military use, and (with less confidence) that those with blade widths of more than 18mm (19% of the total) may have been intended for hunting. However, it seems that over 50% of Type 1 arrowheads cannot be definitively categorised as regards function.

Because hafting of Type 1 projectile heads was by tang rather than socket, there is no measure comparable to socket diameter as an indicator of whether they can be regarded as arrowheads. While most can readily be accepted as arrowheads, some of the larger projectile heads might appear to be too large to be so described. It is interesting to note, however, that Farbregd considers even the largest of the Oppdal projectile heads (which are considerably larger and heavier than any of the Irish examples) to be arrowheads. Indeed, two examples from Oppdal which are quite comparable to the largest Irish projectile heads (170-180mm long, 22-32mm wide and one, at least, over 30g in weight) are clearly arrowheads as they retain portions of their wooden shafts (both c.9-11mm in diameter)[26]. On this basis there is no reason not to accept any of the Irish examples as arrowheads.

The three examples (nos 15, 60, and 83) with a second blade below the first would in Wegraeus' typology be a separate type, Type C, but to the present writer this seems an unnecessary distinction[27]. The fourth example (no. 1) with a pair of small, pointed wings below the blade tends to reinforce the impression that these secondary blades are merely additions to the main blade, rather than constituting a different type of blade. There is also a Type 3 arrowhead (no. 143) with a second blade and even two Type 6 armour-piercing arrowheads, one of which (no. 387) displays a pair of pointed wings at the base of the blade, while the other (no. 390) displays two sets of barbs, one at the base of the blade and the other (set perpendicularly to the first) on the stem (see Fig. 22). Such additional blades or wings will obviously have served to enlarge the wound made by the projectile head, but there is no evidence that they had any further purpose.

Type 2: Socketed leaf-shaped/shouldered blades (nos 87-138: *Fig. 12*).
52 projectile heads with shouldered or leaf-shaped blades are distinguished from Type 1 by virtue of being socketed, rather than tanged. Although in many respects a

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26. Farbregd, *Pilefunn fra Oppdalsfjella*, Pl. 4: no. 42, Pl. 9: no. 105.
27. Wegraeus, 'Pilspetsar under vikingatid', p. 197; 'Die Pfeilspitzen von Birka', pp. 22-23.

socketed version of Type 1, this type can also be viewed as a miniature version of contemporary spearhead forms, with which it clearly is closely related. The type represents approximately 6% of the study sample.

Form

Type 2 projectile heads vary between 44mm and 124mm in overall length but over 70% are 60mm-100mm long. Weights vary from 3g to 22g, with one exceptional outlier (no. 137) which is over 30g, but 70% of examples are between 5g and 10g (inclusive) and the average weight is 9g. As with Type 1, Type 2 includes projectile heads with both leaf-shaped and shouldered/angular blades. Again, there are classic "leaf-shaped" (e.g. nos 89, 107, 119, and 124) and "shouldered" examples (e.g. nos 104, 122 and 127), but the majority do not readily fall into either category (see Fig. 12). The proportion of "shouldered" to "leaf-shaped" forms seems, however, to be higher than in Type 1 (34 "shouldered" as against 14 "leaf-shaped" examples) and there are some strikingly angular examples (e.g. nos 94, 111 and 112). In this case, the "shouldered" projectile heads are, on average, slightly longer overall (81mm) and therefore heavier (10g) than those with "leaf-shaped" blades (70mm and 7g respectively).

Scatter diagrams of the entry triangles of each group reveal a definite tendency to greater width and a less marked tendancy to greater entry length for shouldered blades (Chart 11) but whether this difference is of any functional significance is not clear.

Type 2 "leaf-shaped" projectile heads
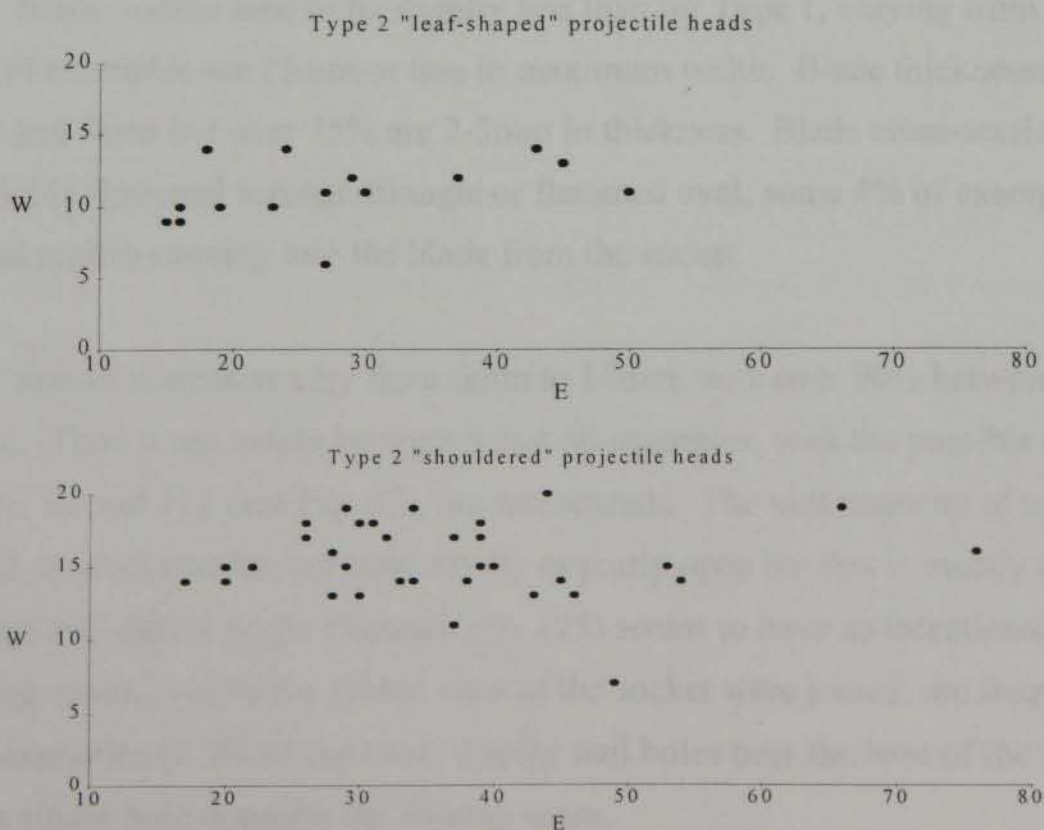
Type 2 "shouldered" projectile heads

Chart 11: Type 2: Scatter diagrams of entry triangles of "leaf-shaped" and "shouldered" projectiles: entry length (E) v maximum width (W).

Average blade lengths are identical (45mm), despite the fact that "shouldered" blades tend to have slightly longer entries (average 37mm) than "leaf-shaped" blades (28mm). The average width of "shouldered" blades (15mm) is greater than that of "leaf-shaped" blades (11mm), but average thickness (3mm) and average socket diameter (9mm) is identical in each case. Taking the type as a whole, blade lengths are noticeably shorter than for Type 1, varying from 23mm to 86mm, with a large majority (75%) between 30mm and 60mm (see Chart 12). Blade entry lengths, however, are essentially identical to Type 1, varying from 15mm to 76mm with 74% between 25mm and 55mm.

Type 2 blade lengths (x10mm)
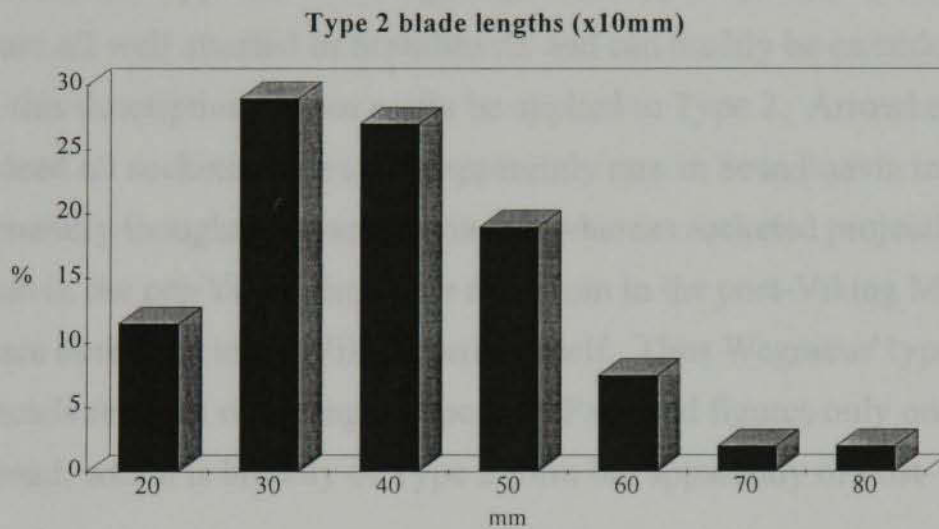
Chart 12: Type 2 blade lengths, by percentage, in 10mm groups.

Blade widths tend to be slightly less than for Type 1, varying from 6mm to 20mm; 72% of examples are 15mm or less in maximum width. Blade thicknesses vary between 1mm and 6mm but over 75% are 2-3mm in thickness. Blade cross-sections are almost invariably flattened lozenge/triangle or flattened oval; some 4% of examples have a central midrib running into the blade from the socket.

Socket diameters vary from 6mm to 14mm, with over 90% between 7mm and 11mm. Thus it can safely be argued that all examples, with the possible exceptions of nos 91, 92 and 111 (see Fig. 12), are arrowheads. The vast majority of sockets are closed; a small number are now wholly or partly open but this is mostly due to corrosion damage and only a single example (no. 125) seems to have an intentionally open socket. Forging seams, where the folded ends of the socket were joined, are frequently visible. Four examples (7.5% of the total) display nail holes near the base of the socket, in each case a single hole opposite the forging seam.

Dating

The contextual dates of the Type 2 projectile heads concentrate strongly on the 11th century, with a smaller number of 12th century examples and at least three examples from 10th century contexts (see Fig. 13). All of these dated examples are from Dublin, with the exception of no. 136 from Limerick. Only two examples (nos 94, from Dublin and 134, from Dunamase) are from 13th/14th century contexts (see Fig. 12). Thus the dating evidence suggests that Type 2 is an arrowhead form of the Hiberno-Norse period which largely disappeared after the Anglo-Norman conquest.

This links Type 2, chronologically, with Types 1, 3 and 6, but whereas the latter forms are all well attested in Scandinavia and can readily be considered as Viking forms, this description cannot easily be applied to Type 2. Arrowheads of this form - and indeed all socketed types - are apparently rare in Scandinavia in the Viking period. It is generally thought in Scandinavia that whereas socketed projectile head forms are common in the pre-Viking Iron Age and again in the post-Viking Middle Ages, tanged forms are dominant in the Viking period itself. Thus Wegraeus' typology of Viking-age arrowheads features only tanged types and Farbregd figures only one socketed arrowhead, which is broadly of Type 2 form but apparently of post-Viking date[28].

Interestingly, however, while there is little evidence for the use of Type 2 projectile heads in Viking-age Scandinavia, there is evidence for their use in contemporary Anglo-Saxon England. Indeed Manley notes that arrowheads of this general form - socketed, with leaf-shaped or shouldered blades - are by far the most common type known from Anglo-Saxon contexts, practically to the exclusion of all other types. It must, however, be noted that the known assemblage of Anglo-Saxon arrowheads in England is very small - Manley could list a total of only about 90 arrowheads, of which descriptions are given for about 48; of these 48, at least 43 appear to be of Type 2 form. The size of the surviving arrowhead assemblage is surely an indication of the importance of archery in Anglo-Saxon England, and this is supported by the documentary record, notwithstanding Manley's suggestion that biases in both the archaeological and documentary records have led to archery being under-represented. This may argue against the idea that Type 2 arrowheads in pre-Norman Dublin reflect Anglo-Saxon influence, but the possibility cannot be excluded[29].

28. Wegraeus, 'Pilspetsar under vikingatid'; 'Die Pfeilspitzen von Birka', p. 21; Farbregt, *Pilefunn fra Oppdalsfjella*, Pl. 9-10.
29. J. Manley, 'The archer and the army in the late Saxon period', *Anglo-Saxon studies in archaeology and history* 4 (1985), pp. 223, 230-31, 232-34.

Function

Despite different hafting methods, the similarities in blade form between Types 1 and 2 suggest that it may be legitimate to draw conclusions about the functions of Type 2 by analogy with the better-studied Type 1 form. If it is correct to suggest that Type 1 blades with maximum widths of 15mm or less are likely to have been intended for military use, then the large majority (72%) of Type 2 arrowheads should also be categorised as military. However, even the broader Type 2 arrowheads (16mm or more in maximum width) have an average weight of 12g, which is closer to the average for those Type 1 arrowheads considered above as "military" (7g) than for those considered as "hunting" forms (21g). Type 2 arrowheads are, as a rule, smaller, narrower and lighter than Type 1 arrowheads and it seems reasonable to conclude on this basis that the military aspect of Type 2 is stronger than for Type 1. Comparison with Type 4, which is also closely related, reveals that all Type 2 arrowheads are of narrower blade width than some Type 4 arrowheads whose context almost certainly indicates military use (see below). Thus it may not be inaccurate to suggest that Type 2 is essentially (although with some possible exceptions) a military form.

Type 3/3A: Tanged triangular blades (nos 139-149: *Fig. 14*).

Type 3 consists of six arrowheads displaying the same tripartite blade/stem/tang arrangement as Type 1, but distinguished on the basis that the blades are triangular, rather than leaf-shaped or shouldered, in outline. Another five arrowheads (nos 145-49) form a subtype, 3A, characterised by long barbs at the base of the blade. In many respects, all can be considered as variants of the Type 1 form and are clearly closely related, both in form and function. The type (including the 3A subtype) represents just over 1% of the total study sample and with the exception of no. 149 (which is a dubious inclusion on several grounds), all known examples are from Dublin.

Form

Type 3, like Type 1, is a tanged, broad-bladed projectile head, between 59mm and 122mm in overall length. Weights vary from 4g to 12g, with an average of 8g. Blades can be truly triangular (i.e. with straight, flat base) or have a slightly convex or concave base, the latter case approximating to slight basal barbs. Blade lengths vary from 16mm to 61mm, entry lengths from 12mm to 59mm, and blade widths are between 12mm and

20mm. One example (no. 143) has a second blade below the first and set perpendicularly to it. Maximum blade thicknesses are in all cases between 2mm and 3mm and the blade cross-section is always a flattened lozenge. As with Type 1, Type 3 features a stopped tang, with a stem swelling from the blade towards a stop, which separates it from the tang proper.

The subtype 3A is distinguished by its pronounced basal barbs, which are usually long (10-14mm) and straight. Overall lengths vary from 86mm to 109mm and weights from 7g to 12g, with an average of 9g. Blades are usually straight-sided and blade lengths (including barbs) vary from 38mm to 55mm, with widths between 16mm and 21mm. Blade thickness is in every case 3mm and the blade cross-section is always a flattened lozenge/oval, although no. 145 has a slight midrib. No. 149 is exceptionally short (66mm), wide (40mm) and thick (5mm) and also lacks a stopped tang (see Fig. 14), reinforcing the impression that it is alien to this group.

Dating

The contextual dates of the Type 3 and 3A projectile heads concentrate overwhelmingly on the 11th century, with only a single example (no. 141) possibly extending the date range into the 12th century (Figure 15). All contextual dates for subtype 3A arrowheads are 11th century. This may, however, be a partly artificial chronological pattern because of the relative scarcity of excavated deposits of post-11th century date in Dublin, but again it seems clear that Type 3 is a distinctively Viking and Hiberno-Norse form which was not used by the Anglo-Normans.

Tanged, triangular-bladed arrowheads are classed as Type B in Wegraeus' typology, a relatively rare type, accounting for c.7.5% of his study sample and not occurring at all in the material from the Birka graves. It is also present - but rarely - in the assemblage of arrowheads from Oppdal, Norway. However, as Wegraeus notes that his Type B occurs mainly in Lapland and other northern regions of Scandinavia, it may not be correct to link it with the Irish Type 3 form[30].

Function

In view of their relatively small size (the maximum weight, for instance, is 12g), there can be no doubt that all the Type 3 and 3A projectile heads are arrowheads. Wegraeus classifies his Type B as a hunting type but this blanket classification may be

30. Wegraeus, 'Pilspetsar under vikingatid', Tab. 1, pp. 202-03; 'Die Pfeilspitzen von Birka', pp. 23-25; Farbregt, *Pilefunn fra Oppdalsfjella*, Pls 9, 11.

an oversimplification. As noted earlier, Type 3 is closely related to Type 1 in form - indeed, this type could well be considered a sub-group of Type 1 - and the question of its function must be addressed with this in mind. 50% of the Type 3 arrowheads are under 15mm in maximum width and by analogy with Type 1 could be considered as military points. In addition, all but one of the Type 3 projectile heads are under 10g in weight. Another appropriate analogy is Type 4, which is essentially a socketed version of Type 3, and for which there is good evidence of military function (see below). It is best, therefore, to allow for the possibility that Type 3 projectile heads could have been used either in warfare or in hunting, although the majority may have been for military use. Large, barbed arrowheads such as subtype 3A would normally be classified as hunting types and one is possibly on safer ground in describing these as hunting arrowheads. However, by analogy with subtype 4A (see below) many of them might better be considered as multipurpose arrowheads.

Type 4: Socketed triangular blades (nos 150-288: Figs14-17).

This form, with 139 examples (16% of the study sample) could be described as the classic arrowhead form - a socketed, flat triangular blade. A further thirty-one arrowheads with barbs at the base of the blade (nos 289-319) can be classified as distinct sub-types (4A and 4B).

Form

Type 4 projectile heads (excluding sub-types) are relatively tightly clustered in length; overall lengths vary from 37mm to 103mm but over 80% are between 60mm and 90mm. There is considerable variation, however, in the size and proportions of blades and sockets; two extremes are represented by no. 162, with a short, narrow blade on a relatively long socket, and no. 157, with a long, broad blade on a relatively short socket (see Fig. 14). These two arrowheads appear to have so little in common as to be incongruous bedfellows in a single type, but in between there is a fairly continuous range of blade shapes and sizes which is not easily subdivided. Weights vary from 2g to 16g but over 75% of examples are between 5g and 10g and the average weight is 7g.

Type 4 is distinguished from Type 2 on the basis of having triangular, rather than shouldered/leaf-shaped blades, but inevitably this distinction is blurred on occasions; nos 182 and 205, for example, are almost intermediate between triangular and shouldered blade forms. Four arrowheads of 10th/early 11th century date from Dublin

(nos 187, 188, 218 and 219: Fig. 14) display small projections of various shapes in the angle between the base of the blade and the socket; these could be considered either as triangular or shouldered blades but are here classed as triangular because of the slight barbs at the bases of the blades of nos 187 and 188. Some arrowheads included in Type 4 may have had leaf-shaped or shouldered blades originally; nos 156 (Fig. 16) and 169 now have leaf-shaped blades, but it is clear from the original publication drawing that no. 156 was originally triangular, and the same probably holds true for no. 169. Waterman reconstructed no. 261 as leaf-shaped, but it is perhaps more likely to have been triangular, along the lines of nos 259 and 260 (see Fig. 16)[31].

Blades can be truly triangular (i.e. with a straight, flat base) or have a slightly convex base, but in most cases the base is slightly concave, creating the effect of slight basal barbs. The sides of the blade are slightly convex as often as straight or, very rarely, slightly concave (e.g. nos 197 and 275), which may, perhaps, be due to sharpening of the blade. Blade lengths vary fairly evenly from 16mm to 67mm, with 64% between 40mm and 60mm (see Chart 13); this is noticeably shorter than for Types 1 and 2 but corresponds fairly closely to the tanged equivalent, Type 3.

Type 4 blade lengths (x10mm)
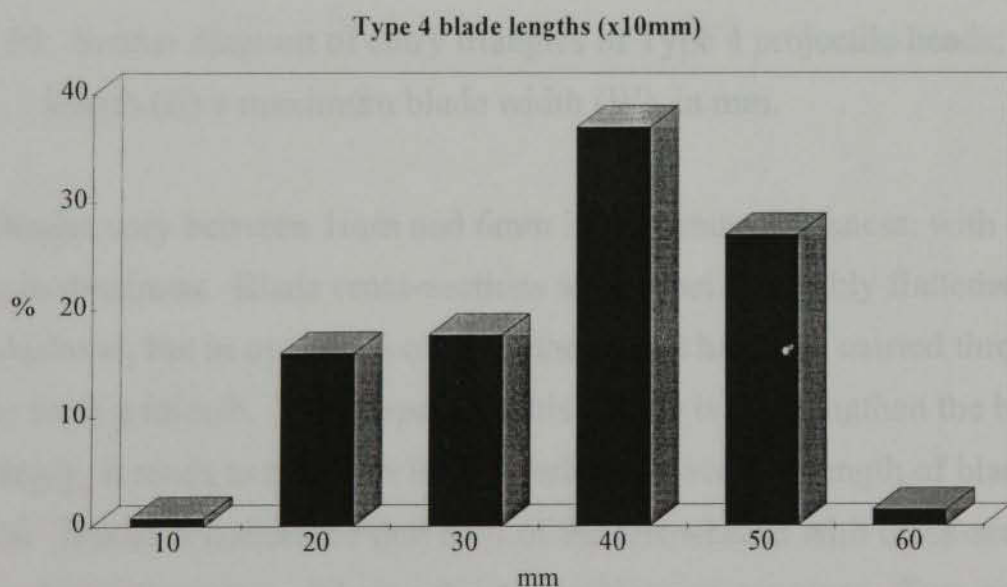
Chart 13: Type 4 blade lengths, by percentage, in 10mm groups.

Blade widths vary from 6mm to 30mm, but some 70% of examples are between 14mm and 24mm in width; perhaps the most striking feature of blade widths, however, is that 53% of examples are 20mm or more in width. Despite the variation in the size

31. C.W. Dickinson and D.M. Waterman, 'Excavation of a rath with motte at Castleskreen, Co. Down', *Ulster Journal of Archaeology* 22 (1959), Fig. 7:7; D.M. Waterman, 'Excavations at Seafin castle and Ballyroney motte and bailey', *Ulster Journal of Archaeology* 18 (1955), Fig.7.

and proportions of blades, when blade entry triangles are plotted on a scatter diagram no obvious patterns or groupings are visible (Chart 14). There are, however, indications of an increase in the size of Type 4 blades after the Anglo-Norman conquest. This is clearly seen in the frequency of longer blades, i.e. those with entry lengths of 50mm or more. Of 28 such blades from datable contexts, only two examples (nos 203 and 274), or 7%, are possibly of pre-Norman date (although this is not certain in either case); by contrast, 24 examples (86%) are from contexts of the late 12th and 13th centuries and the remainder (7%) are from contexts of the 14th and 15th centuries.

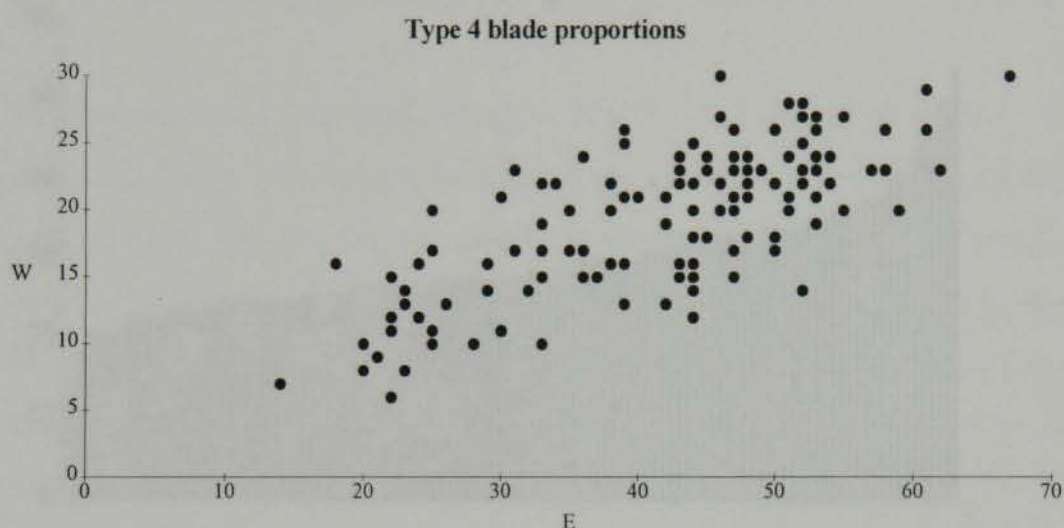**Type 4 blade proportions**

Chart 14: Scatter diagram of entry triangles of Type 4 projectile heads; blade entry length (E) v maximum blade width (W), in mm.

Blades vary between 1mm and 6mm in maximum thickness, with over 87% 2-4mm in thickness. Blade cross-sections are almost invariably flattened lozenge/ triangular/oval, but in over 40% of cases the socket has been carried through into the blade to form a midrib. The purpose of this midrib is to strengthen the blade and, not surprisingly, it tends to occur on larger blades; the average length of blades with midribs is 44mm. It is also noticeable that 85% of the arrowheads with cross-sections of this form are from contexts postdating the Anglo-Norman conquest. Two examples, nos 172 and 258 (Fig. 16) display the "stepped" cross-section noted in Type 1.

Sockets are round-sectioned, with the exception of the hexagonal socket of no. 235 (Fig. 14), and almost invariably (98% of cases) between 7mm and 11mm in diameter. The only exceptions, nos 218 and 266 (Fig. 16), are 13-14mm in diameter; no. 266 may be the head of a crossbow bolt, but no. 218 is from a context dating to the first half of the 10th century, which presumably precludes the possibility of its being a crossbow bolthead. Socket lengths vary between 13mm and 54mm but most (82%) are between 20mm and 35mm in length. Although Ward-Perkins and Jessop each suggest a

separate type of triangular-bladed arrowhead, defined by a long socket (see Figs 1 and 2), it is difficult to support such a distinction in the Irish material[32]. Socket lengths as a proportion of overall arrowhead length vary from 22% to 65%, but in the large majority (80%) of cases socket length represents between 30% and 50% of overall arrowhead length. When actual socket lengths and relative socket lengths (as a proportion of overall length) are plotted on histograms (Chart 15) it becomes clear that there is a fairly continuous7 range of lengths, within which it is difficult to isolate any distinct groups.

Type 4: Socket lengths (mm)

Type 4: Proportionate socket lengths
Socket as percentage of overall length
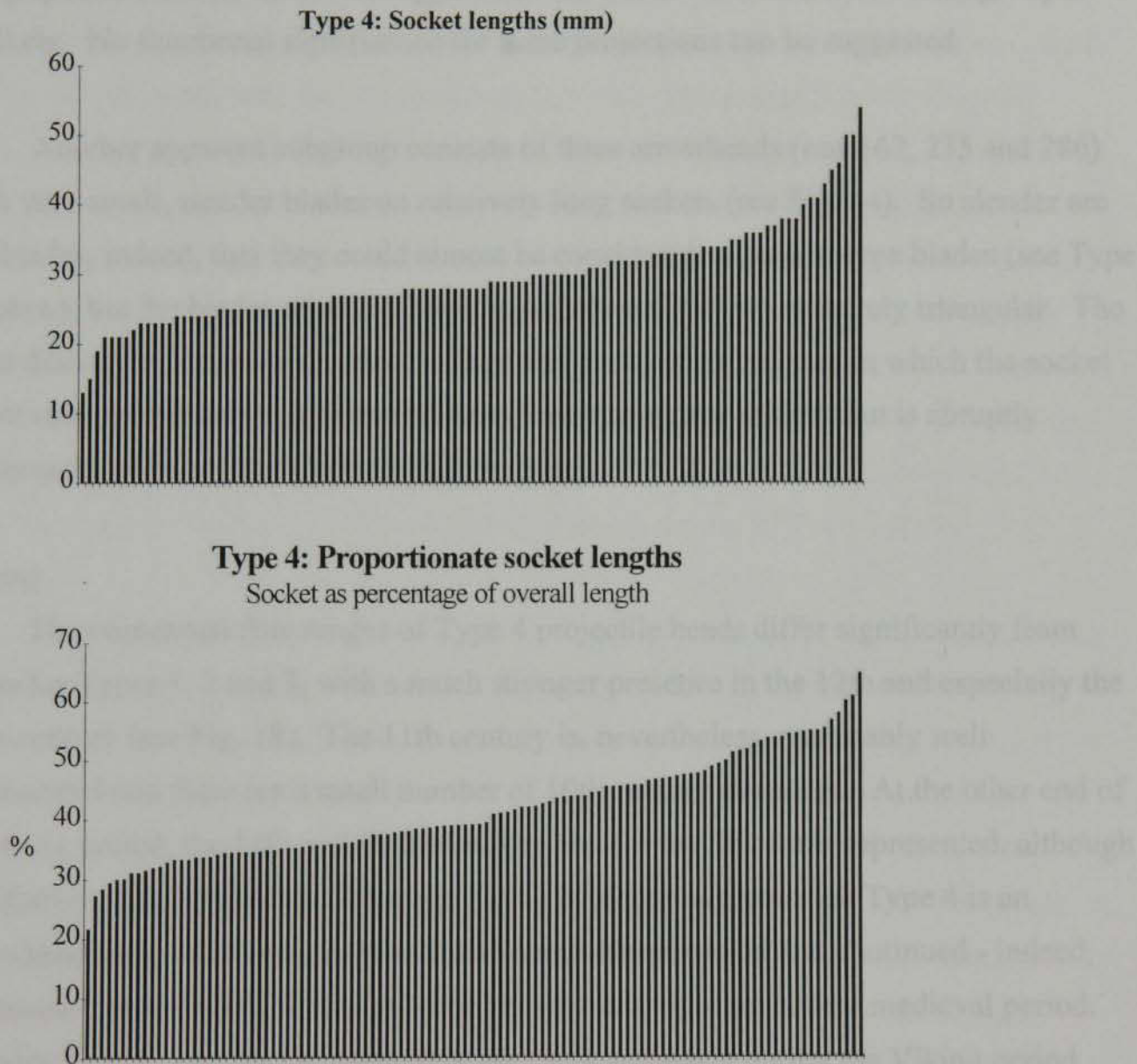
Chart 15: Histograms of Type 4 socket lengths, in mm (above) and of socket lengths as a proportion of overall arrowhead length (below).

While it is argued that this type cannot convincingly be divided into two or more separate types, there are a number of possible subgroups. Taking together the previous

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32. Ward Perkins, *London Museum medieval catalogue*, Fig. 16: (Type 3); Jessop, 'A new artefact typology', p. 196 (Type MP2).

observations on blade lengths and cross-section forms, twenty-two Type 4 arrowheads having large blades (50mm or more in entry length) of flattened lozenge/oval section with a rounded midrib can, perhaps, be isolated as a subgroup. The four arrowheads referred to above, with small projections in the angle between the base of the blade and the socket (nos 187, 188, 218 and 219) can also be seen as a distinctive subgroup of 10th/early 11th century date from Dublin. Another arrowhead, no. 155 (Fig. 16) from Cashel, displays small, pointed secondary barbs in the same location; chronological and geographical distance however, suggest that any connection with the Dublin group is unlikely. No functional significance for these projections can be suggested.

Another apparent subgroup consists of three arrowheads (nos 162, 235 and 286) with very small, slender blades on relatively long sockets (see Fig. 14). So slender are the blades, indeed, that they could almost be considered as bodkin-type blades (see Type 7 below), but the blades of no. 162 and especially no. 286 are definitely triangular. The most distinctive common characteristic of this group is the manner in which the socket is not only continued through the blade to form an angular midrib, but is abruptly thickened just below the blade for this purpose.

Dating

The contextual date ranges of Type 4 projectile heads differ significantly from those for Types 1, 2 and 3, with a much stronger presence in the 12th and especially the 13th century (see Fig. 18). The 11th century is, nevertheless, reasonably well represented and there are a small number of 10th century examples. At the other end of the study period, the 14th and 15th centuries are, for the first time, represented, although in relatively small numbers. Thus the dating evidence suggests that Type 4 is an arrowhead form which was used in the Hiberno-Norse period and continued - indeed, increased - in use after the Anglo-Norman conquest, right to the late medieval period. As with Type 2, this type is apparently rare in Scandinavia during the Viking period, although Kempke illustrates an apparent example from a 10th century context at Starigard/Oldenburg on the Baltic coast[33]. Its occurrence in pre-Norman contexts in Ireland (to date confined to Dublin and Waterford) may possibly be a reflection of Anglo-Saxon (or, after 1066, Norman) influence.

The main occurrence of Type 4 arrowheads, however, is in the later 12th and 13th centuries, in the towns of Dublin, Waterford, Cork and Limerick and on castle sites at

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33. Kempke, 'Starigard/Oldenberg', Abb. 1.

Ballyroney, Castleskreen, Clough and Seafin (Co. Down), Dunamase (Co. Laois),
Ferrycarrig and Ferns (Co. Wexford), Lurgankeel (Co. Louth), Trim (Co. Meath) and,
probably, Pollardstown (Co. Kildare). These are all Anglo-Norman sites, and the
implication that the type was widely used by Anglo-Norman archers is supported by its
popularity in England in contexts of 11th to 15th century date[34].

Indeed, Type 4 was almost the most commonly used arrowhead type in the initial
Anglo-Norman conquests (see Chapter 5, below). It is the only type represented at the
early castle sites of Ballyroney, Castleskreen, Clough, Seafin and Pollardstown (which
admittedly produced only eight arrowheads in total). More significantly, the early
Anglo-Norman ringwork at Ferrycarrig produced twelve arrowheads, all of Type 4
form, with the exception of a single example of Type 7 form. The Ferrycarrig
assemblage is strikingly similar to that from an early 12th century Norman ringwork at
Llantrithyd, in south Wales, where twelve of the fourteen arrowheads noted were of
Type 4 form[35]. In Waterford, Types 4 and 7 are roughly equally represented in the
arrowheads which may date to the period of the Anglo-Norman conquest. This is also
the case in Dublin, where of twenty-nine arrowheads which may be isolated as of late
12th century date, nine are of Type 4 form, while eleven are of Type 7 form.

The subgroup of Type 4 arrowheads having large blades (50mm or more in entry
length) of flattened lozenge/oval section with a rounded midrib may be identified as a
distinctively Anglo-Norman form. Of twenty-two such arrowheads, nineteen are from
dated contexts and with only two possible exceptions, all are from contexts of the late
12th/13th centuries. The possible exceptions are nos 274 (from a mid-12th century
context at Waterford) and 234 (from a late 13th/early 14th century context at Ferns); in
both cases the possibility of a late 12th/13th century date is not excluded. The
distribution of this group supports its identification as distinctively Anglo-Norman. It
occurs in urban contexts at Dublin, Waterford and Roscrea, at the castle sites of Trim,
Dunamase and Lurgankeel, and at Kells priory (Co. Kilkenny), all of which were
thoroughly Anglo-Norman sites from the late 12th century onward. Other arrowheads
with central midribs but slightly shorter blades, such as nos 163 (from Clough castle),
164 (from Cork) and 240 (from Limerick) are also Anglo-Norman and might be
included in this group (see Fig. 16). Similar arrowheads are known in Britain, for
example at Rumney Castle, Glamorgan, in a late 13th century context, at Seacourt,

34. Jessop, 'A new artefact typology', pp. 196-97, Types MP1, MP2, MP3, MP5 and MP6.
35. P. Charlton, J. Roberts and V. Vale, *Llantrithyd: A Ringwork in South Glamorgan* (Cardiff, 1977), p.
    48: nos 47-61.

Berkshire, in a pre-1400 context (apparently without a midrib) and at the Hamel, Oxford in a mid/late-13th century context (with basal barbs). Some of the early 12th century arrowheads from Llantrithyd are also of this form, in terms of size and proportions, although it is unclear from the published drawings whether a midrib is present[36].

The type as a whole corresponds to Ward-Perkins' Types 1 and 2, described as "a pre-conquest form which lasted on into, but probably not beyond, the 13th century". Its occurrence in 14th and 15th century contexts at Dunamase, Greencastle, Trim and Waterford, however, demonstrates continued use in late medieval Ireland (the small numbers involved is best taken as reflecting the general scarcity of late medieval material). Late examples of this form are also known in Britain, such as two from contexts apparently dating to c.1350-1450 at Lyveden, Northamptonshire[37].

Function

Socket diameters indicate that all of the Type 4 projectile heads, with only one or two possible exceptions, can be classified as arrowheads. This type is considered elsewhere as a multi-purpose arrowhead or even (in the case of larger blades) as intended specifically for hunting[38]. 70% of Irish Type 4 blades have maximum widths in excess of 15mm, with 54% over 18mm in width. If the criteria outlined earlier for Types 1-3 were to be strictly applied, all of the latter would be classified as hunting forms (as Goodall does in the case of an arrowhead very similar to the larger Irish examples[39]) and Type 4, as a whole, would have to be considered as very largely a hunting type.

However, the contextual information of the Irish examples, specifically the consistent association with military sites, suggests that this is not the case. In particular, the occurrence of Type 4 arrowheads at a range of early castle sites (i.e. dating to the initial period of Anglo-Norman conquest) such as Ballyroney, Castleskreen, Clough, Dunamase, Ferrycarrig, Lurgankeel, Trim and Seafin strongly indicates a military

36. K.W.B. Lightfoot, 'Rumney Castle, a ringwork and manorial centre in South Glamorgan', *Medieval Archaeology* 36 (1992), pp. 134-35, Fig. 13:2-4; M. Biddle, 'The deserted medieval village of Seacourt, Berkshire', *Oxoniensia* 26-27 (1961-2), p. 179, Fig. 30:13; N. Palmer, 'A Beaker burial and medieval tenements in the Hamel, Oxford', *Oxoniensia* 45 (1980), Fig. 31:78, Fiche 2:C09.; Charlton, Roberts and Vale, *Llantrithyd*,
37. Ward-Perkins, *Medieval catalogue*, p. 67, Fig. 16; G.F. Bryant and J.M. Steane, 'Excavations at the deserted medieval settlement at Lyveden', *Journal of the Northamptonshire Museums and Art Gallery* 12 (1975), p. 118; Fig. 45:9, 12.
38. Jessop, 'A new artefact typology', pp. 195-96: Types MP1, MP2, MP3, MP6; I.H. Goodall, 'Arrowheads', in M. Biddle, *Object and economy in medieval Winchester* (Oxford, 1990), p.1070.
39. Goodall, 'Arrowheads', p. 1073, no. 4015.

function. Nineteen Type 4 arrowheads are known from contexts of the late 12th/13th centuries at these eight sites, and a scatter diagram of their entry triangles reveals markedly large blades (Chart 16).
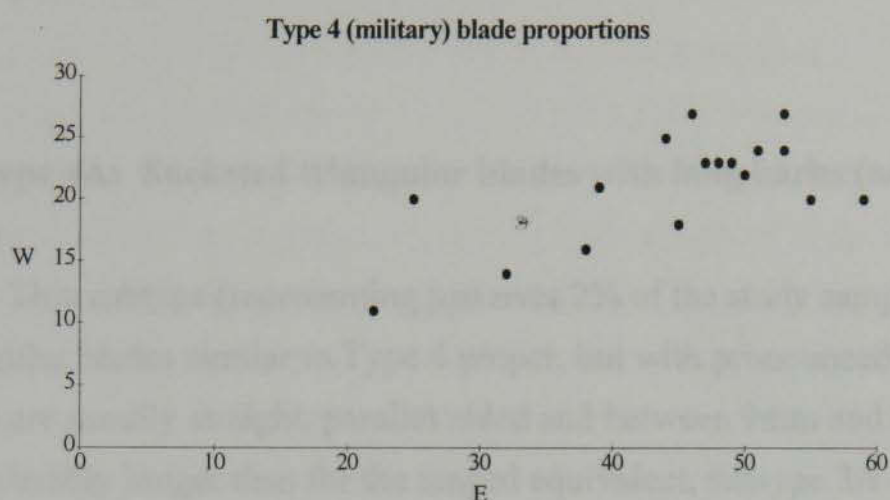
Type 4 (military) blade proportions

Chart 16: Scatter diagram of entry triangles of Type 4 projectile heads from early castle sites; blade entry length (E) v maximum blade width (W), in mm.

All but two of these arrowheads are 15mm or more in maximum width; indeed, fourteen are 20mm or more in width and the average width is 21mm (the average blade length is 45mm). Nevertheless, the military nature of the contexts in which the arrowheads were found, particularly at such early dates in the initial period of conquest, suggest that use for hunting is extremely unlikely. If such large arrowheads are to be regarded as military in function - as seems inescapably to be the case - very few of the other Type 4 arrowheads could not be similarly classified. Apart from the examples from early castle contexts, many other Type 4 arrowheads are definitely or possibly associated with castle sites including Ballynahinch (Co. Tipperary), Castletown (Co. Louth), Dunamase, Dundrum (Co. Dublin), Ferns, Greencastle (Co. Down), Knockbarron (Co. Offaly), Limerick, Pollardstown (Co. Kildare) and Trim. A total of forty-one arrowheads, representing 30% of the entire Type 4 assemblage, may be associated with castle sites.

At the other end of the scale (in terms of size), the group of three arrowheads (nos 162, 235 and 286) with very small, slender blades and thickened midribs extending from the sockets could almost be seen as transitional between broad-bladed and bodkin-bladed forms. The small sizes of the blades and the strengthening of the midribs suggests that an armour-piercing function may have been intended. There is no question of these arrowheads being transitional in an evolutionary sense, as they post-date the development of bodkin-bladed arrowheads (no. 235 is from a 14th/15th century context at Greencastle and the other two examples are probably of broadly similar date).

They may, however, represent a later medieval development of the Type 4 form incorporating armour-piercing capability. All of these examples further reinforce the impression that Type 4 is primarily (if not entirely) a military arrowhead type.

Subtype 4A: Socketed triangular blades with long barbs (nos 289-307: *Fig. 17*).
Form

This subtype (representing just over 2% of the study sample) essentially has triangular blades similar to Type 4 proper, but with pronounced basal barbs. These barbs are usually straight, parallel-sided and between 9mm and 23mm long - considerably longer than for the tanged equivalent, subtype 3A - but they can be curved, pointed and up to 66mm long. Overall lengths vary between 52mm and 114mm. Weights vary between 4g and 30g, with an average of 11g, but it should be noted that this average is somewhat distorted by one particularly heavy example (no. 305) at 30g; the remainder are all 16g or less, with an average of 9g.

In terms of blade proportions, most examples fall into a reasonably tightly-knit group with entry lengths (inclusive of barbs) between 35mm and 70mm and widths between 15mm and 36mm, dimensions which are noticeably greater than for the tanged subtype 3A (see Chart 17). There are also two exceptionally large outliers, nos 300 and 305 (see Fig. 17). Maximum blade thicknesses vary between 1mm and 8mm and the blade cross-section is invariably a flattened lozenge/oval, although in almost 50% of cases there is a central midrib (usually rounded, but angular in two cases) formed by the continuation of the socket into the blade. Socket diameters vary between 7mm and 11mm, indicating that all examples are arrowheads.
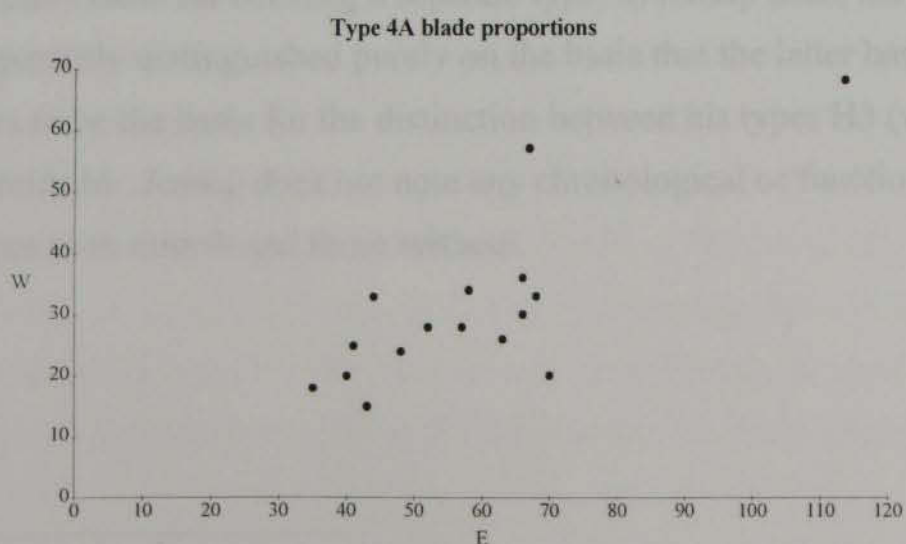
Type 4A blade proportions

Chart 17: Scatter diagram of entry triangles of Type 4A projectile heads; blade entry length (E) v maximum blade width (W), in mm.

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Dating

Large barbed arrowheads are often considered a type of the high Middle Ages or later; Jessop notes that they "appear to be absent from early assemblages, and ... may be a late introduction", and the earliest dated examples he notes are 13th century[40]. The context date ranges of the Irish examples, however, suggest an earlier date, with at least four examples predating the 13th century, including two (nos 297, 298) possibly dating as early as the 11th century (see Fig. 18). This early date finds support in the fact that the tanged equivalent, subtype 3A, seems to be solidly of 11th century date. Barbed, socketed arrowheads occur at Starigard/Oldenburg, and in Slavic areas of eastern Europe generally, in the 10th and 11th centuries. Kempke notes that such arrowheads are also known in the west from Merovingian and early Carolingian contexts, but it seems unlikely that any of these can have had more than the most distant relationship with the Irish type. Goodall, however, notes a relatively large barbed, socketed arrowhead from an 11th century context at Winchester, which may be more relevant to the Irish series[41]. At the other end of the date range, the late date indicated for nos 292 and 293 is supported by the occurrence of an arrowhead of broadly similar form in a 15th-16th century context at a moated site at East Haddlesey, Yorkshire[42].

The contextual dates are remarkably evenly spread from the 11th to 16th century and it is as difficult to subdivide this group on chronological grounds as it is on morphological grounds. The only possible pattern which may be visible is that the dated examples with central midribs are all from contexts dating to the 13th century or later, whereas the examples without midribs are of 11th and 12th century date (with the exception of no. 302, from a late 13th/early 14th century context). This mirrors the pattern observed in Type 4 proper, where midribs were seen to be mainly, if not entirely, an introduction of the Anglo-Norman period. It is doubtful, however, if this is a sufficient basis for defining a separate type, as Jessop does; his types MP7 and MP8 are apparently distinguished purely on the basis that the latter has a midrib, and this also appears to be the basis for the distinction between his types H3 (without midrib) and H4 (with midrib). Jessop does not note any chronological or functional distinction between his types with midrib and those without.

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40. Jessop, 'A new artefact typology', p. 200; pp. 197-200: Types MP7, MP8, H3, H4.
41. Kempke, 'Starigard/Oldenberg', pp. 300-01, Abb. 1, 4; Goodall, 'Arrowheads', p. 1073, no. 4010.
42. H.E.J. le Patourel, *The moated sites of Yorkshire* (London, 1973), p. 93; Fig. 37:17.

Function

Jessop subdivides barbed arrowheads into multipurpose types (MP7 and MP8) and hunting types (H3 and H4), apparently on the basis that the hunting types are larger and, in particular, wider than the multipurpose types. This division seems reasonable and might be seen as supported by the Irish material, where a distinction has been noted between the majority of examples, which are up to 70mm long and 36mm wide, and two considerably larger examples, nos 300 and 305. It is difficult, however, to justify treating these two largest examples as typologically distinct from the remainder purely on the basis of size, as is illustrated by no. 299, which is from the same context as no. 300 and is essentially identical in all respects except size.

While a typological distinction can hardly be supported, a difference of function may well be present. Large, barbed forms such as nos 300 and 305 can readily be seen as hunting arrowheads; they are clearly designed to create a particularly large wound with maximum blood loss, such as would be desirable in hunting deer or other large game. The remainder of subtype 4A would presumably be regarded by Jessop as multipurpose arrowheads. Most of them are no larger in terms of blade size than the Type 4 arrowheads for which a military function has already been suggested, and this raises the possibility that these, too, may have been used for military purposes. Only four examples are from castle sites, at Ballyroney, Dublin and Trim, and these are all from contexts of 13th or 14th century date. It may be worth noting that a large triangular arrowhead with long barbs, over 30mm in width, was found embedded in a human vertebra in an 11th century Anglo-Saxon grave at Winchester. While this may have been the result of a hunting accident, as Goodall somewhat facetiously suggests, it is possible evidence for the use of this type in war[43].

It is also useful to recall Edmund Spenser's description in 1596 of the "bearded" arrowheads used by Irish archers in Ulster; he noted that they were "made like common broad arrow-heads, but much more sharp and slender, that they enter into an armed man or horse most cruelly"[44]. The reference to "broad arrow-heads" suggests barbed arrowheads, which were commonly referred to as "broadheads", and this may also be what Spenser meant by "bearded"[45]. If this is the case, Spenser's comments are strong evidence for the use of barbed arrowheads in warfare in late medieval Ireland, and the type 4A arrowheads from late medieval contexts at Carrickfergus (nos 292, 293) and

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43. Goodall, 'Arrowheads', p. 1073, no. 4010.
44. Renwick, *A view of the present state of Ireland, by Edmund Spenser*, p. 57.
45. Jessop, 'A new artefact typology', p. 199; H.L. Blackmore, *Hunting weapons* (London, 1971), p.148.

possibly from Downpatrick (no. 294) may be examples of the type of arrowheads to which Spenser was referring (see Fig. 17. Thus, while it may be safest to treat most type 4A arrowheads as multipurpose, because it is not possible to be certain that they were used in warfare, it seems likely that many of them were, in fact, military rather than hunting arrowheads.

Subtype 4B: Short, bullet-like blades (nos 308-319: *Fig. 20*)

Subtype 4B is essentially a small triangular or bullet-shaped arrowhead in which the blade is little more than a tapered continuation of the socket, with relatively long, narrow barbs, usually set very close to, if not actually touching the socket. This subtype is rare in Ireland, with only twelve examples so far known, representing just over 1% of the study sample.

Form

Most subtype 4B arrowheads have the appearance of short, bullet-shaped arrowheads to which barbs have been added, set close to the socket. These are small arrowheads; overall lengths vary from 40mm to 58mm, and weights (available in only three cases) from 9g to 11g. Blade proportions are quite tightly grouped; blade lengths vary from 23mm to 52mm and blade widths (including barbs) are remarkably consistent, between 14mm and 19mm in every case regardless of blade length, with only one exception (see Chart 18). Blade thicknesses vary from 3mm to 11mm but most (66%) are in the range 6-8mm. Socket diameters vary between 9mm and 13mm.
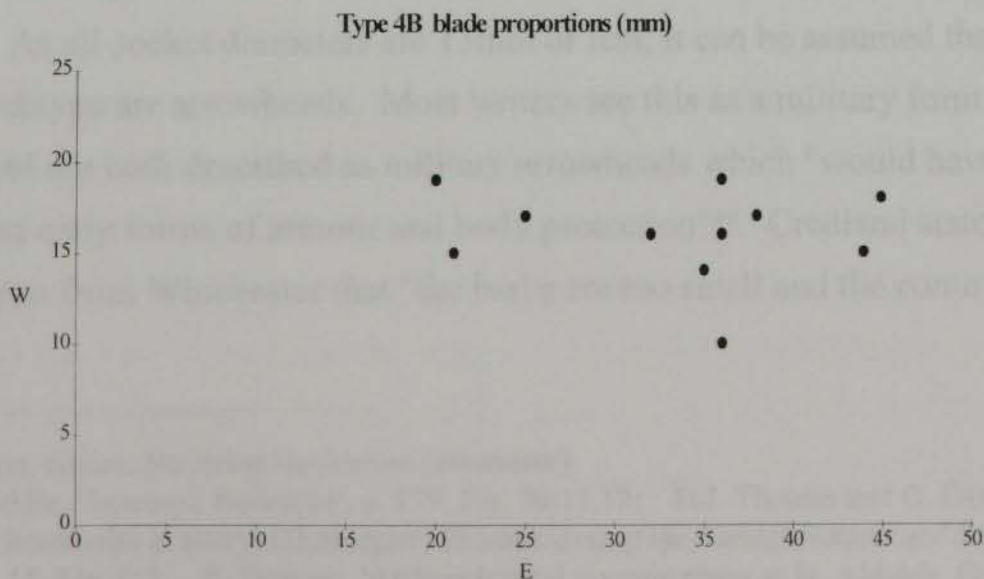

Chart 18: Scatter diagram of entry triangles of Type 4B arrowheads; blade entry length (E) v maximum blade width (W), in mm.

There is little differentiation between blade and socket, although the cross-section tends to change from rounded to lozenge-shaped (in 66% of cases) or oval (in 33% of cases) in the blade. There are some differences, however, in the form and articulation of the barbs. Barbs are usually 10-20mm in length and may be narrow and pointed (e.g. nos 314, 317) or relatively broad and parallel-sided (e.g. nos 309, 315, 319); they are usually set close to the socket, if not actually joined to it, but are set slightly apart from the socket in some cases (nos 308, 311, 318).

Dating

Subtype 4B has a distinctly late medieval chronological range. Ten of the twelve examples are from dated contexts and all of these (with the possible exception of no. 308) date after 1300. The contextual date ranges concentrate on the 14th century and, to a lesser extent, the 15th century, with no. 309 possibly indicating usage into the 16th century (see Fig. 21). It is striking that 75% of the total are from Trim castle, whereas none are known from Dunamase castle, which also produced a large arrowhead assemblage. A possible explanation for this lies in the fact that Dunamase appears to be "effectively abandoned by 1350"[46], which might suggest that subtype 4B largely postdates 1350 (although nos 308 and 319 apparently predate 1350).

In Britain, comparable dates are provided by examples from 14th/15th century contexts at Seacourt (Berkshire), Barry (Glamorgan), St. Aldate's (Oxford), Winchester and Glenluce (Wigtownshire)[47]. Subtype 4B corresponds to Ward-Perkins' Type 16, and to Jessop's types M2 and M4, which he dates 14th-16th century[48].

Function

As all socket diameters are 13mm or less, it can be assumed that all examples of this subtype are arrowheads. Most writers see this as a military form; Jessop's types M2 and M4 are both described as military arrowheads which "would have been effective against early forms of armour and body protection"[49]. Credland states of an arrow of this type from Winchester that "the barbs are too small and the contours of the blade too

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46. Pers. comm. Mr Brian Hodkinson (excavator).
47. Biddle, 'Seacourt, Berkshire', p. 179, Fig. 30:11,12;   H.J. Thomas and G. Davies, 'A medieval house-site at Barry, Glamorgan', *Transactions of the Cardiff Naturalists' Society* **96** (1970-72), p. 16, Fig. 6:7;   B. Durham, 'Archaeological investigations at St. Aldate's, Oxford', *Oxoniensia* **42** (1977), pp. 146, 197-8, Fig. 28:47;   Goodall, 'Arrowheads', p. 1073, no. 4014;   E.M. Jope and H.M. Jope, 'A hoard of fifteenth century coins from Glenluce sand dunes and their context', *Medieval Archaeology* **3** (1959), pp. 51, 262-3, 269; Fig. 94:13.
48. Ward-Perkins, *Medieval catalogue*, pp. 66, 70, Fig. 16;   Jessop, 'A new artefact typology', p. 198.
49. Jessop, 'A new artefact typology', p. 197.

smooth to make it a successful hunting head. An arrow with such a head would tend to pass right through the animal with the minimum of laceration"; by implication, therefore, he presumably sees it as a military type[50].

Pratt describes this type as a "light medieval war-head designed ... to harass an enemy, especially his horses, at a distance beyond the reach of heavier war arrows". However, he notes a metallurgical analysis of an English example indicating a composite structure of a mild steel shank with hardened steel tip, which gave "considerable hardness combined with great toughness"; this suggests that such arrowheads could, on occasion, have been successfully used to penetrate body armour. He claims, on the basis of an unspecified survey, that this is the most common medieval arrowhead type in Britain, and also suggests that it is the arrowhead with "little barbs" described as typical of the period by the 16th century English writer Roger Ascham. Paterson suggests that this type is also present on arrows from Henry VIII's ship, *Mary Rose*, which sank in 1545, although this identification is based on "rust impressions", as the actual arrowheads did not survive[51]. Whatever the truth of this, it does seem clear that all the Irish examples of subtype 4B can be regarded as military arrowheads.

Type 5: Small triangular blades on long stems (nos 320-338: *Figs 20, 22*).

This very distinctive form - a small, flat triangular blade on a long, narrow stem which may be either socketed or tanged - is relatively rare, with only thirteen definite examples and six possible fragments, representing just over 2% of the study sample.

Form

The most distinctive feature of this type is its length; no. 326 is the outstanding example at 330mm, but nos 320 (Fig. 20) and 323 are also over 300mm long and were probably longer originally. Several other examples, now incomplete, may have been of comparable length originally, and it is unfortunate that the majority of examples are apparently incomplete. Among complete examples overall lengths vary from 110mm to 330mm and it is likely that most of the incomplete examples were originally of comparable lengths. There are, however, a number of very short examples which may not necessarily have been very much longer originally (notably nos 321, 332, 336, 337

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50. In Goodall, 'Arrowheads', p. 1073, no. 4014.
51. P.L. Pratt, 'The arrow', in Hardy, *Longbow*, p. 201; W.F. Paterson, 'A "Mary Rose" archery symposium', *Journal of the Society of Archer Antiquaries* 26 (1983), pp. 50-51.

and 338: Fig. 20) and it is not entirely certain that they properly belong in the same type as the longer examples.

Most of the length of these arrowheads is made up by the stem, as the blades are invariably very small. Blades are, in fact, quite homogenous in dimensions - 12-31mm long, 5-18mm wide, 1-4mm thick and invariably of flattened lozenge/oval cross-section. A scatter diagram of blade entry triangles (Chart 19) shows them to be particularly tightly grouped. The weights of the complete examples vary from 9g to 48g and average19g. Weight is almost entirely a function of length; thus the shortest complete examples (nos 330 and 327) are also the lightest, at 10g and 9g, respectively, and the longest example (no. 326) is the heaviest, at 48g.
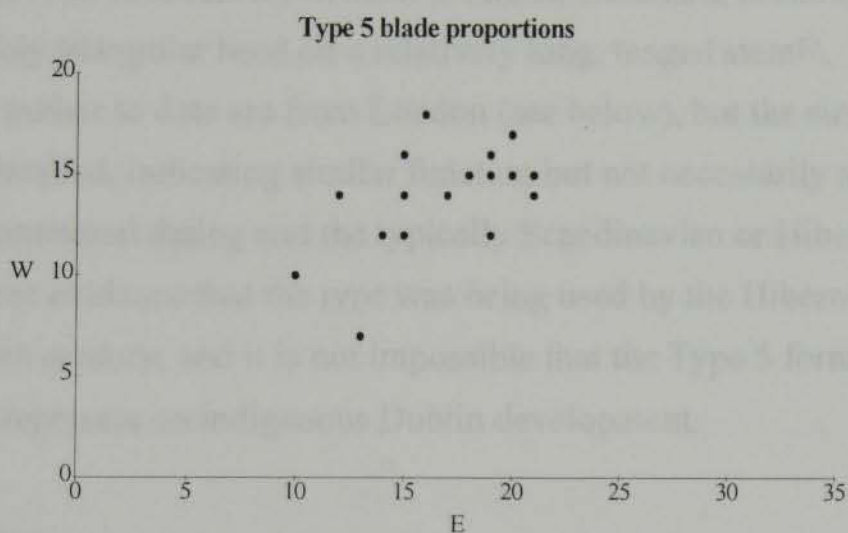
Type 5 blade proportions

Chart 19: Scatter diagram of entry triangles of Type 5 projectile heads; blade entry length (E) v maximum blade width (W), in mm.

The type occurs in both tanged and socketed forms, which are here considered together because of the small numbers. There are at least eight socketed examples and three definitely tanged examples; the remaining eight examples are apparently tanged but being incomplete, this is not certain. Where original socket diameters can be reconstructed, these are between 8mm and 11mm, and although several examples do not preserve the original diameters it is unlikely that they would have significantly extended this range. One can therefore be reasonably confident in describing all examples of this type as arrowheads. No. 330 (Fig. 20) differs from the remainder in having the classic Scandinavian tripartite form of blade, stem and tang, with stem and tang separated by an abrupt stop. There is, however, no reason to believe that its function differed from the other Type 5 arrowheads, since it has the same basic form of a small triangular blade on

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a long stem. Indeed, it is not impossible that some of the incomplete arrowheads may have had this tripartite form originally.

Dating

The majority of Type 5 arrowheads appear to date to the Hiberno-Norse period, with eight of twelve dated examples coming from contexts dating between the middle of the 10th century and the end of the 12th century (see Fig. 22). However, four examples are known from contexts of the late 12th and 13th centuries and this, particularly in view of the occurrence of a possible example at the motte of Lurgankeel, suggests that the type may also have been used by Anglo-Norman archers. This type, as such, is apparently not noted in Scandinavia or on other Viking sites, although an arrowhead from a 10th-13th century context at Århus, Denmark, is similar to no. 330, with a small, probably triangular head on a relatively long, tanged stem[52]. The best parallels known to the author to date are from London (see below), but the similarity is general rather than detailed, indicating similar function but not necessarily any direct relationship. The contextual dating and the typically Scandinavian or Hiberno-Norse form of no. 330 are clear evidence that the type was being used by the Hiberno-Norse of Dublin from the 10th century, and it is not impossible that the Type 5 form, as found in Dublin, could represent an indigenous Dublin development.

Function

The unique form of this type must, presumably, be related to its function. The long, solid stem effectively replaces the wooden shaft for some 100-300mm below the blade, and the most likely explanation for this is that this type is an incendiary arrowhead, where inflammable material was wrapped around, or attached to the iron stem and ignited; the arrow was then discharged, and most likely used to set fire to buildings[53]. The iron stem, unlike a wooden shaft, would not itself be burned. The arrowheads were, however, mounted on wooden shafts, as the presence of sockets and tangs indicates. This type may correspond to Ward-Perkins' Type 20 and comparable projectile heads are described as incendiary arrowheads in the *Catalogue* of the Guildhall Museum, London[54].

52. H. Hellmuth Andersen, P.J. Crabb and H.J. Madsen, *Århus søndervold; en lydarkaeologisk undersøgelse* (Copenhagen, 1971), p. 204: AKN.

53. See note by F.G. Hilton Price in *Proceedings of the Society of Antiquaries of London* 20 (1903-05), pp. 229-36.

54. Ward Perkins, *Medieval catalogue*, pp. 66, 70; *Catalogue of the collection of London antiquities in the Guildhall Museum* (London, 1903), p. 267; Pl. LXXXIX:22, 23.

The apparent concentration of arrowheads of this type in urban centres such as Dublin and London may not be entirely coincidental; incendiary arrowheads would be particularly effective in early medieval towns, with tightly-packed buildings of wood and thatched roofs. However, the occurrence of possible examples at Clonmacnoise and Lurgankeel and an apparent reference, as late as 1601, to the use of incendiary arrows in an English attack on a crannog in Co. Armagh may point to a wider circulation[55].

Type 6: Tanged bodkin blades   (nos 339-431: *Figs 22, 24*).

Ninety-three projectile heads (11% of the total) may be described as tanged bodkin blades. The large majority of these - seventy-six examples - display the same characteristic tripartite arrangement as Types 1 and 3, with blade and tang separated by a short parallel- or concave-sided stem, while a further nine variants (nos 415-423) have a simpler arrangement of blade and unstopped tang, without the intervening stem. This is Type 6 proper, which represents some 10% of the study sample. A rare subtype, 6A, with only two examples (nos 424, 425), also displays a stopped tang but differs slightly in the form of the blade. Finally, a more numerous subtype, 6B, with six examples (nos 426-431), has a square-sectioned blade with unstopped tang and no stem.

Form

Type 6 projectile heads vary between 62mm and 128mm in overall length, although most (71%) are between 90mm and 105mm in length. All three parts - blade, tang and stem - tend to be of quadrangular or lozenge section. Tangs are stopped, but the stop frequently is not pronounced. Weights vary from 3g to 15g, but 80% are 9g or less and over 50% of examples are between 5g and 7g; the average weight is 7g.

The blade form is basically similar to the socketed bodkin type (Type 7) - narrow, tapering and of solid quadrangular section - but there are some subtle differences. Type 6 blades tend to be slightly wider and flatter than in the socketed form. Most (over 75%) are slightly convex-sided; indeed, the outline on occasion is almost leaf-shaped or shouldered (e.g. nos 340 and 349), with a consequent blurring of the distinction with Type 1. Most blades (67%) are of lozenge section, with square/rectangular sections in 31% of cases; the other 2% are of triangular section. All were presumably forged from square-sectioned bars which, in the case of those retaining squared sections, vary in

55. F. Moryson, *An itinerary...* (London, 1617), vol. ii, p. 97.

thickness from 3mm to 8mm sides, although most (74%) have 5mm-7mm sides Blade
lengths are more tightly grouped than for most other types, especially Type 7, varying
from 40mm to 82mm but with 74% of blades between 45mm and 65mm in length (see
Chart 20).

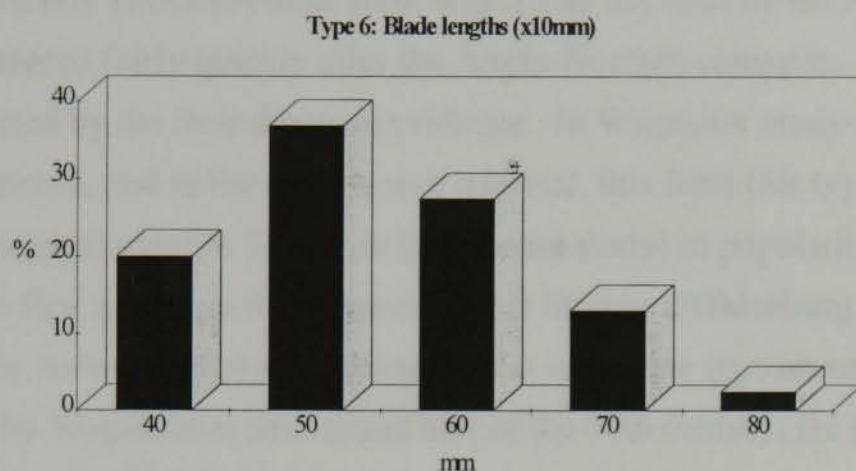**Type 6: Blade lengths (x10mm)**

Chart 20: Type 6 blade lengths (by percentage, in 10mm groups).

Two arrowheads display enlargements at the base of the blade; on no. 387 a pair
of pointed wings are set at the base of the blade, while on no. 390 two pairs of barbs
occur, one at the base of the blade and the other (set perpendicularly to the first) on the
stem (see Fig. 22). Nine variants (nos 415-423: Fig. 22) display simple, unstopped
tangs and no stems, but there are no other significant differences, either in blade form or
in chronology, between this group and the other Type 6 projectile heads and hence no
reason to suggest a different function.

Dating

The earliest Type 6 arrowheads in Ireland occur in Dublin in the late 10th century,
much the same date as the socketed Type 7, but in contrast to the socketed form the
indications are that the Type 6 form was a distinctively Hiberno-Norse type. It is
known, to date, only from the Hiberno-Norse towns of Dublin, Waterford and Limerick,
with the exception of a doubtful example (no. 423: Fig. 22) from Dunamase. The vast
majority (96%) of datable examples come from contexts of 10th to 12th century date
and the type has never yet been found in an undoubted Anglo-Norman context, again
with the dubious exception of no. 423 (see Fig. 25). Two examples (nos 409, 410) are
from contexts in Dublin which may be of 13th century date, but it cannot be assumed
that this implies an Anglo-Norman background. No. 423 is something of an enigma,
coming as it does from a later Anglo-Norman context in Dunamase. There are pre-
Norman deposits at Dunamase and it is possible that no. 423 is residual in its context,
although the excavator noted no evidence for this. On balance no. 423 cannot be

considered a definite Type 6 arrowhead, although its closest parallels are with the Type 6 variants with unstopped tangs.

Taken as a whole, the dating evidence for this type suggests that it was a distinctively Hiberno-Norse form which was not used by the Anglo-Normans and disappeared fairly quickly after the Anglo-Norman conquest. This view is again supported by the Scandinavian evidence. In Wegraeus' study of Swedish Viking period arrowheads, and in the Birka grave material, this form (his type D) is second only to his type A (equivalent to Type 1 in the present study) in popularity[56]. Arrowheads of Type 6 form first appear in Scandinavia and at Starigard/Oldenburg in the 10th century; it is notable, however, that the earliest date at which the type occurs in Swedish boat graves listed by Wegraeus is the second half of the 10th century, the same date at which they first appear in Dublin[57].

Wegraeus notes that arrowheads ancestral to this form are known from the Migration period and even as early as the Roman Iron Age, for instance in the 4th century Nydam bog find, although these earlier forms are mainly socketed rather than tanged[58]. While a direct relationship between these and the fully developed Type 6 form is possible, it is more likely, as Lindbom suggests, that the Type 6 form is a 10th century development of the Type 1 form, with the blade becoming progressively narrower and thicker in cross-section[59]. This would explain the overlaps between Types 1 and 6, already noted.

Function

Type 6 arrowheads must be interpreted as designed for a military function, in penetrating body armour. Their narrow, solid blades would have been very effective in penetrating armour, especially chain mail, and were almost certainly developed for use against it. Against bare flesh a broad blade is far more effective than a bodkin in causing maximum laceration of body tissue, and the use of Type 6 projectile heads for hunting or other non-military purposes can surely be ruled out. Bodkin-bladed arrowheads can readily be seen as a logical development from broad-bladed Type 1 forms, in which the blade has become much narrower in order to penetrate body armour.

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56. Wegraeus, 'Pilspetsar under vikingatid', p. 202, Tab. 1; 'Die Pfeilspitzen von Birka', p. 25.
57. Wegraeus, 'Die Pfeilspitzen von Birka', pp. 27-28, 32; Kempke, 'Starigard/Oldenberg', p. 296, Abb. 1.
58. Wegraeus, 'Die Pfeilspitzen von Birka', p. 28; see also Raddatz, 'Pfeilspitzen aus dem Moorfund von Nydam', pp. 49-56.
59. Lindbom, 'Pilspetsarna från Valsgärde 13', pp. 443-44.

The enlargements at the base of the blade on nos 387 and 390 may have been designed to enable the arrowhead, not merely to penetrate chain mail, but to rupture the rings of mail through which it passed; as has been suggested in the case of similar arrowheads with rounded projections at the base of the blade, from Eketorp in Sweden[60].

In Wegraeus' typology most of these projectile heads would be classified as Type D2, although two examples, nos 355 (Fig. 22) and 364 would, by virtue of their triangular-sectioned blades, be classified as Type D1[61]. There is, however, no functional difference between the D1 and D2 subtypes, both of which Wegraeus regards as military types. It is interesting to note that the ratio of D1 to D2 arrowheads in 10th century graves at Birka is 95% : 5%, almost exactly the reverse of the ratio in Dublin (3% : 97%). This may indicate the replacement of the previously dominant D1 by the D2 form in the 11th and 12th centuries. Kempke notes that his triangular-sectioned type 2 (equivalent to Wegraeus' type D1) declined in popularity in the Baltic area in the 11th century and is entirely absent at Starigard/Oldenburg in the 12th century[62]. The two triangular-sectioned Type 6 arrowheads are from contexts of relatively early date in Dublin, prior to the middle of the 11th century, although even at this date they are a minority in a larger number of quadrangular-sectioned examples.

As with the other tanged types, there is no measure comparable to socket diameter to indicate whether Type 6 projectile heads can be regarded as arrowheads. However, since it has already been argued that all Type 1 projectile heads can probably be accepted as arrowheads, and since Type 6 projectile heads are generally smaller and especially lighter than those of Type 1 (the maximum weight is 15g, whereas 37% of Type 1 arrowheads are 15g or greater), it seems clear that all examples of Type 6 can also be accepted as arrowheads.

Subtype 6A: Tanged, short pyramidal bodkin blades (nos 424-425: *Fig. 22*).

Two projectile heads are essentially of Type 6 form but are sufficiently distinctive in some aspects, and so similar to each other, to be tentatively considered as a subtype. Both are small, finely forged heads, obviously arrowheads, with very short (*c.*20mm), strongly tapering - almost pyramidal - blades of square section on relatively long stems

60. Mr Peter Lindbom, pers. comm.
61. Wegraeus, 'Pilspetsar under vikingatid', pp 197, 200, 203; 'Die Pfeilspitzen von Birka', pp. 23-25, 27-29.
62. Wegraeus, 'Die Pfeilspitzen von Birka', Abb. 4:6; Kempke, 'Starigard/Oldenberg', p. 302, Abb. 1.

of rounded/square section. The two arrowheads, which date from the mid-10th to mid-11th centuries, are clearly armour-piercing heads in the Type 6 tradition, but their unusually small size raises the possibility of some even more specialised purpose which can only be guessed at presently. Their small size would give them exceptional penetrability, but the wounds delivered would be correspondingly less grievous. Two late 10th century arrowheads from Trelleborg (Denmark) are possibly of similar form[63].

Subtype 6B: Tanged bodkin blades without stop   (nos 426-431: *Figs. 22, 24*).
Form

This group of 6 possible tanged projectile heads displays an apparent bodkin-type blade, without a stem and with unstopped tang, as in the variant Type 6 form. Unlike the latter, however, this group features blades of thick, square section (rectangular in the case of no. 431) with straight, flat bases and abrupt junctions with the tang. Several blades are quite thick, with sides of 7-8mm. Because of the absence of stems, these objects tend to be shorter, overall, than Type 6 projectile heads (all are under 80mm in length) but blade lengths are comparable with Type 6. Blade cross-sections are strikingly different to Type 6, however; only a single example (no. 428) is of lozenge cross-section and all the others are square or rectangular in cross-section. In most cases weights are between 5g and 8g but two examples (nos 426 and 429) weigh 20g or more.

Most examples of this group are from contexts of the 10th and 11th centuries, with a single example (no. 426: Fig. 24) from a 13th century context. The function of these objects must remain an open question. In view of their size and weight it seems unlikely that no 426 and 429 should be considered as projectile heads at all, and while it is possible to consider the others as projectile heads, other functions are also likely.

Type 7: Socketed bodkin blades (nos 432-830: *Figs. 24-27*).

This is by far the most common type of medieval projectile head known in Ireland, with 377 definite examples and a further 22 probable or possible examples, representing almost 47% of the total study sample.

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63. P. Nørlund, *Trelleborg, Nordiske Fortidsminde* (Copenhagen, 1948), Pl. XLIII:3-4.

Form

This form is in most cases very simple, consisting of a solid bar tapered to a point at one end, and beaten out and folded over to form a socket at the other. The profile is often entirely undifferentiated, straight-sided and tapering evenly from the base of the socket to the point, but in many cases blades are convex-sided and the folding of the socket has produced a waisted effect at the junction of blade and socket. There is considerable variation in size; overall lengths of projectile heads vary from 33mm to 236mm, although the majority (70%) are between 45mm-85mm in length. Weights vary from 2g to 63g but a similar majority (72%) are between 3g and 9g.

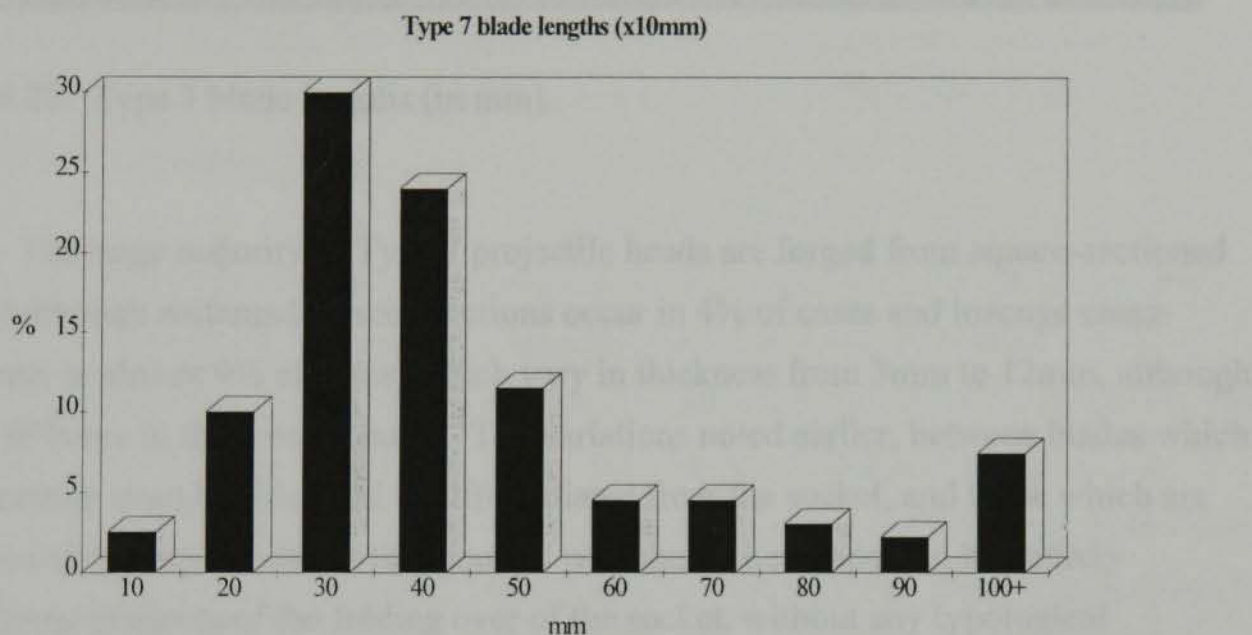**Type 7 blade lengths (x10mm)**

Chart 21: Histogram of Type 7 blade lengths (by percentage, in 10mm groups).

The most significant feature of these projectile heads, however, is the length of the blades. Again, this varies widely, from 14mm to 208mm, but the large majority (78%) of blades are under 60mm in length and 54% are between 30mm-50mm in length (see Chart 21). When all blade lengths are plotted on a histogram (Chart 22) three groups can, perhaps, be distinguished: a tiny minority (3%) with blades of 21mm or less in length, the large majority (76%) with blades between 22mm and 58mm in length, and a smaller group (21%) whose blades increase sharply in length from 60mm to over 200mm. These variations are quite gradual, however, and it is doubtful if this is a sound basis for distinguishing different types, as Jessop appears to do[64].

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64. Jessop, 'A new artefact typology', p. 198 distinguishes two types, M5 and M7, both of which are of Type 7 form and apparently differ only in length.
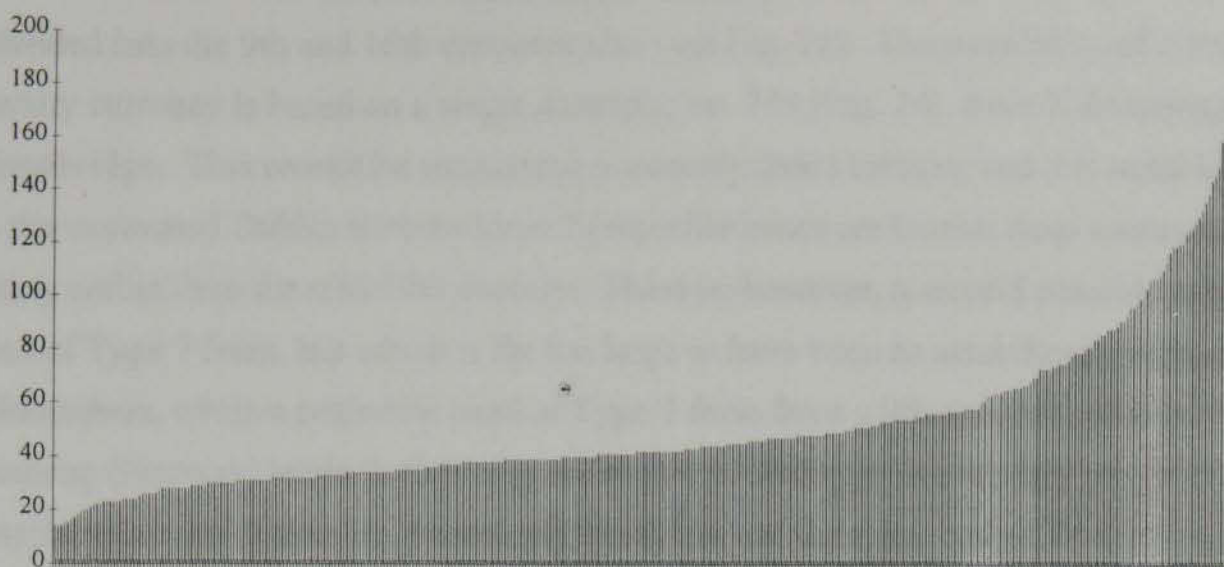
Chart 22: Type 7 blade lengths (in mm).

The large majority of Type 7 projectile heads are forged from square-sectioned
bars (although rectangular cross-sections occur in 4% of cases and lozenge cross-
sections in almost 9% of cases) which vary in thickness from 3mm to 12mm, although
over 85% are in the 3-6mm range. The variations noted earlier, between blades which
are entirely straight-sided and undifferentiated from the socket, and those which are
convex-sided and waisted at the junction with the socket, appear to be entirely
accidental products of the folding over of the socket, without any typological
significance. In some cases, however, the blade is differentiated from the socket by an
abrupt, straight break, producing what are, in effect, elongated pyramidal blades. Nos
715 and 761 are examples, but the clearest examples are three arrowheads from
Greencastle, nos 740-742 (Fig. 24). The uniqueness of these Greencastle arrowheads is
emphasised by the pseudo-barbs at the bases of the blades, by the herringbone
decoration on the socket of 741, and by the faceted socket of no. 742, a feature also seen
on a Type 4 arrowhead from the same site (no. 235).

Sockets are invariably round-sectioned, with diameters varying from 6mm to
17mm, but 91% are 12mm or less in diameter and 75% are between 7mm and 10mm.
The vast majority of sockets are closed; a small number are now wholly or partly open
but this is mostly due to corrosion damage and at most only three or four examples may
have intentionally open sockets.

Dating

Type 7 projectile heads are the most common type known in Ireland and also the
longest lived. A wealth of dated examples clearly indicates the currency of this type

from the 10th to 15th centuries and there are indications that its use may also have extended into the 9th and 16th centuries also (see Fig. 28). The possibility of a 9th century currency is based on a single example, no. 745 (Fig. 24), from Kilmainham / Islandbridge. This cannot be considered a securely dated context, and it is notable that on the excavated Dublin sites no Type 7 projectile heads are known from contexts dating earlier than the mid-10th century. There is, however, a second possible projectile head of Type 7 form, but which is far too large to have been an arrowhead, from Kilmainham, while a projectile head of Type 7 form from a 9th century burial at Kaupang (Norway) lends further support to the possibility of 9th century usage[65]. This possibility cannot, therefore, be entirely excluded. At the other end of its date range, usage of Type 7 projectile heads into the 15th century appears well established at Trim and possibly also at Greencastle and Dunamase, while no. 434, from Carrickfergus, may even be of 16th century date.

The dating evidence indicates a significant difference between the tanged and socketed bodkin forms. Whereas the tanged form, Type 6, seems to have been a distinctively Hiberno-Norse type, Type 7 continued in use long after the Anglo-Norman conquest and was clearly used both by Hiberno-Norse and Anglo-Norman archers. Nevertheless, the majority of Type 7 projectile heads are from contexts of pre-Norman date, and while this to some extent reflects a bias in the survival of material, it strongly underlines the importance of this type in the Hiberno-Norse period.

This type does not feature in Wegraeus' typology (although it is clearly a socketed version of his Type D2) and the assumption is that, as with other socketed forms, it was not used in Scandinavia during the Viking period[66]. However, the example from Kaupang (see above) and another from Birka (not mentioned by Wegraeus) may suggest otherwise[67]. Arrowheads of Type 7 form were found - although in small quantities compared to Dublin - in late 10th century contexts at Trelleborg in Denmark and Anglo-Scandinavian York. Rausing considers the type "a direct descendant of Iron Age ones found in the Danish bogs", but the latter appear to be tanged, rather than socketed. Kempke notes that socketed, quadrangular-sectioned projectile heads were used in Roman Imperial times, but are absent from Merovingian and Carolingian contexts and do not reappear until the 10th/11th centuries[68].

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65. Blindheim, Heyerdahl-Larsen and Tollnes, *Kaupang-funnene I*, pp. 179, 207; Pl. 33:6.
66. Wegraeus, 'Die Pfeilspitzen von Birka', pp. 21, 28-29; Kempke, 'Starigard/Oldenberg', pp. 293, 301
67. H. Arbman, *Birka I: Die Gräber, Tafeln* (Stockholm, 1940), Taf. 12:6.
68. Nørlund, *Trelleborg*, Pl. 43:7; Ottaway, *Anglo-Scandinavian ironwork from Coppergate*, pp. 713-714, Fig. 309: 3918-19, 3921, 3926; Rausing, *The bow*, p. 164; Kempke, 'Starigard/Oldenberg',

While relatively common in post-Conquest contexts in Britain, this form is apparently rare in pre-Conquest contexts, so much so that Jessop considers examples from 11th and 12th contexts at Goltho Manor and Castle Acre to be "surprisingly early", while Biddle states that this form "would not normally be dated earlier than the late eleventh century"[69]. On the basis of the Dublin evidence, even 10th century dates for arrowheads of Type 7 form should cause no surprise. Even within England, isolated early examples are known, such as at St. Neot's (Cambridgeshire), dated to the late Saxon period and at St. Aldate's, Oxford, dated mid-/late 11th century[70].

Function

Type 7, like all bodkin-bladed projectile heads, is purely military in function, its long, narrow blade specifically designed to penetrate body armour, and chain mail in particular. Some confusion has been caused by Ward-Perkins' statement that this type (his Type 7) developed in the 13th century "in answer to the development of plate armour", a view accepted by many subsequent writers[71]. With the more extensive dating evidence now available, it is clear that Type 7 projectile heads were in use centuries before the development of plate armour. Indeed, many relatively slender arrowheads of this type may not have been capable of penetrating plate armour but would undoubtedly have been very effective against chain mail. Pope describes shooting an arrow with a replica arrowhead of this type, from a moderately powerful 75lb bow, at a 16th century Syrian chain mail shirt; the arrow penetrated the shirt and the wooden form on which it rested to a depth of 8 inches (20cm). Far from being a response to the development of plate armour, this arrowhead type may well have been a significant prior cause of the development of plate armour, which offered greater protection from such arrowheads than chain mail[72].

pp. 300-01.

69. Biddle, *Object and economy in medieval Winchester*, pp. 1078-80, considers projectile heads of this form from 9th and 10th century contexts at Winchester to be crossbow boltheads, but two of the examples illustrated (Fig. 346) appear to be *c*.9-10mm in maximum socket diameter and thus there seems no reason not to accept them as arrowheads

70. P.V. Addyman, 'Late Saxon settlements in the St. Neots area, III: The village or township at St. Neots', *Proceedings of the Cambridge Antiquarian Society* 64 (1973), p. 93; Fig. 19:9; Durham, 'St. Aldate's, Oxford', pp. 146, 186, Fig.28:46.

71. Ward-Perkins, *Medieval catalogue*, pp. 67-68; for examples of recent writers following Ward-Perkins' dating, see A.D.S. MacDonald and L.R. Laing, 'Excavations at Lochmaben castle, Dumfriesshire', *Proceedings of the Society of Antiquaries of Scotland* 106 (1974-75), p. 154; P.D. Sweetman, 'Archaeological excavations at Adare castle, Co. Limerick', *Journal of the Cork Historical and Archaeological Society* 85 (1980), p. 5; Lightfoot, 'Rumney Castle', p. 134.

72. P. Jones, 'The target', in Hardy, *Longbow*, p. 208; Pope, 'A study of bows and arrows', pp. 369-70; Oakeshott, *The archaeology of weapons*, p. 297.

The very simplicity of the Type 7 form raises the possibility that some of the examples included here may not be projectiles, but rather socketed spikes (which is essentially what Type 7 projectile heads are) used for other functions. However, such misidentified pieces are unlikely to account for more than a tiny fraction of the total. No. 786, from Waterford, which was found complete with its wooden arrowshaft (see Chapter 4, below) provides positive evidence that Type 7 is a projectile head. Even where it can be assumed that the objects are projectile heads, however, it does not necessarily follow that they are arrowheads, but distinguishing arrowheads from other projectile heads is particularly difficult in this case.

Identification of arrowheads on the basis of a maximum weight limit is hindered in this case by the highly variable length of blades, which obviously influences weight but is not a reliable indicator of whether a projectile head could have been an arrowhead. Socket diameter currently appears to be the only useful method of distinguishing between arrowheads and other projectile heads of Type 7 form. Some 94% of Irish Type 7 projectile heads have socket diameters of 13mm or less and the assumption is made here that the other 6% are not arrowheads. The latter (twenty-three projectile heads in all) average 145mm in overall length, 87mm in blade length and 30g in weight; the comparable averages for the 94% majority are 75mm in overall length, 47mm in blade length and 7g in weight.

These larger projectile heads clearly cannot be considered as arrowheads. They may be crossbow boltheads, but some (e.g. nos 441, 490, 744, 790 and 792: Fig. 27) may be too large even for this. This raises the possibility that they may be the heads of missiles fired from even larger ballistic machines, a subject about which we know very little at this period (12th/ 13th centuries)[73]. The possibility that they are heads of small spears or javelins cannot be ruled out, but it seems unlikely that manual propulsion could exploit their armour-piercing design very effectively.

There are also, however, a number of Type 7 projectile heads with strikingly long blades, but whose socket diameters (13mm or less) indicate that they are arrowheads (Figs 26, 27). Twenty-two such examples are known with blades over 95mm in length; most (eighteen) of these are from dated contexts, all of the 13th and 14th centuries, with the exception of no. 793, from a mid-12th century context. This earlier dating, however, is apparently supported by similar arrowheads from mid-12th century contexts at Castle

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73. See Biddle, *Object and economy in medieval Winchester*, p. 1078 for discussion.

Acre, Norfolk[74]. The distribution of this group is almost entirely confined to sites that could be classed as Anglo-Irish in the 13th-15th centuries: the towns of Dublin (nos 455, 615, 626) and Waterford (nos 793, 795), the castles of Adare (no. 433), Dunamase (nos 724, 726, 728, 730, 733), Greencastle (no. 743), Lurgankeel (no. 751), Rathmullan (no. 758) and Trim (nos 778, 781, 782, 784) and the priory of Kells, Co. Kilkenny (nos 756). The exceptions to this rule are from the western crannogs of Loughpark, Co. Galway (nos 749 and 750) and Strokestown, Co. Roscommon (no. 765). This group would correspond to Jessop's type M7, but while it is clearly a distinctive subgroup within Type 7, there does not appear to be any basis for identifying it as a separate type.

The frequent occurrence of these long blades at Dunamase and Trim recalls similar concentrations of long-bladed Type 7 arrowheads in 13th/14th century contexts at the castles of Bramber (Sussex), Criccieth (Caernarvonshire) and Brandon (Warwickshire)[75]. Together with the evidence of dating and distribution, this strongly indicates an English and Anglo-Irish background for these long blades, but it is not clear why such longer blades began to be manufactured from the mid-12th century onward. The dating evidence suggests that this began slightly too early to be related to the use of plate armour, and in any case it is not at all certain that these blades would have been more effective against plate armour than shorter Type 7 blades. Nor is there any reason to consider them more effective in penetrating chain mail, although they would presumably have penetrated more deeply. Deeper penetration, in fact, seems to be the only advantage offered by these longer blades. The association with castle sites may suggest that these are heads of missiles fired from projectile machines, but as was noted above, the relatively small socket diameters strongly indicates that they are, in fact, conventional arrowheads.

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74. J.G. Coad and A.D.F. Streeten, 'Excavations at Castle Acre Castle, Norfolk, 1972-77: Country house and castle of the Norman earls of Surrey', *Archaeological Journal* **139** (1982), pp. 235-36; Fig. 42:152, 154.
75. K.J. Barton and E.W. Holden, 'Excavations at Bramber Castle, Sussex, 1966-67', *Archaeological Journal* **134** (1977), pp. 61-62, Fig. 19:1-3; B.H. St. John O'Neil, 'Criccieth Castle, Caernarvonshire', *Archaeologia Cambrensis* **98** (1944-45), p. 40, Pl. VIII:18-20; P.B. Chatwin, 'Brandon Castle, Warwickshire', *Transactions and Proceedings of the Birmingham Archaeological Society* **73** (1955), p. 81, Pl. 7.

Type 8: Short, thick bodkin blades (nos 831-834: *Fig. 29*).

This rare type, with only four definite examples known, is essentially a variant of Type 7, but with differences which, although slight, are of real significance.

Form

Type 8 is essentially a socketed bodkin-bladed projectile head like Type 7, but with a shorter and thicker blade that is more strongly shouldered or leaf-shaped in profile. The four known examples are very consistent in size; overall lengths are between 73mm and 85mm and weights (which, however, could only be recorded in two cases) are between 17g and 23g. Blade lengths are even more tightly grouped, between 35mm and 38mm, and the blade cross-section is in all cases a thick lozenge or square, usually 9-12mm in thickness, although no. 831 is only 6mm thick. In spite of this no. 831 has a significantly larger socket diameter, at 15mm, than the others, which are all 10-11mm in socket diameter.

Dating

Unfortunately only one of the four examples (no. 833) is from a datable context, in this case of mid-14th to 15th century date. The type can be compared to Ward-Perkins' Types 8 and 9, however, for which he suggested a 13th-15th century date, based largely on examples from the Swedish sites of Ragnhildsholmen and Visby. The Visby assemblage is a particularly valuable *comparandum* since it can be precisely dated to 1361, and although the projectile heads illustrated by Thordeman appear to be too large in socket diameter to be arrowheads, and are presumably the heads of crossbow bolts, the basic form is similar in many respects to Type 8[76].

Function

Nos 832-834, with socket diameters of 11mm or less, can readily be accepted as arrowheads, but no. 831 clearly cannot. It is almost certainly the head of a crossbow bolt, and actually preserves a short section of the wooden shaft. As bodkin-bladed projectile heads these are clearly designed for piercing armour, but the thicker and stronger blades indicate that a tougher target is envisaged, and if a later medieval date for this type is correct, this must surely mean plate armour.

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76. Ward-Perkins, *Medieval catalogue*, pp. 68-70, Fig. 17:21-24; B. Thordeman, *Armour from the battle of Wisby, 1361* (Stockholm, 1939), p. 124, Fig.134.

Type 9: Bullet-shaped projectile heads (nos 835-837: *Fig. 29*)

Form

This type is little more than a socketed point to sit on the end of an arrowshaft. No. 836 has a simple, conical "blade", wholly undifferentiated from the socket, and no. 835 was probably of this form also. No. 837 is somewhat more elaborate, having a tapering, lozenge-sectioned blade and a short, broad, socket, with a waisted junction between the two. All are very short, between 34mm and 40mm in overall length, with blades between 17mm and 24mm long (insofar as this can be determined) and between 7mm and 14mm wide. Socket diameters vary between 9mm and 14mm.

Dating

None of the Irish examples are from datable contexts and dating is, therefore, dependant on outside parallels. This form appears to correspond to Ward-Perkins' Type5, which he saw as the ultimate development of his armour-piercing Types 7-9, probably replacing the latter in the later 15th century, but this dating must be revised. Jessop divides this form into two types, MP10, with parallel sides and abrupt, rounded tip as in Ward-Perkins' Type 5, and MP9, with straight, tapering sides, to which the Irish examples appear to correspond most closely. Jessop proposes a 12th to 15th century date for his Type MP9 and a similar date range may be proposed for the Irish examples. A great many examples of this form occurred at Baile Hill, York, mainly in late- or post-medieval contexts but one example came from a pit context of late 12th or early 13th century date, which the excavators felt was unlikely to be intrusive. This early date finds some support in the occurrence of examples at Wintringham (Huntingdonshire) and at Lyveden (Northamptonshire) in contexts dated *c.*1250-1350. Thus a 13th, or even late 12th century date for this type is possible, although the bulk of the evidence at Baile Hill pointed to a late- or post-medieval date; an example from Threave Castle (Galloway), quite similar to no. 835, was dated *c.*1455-1640[77].

Function

While nos 835 and 836 are clearly arrowheads, no. 837, with socket diameter of 14mm, is probably best interpreted as the head of a crossbow bolt. Ward-Perkins'

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77. Ward-Perkins, *Medieval catalogue*, pp. 68, 70, Fig. 16;   Jessop, 'A new artefact typology', p. 197, Fig. 1;   P.V. Addyman and J. Priestly, 'Baile Hill, York: A report on the Institute's excavations', *Archaeological Journal* 134 (1977), p. 140, Fig. 10:29-49;   G. Beresford, 'Excavation of a moated house at Wintringham in Huntingdonshire', *Archaeological Journal* 134 (1977), pp. 246, 258, Fig. 46:72;   Bryant and Steane, 'Lyveden', p. 118, Fig. 45:10;   G.L. Good and C.J. Tabraham, 'Excavations at Threave castle, Galloway, 1974-78', *Medieval Archaeology* 25 (1981), pp. 105, 112, Fig. 12:108.

suggestion that his Type 5 is the final development of his Types 7-9 implies that it, like them, was an armour-piercing type. An alternative suggestion, first put forward by Addyman and Priestley on the basis of the finds from Baile Hill, and supported by Jessop, is that this is a type specifically designed for archery practice. Similar tips were still used on target arrows for sports archery until fairly recent times, and this appears to be the most likely explanation for this arrowhead type, which thus cannot really be considered to belong to either the hunting or military camps.

Unique or unclassifiable projectile heads (nos 838-854: *Fig. 29*)

Most of the items in this group are fragments of projectile heads which, although they can be identified as such, are too fragmentary to be classified with any degree of confidence. There are, however, three substantially intact arrowheads, each of a form unique within Ireland (although not necessarily unique elsewhere) and thus not included in the main typology.

No. 852 is a slender, leaf-shaped socketed arrowhead which is somewhat too thick in its lozenge-shaped cross-section to be assigned to Type 2, and is too thin and too much leaf-shaped to be assigned to Type 8. The impression gained, however, is that it may well be a form of projectile head with thickened blade such as was developed in the later medieval period for use against plate armour, possibly comparable to Jessop's Type M10[78]. Unfortunately it has no datable context to confirm this. With an incomplete socket of at least 13mm in diameter, it is probably more likely to be the head of a crossbow bolt than an arrowhead.

No. 853 - if it is, in fact, an arrowhead - is so far unique in Ireland and, to the writer's knowledge, elsewhere. The short, blunt-headed arrowhead (from a late 11th century context in Waterford) may have been designed for hunting birds or small game, by comparison with a number of probable blunt arrowheads of antler of 12th century date from Waterford. Hurley suggests that these served to stun, rather than wound "where it was intended to retrieve the live animal or bird, or keep the pelt

78. Jessop, 'A new artefact typology', p. 199, Fig. 1.

undamaged"[79]. It must be admitted, however, that an iron arrowhead is perhaps less likely to achieve these objectives than ones of antler.

No. 854 is the only Irish example of a well-known (if relatively rare) type, often referred to as a 'fork-head' or 'forker'[80]. Its characteristic feature is a broad, bifurcate blade, with concave cutting edge which, together with the rather large, tapering socket of round section, gives the whole an outline rather like a fish-tail. The socket displays a seam soldered with copper alloy and its diameter (15mm) indicates that this is not an arrowhead, but almost certainly the head of a crossbow bolt. To Ward-Perkins this type (his Type 6) was of uncertain date, but recently excavated examples establish a currency from the 13th century to the 16th/17th century. Examples occurred in 13th century contexts at Ludgershall castle (Wiltshire) and Hadleigh castle (Essex)[81]. Later examples occurred at Glenluce (Wigtownshire) in a context dating between the late 13th and late 15th centuries, at Lyveden (Northamptonshire), dating from c.1475 onwards and at Basing House (Hampshire), dated 1531-1645[82]. There is an even earlier background for this type, as a tanged variety occurs in Viking period contexts in Scandinavia (Wegraeus' type E2)[83].

Thus, although it is interesting to note that the type occurs in the clutch of arrows carried by one figure in Albrecht Dürer's drawing of Irish soldiers, dated 1521 (Fig. 4), this need not imply a 16th century date for no. 854 as Rynne suggested; a date anytime from the 13th to 17th centuries seems possible[84]. Whatever about its date, there can be no doubt that no. 854 is a hunting arrowhead; Blackmore suggests that this type was used to hamstring large game or to bring down large birds. Wegraeus points out that there is good evidence that his type E1, closely related to his type E2 (the tanged equivalent of this type), was used for hunting reindeer in Arctic areas[85].

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79. M.F. Hurley, 'Artefacts of skeletal material', in Hurley, Scully and McCutcheon, *Late Viking age and medieval Waterford*, p. 667; see also Laking, *A record of European armour and arms* vol. iii, p. 144; Blackmore, *Hunting weapons*, p. 149; Jessop, 'A new artefact typology', p. 199-200, Fig. 1: H5.

80. Blackmore *Hunting weapons*, p. 148.

81. Ward-Perkins, *Medieval catalogue*, p. 68; Addyman and Priestly, 'Baile Hill, York', p. 139; P.L. Drewett, 'Excavations at Hadleigh castle, Essex, 1971-73', *Journal of the British Archaeological Association* 38 (1975), p. 142, Fig. 28:348.

82. Jope and Jope, 'A hoard of fifteenth century coins from Glenluce', p. 269, Fig. 94:11; Bryant and Steane, 'Lyveden' p. 118, Fig. 45:13; S. Moorhouse, 'Finds from Basing House, Hampshire (c.1540-1645)', *Post-Medieval Archaeology* 5 (1971), p. 54, Fig. 23:136, 137.

83. Wegraeus, 'Pilspetsar under vikingatid', pp. 197, Fig. 5:4.

84. Rynne, *Irish iron weapons of pre-Norman times*, p. 103.

85. Blackmore, *Hunting weapons*, pp. 148-49; Wegraeus, 'Die pfeilspitzen von Birka', pp. 31-32.

Manufacture

A full discussion of the manufacture of these arrowheads would require detailed metallurgical analysis of a significant sample, which is beyond the scope of the present study and, indeed, has not been carried out on any substantial sample of medieval arrowheads outside Ireland. Little, therefore, can be said about the metallurgy of Irish medieval arrowheads as a whole, but some information can be gathered from occasional analyses of arrowheads elsewhere, and from Hall's analysis of six Hiberno-Norse arrowheads from Fishamble Street, Dublin.

Hall's study confirmed that smiths in Hiberno-Norse Ireland had a definite understanding of the different properties of iron and steel and employed a range of methods to incorporate steel cutting edges on tools and weapons, including arrowheads. He identified differences between the techniques used to achieve steel edges on material from Hiberno-Norse sites (Dublin and Waterford) and from a range of native Irish sites. In relation to the Dublin arrowheads it would be particularly interesting to establish whether they were actually manufactured in Dublin, but unfortunately Hall tended to assume that this was the case rather than demonstrating it. Nevertheless, this is not an unreasonable assumption, as there is considerable evidence for ironworking in Dublin[86].

The six arrowheads analysed by Hall, all of 10th-12th century date, include three of Type 1 (nos 48, 57 and 58: Fig. 10), probably two of Type 4 (nos 219 and 848, although the latter may be the blade of a Type 3 arrowhead) and one of Type 6 (no. 378: Fig. 24). Three of these (nos 48, 58 and 378) displayed the simplest form of cutting edge, forged from a single piece of ferrite or low-carbon steel (in metallographic terms, a Type 0 cutting edge). No. 219 had an iron core with one or two strips of a medium-carbon steel welded to the body to form the cutting edge (a Type 2 cutting edge). Although analysis of nos 57 and 848 was hampered by corrosion, the latter seems to have had an iron core effectively sheathed in steel; it was forged from a piece of low-carbon steel and allowed to slowly cool so that a microstructure of pearlite and ferrite formed (possibly a Type 4 cutting edge). No. 57 appeared to have an all-steel blade, although the body of medium- to high-carbon steel was surrounded in at least two areas by low-carbon steel. It is possible that this arrowhead was manufactured from a piece of medium- or high-carbon steel that was decarburised in the forging process, or that it was

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86. M.E. Hall, *Irish and Hiberno-Norse ironworking* (Unpublished Ph.D. thesis, University of California at Berkeley, 1992), pp. 209-222; P.F. Wallace, 'The use of iron in Viking Dublin', in M. Ryan (ed.), *Irish antiquities: Essays in memory of Joseph Raftery* (Dublin, 1998), p.201-03..

forged from a piece of steel with a heterogeneous carbon content (possibly a type 5 cutting edge)[87].

It is notable that the hardness of the three Type 0 cutting edges was relatively low, with averages ranging from 137 DPH to 186 DPH, while the other three edges had higher average hardness, ranging from 146 DPH to 261 DPH. None of these, however, would be considered exceptionally hard or as particularly impressive pieces of ironworking, but it might be unwise to read too much into the results of such a small study sample. Ottaway has commented favourably on the quality of manufacture of one Type 1 arrowhead from York which was examined metallographically. The blade was of a different manufacture to the Dublin arrowheads, consisting of a steel core sandwiched between iron plates (a Type 1A cutting edge) and there was evidence of extensive cold working to produce hardened edges and tip, even though subsequent missharpening meant that the steel core no longer formed the cutting edge[88]. The metallurgical analysis of an English arrowhead of subtype 4B, which indicated a composite structure of a mild steel shank with hardened steel tip giving "considerable hardness combined with great toughness" should also be borne in mind[89].

Turning from metallography to the smithing of the Irish arrowheads, it must be admitted that many, particularly among Type 7, are relatively simple objects which would have placed few demands on the skill of the blacksmith. Others, however, notably many Type 1 arrowheads, are accomplished pieces of ironworking. The Type 1 form features marked differences between blade, stem and tang (in outline, longitudinal profile and cross-section) which are confidently handled, with strong, clean forging lines and elegant shaping. Three outstanding examples are nos 12, 19 and 51, which display a further complexity of forging, with the run and the adjacent parts of entry and stem beaten out into elongated lozenge-shaped panels of flattened hexagonal section which merge smoothly into the central rib of blade and stem. This feature was also noted in Anglo-Scandinavian arrowheads from York by Ottaway, who thought it distinctive to York, but it is actually known in Norway as well as Dublin[90]. No function can be suggested for this feature, which may be purely decorative. No. 35, with its

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87. Hall, *Irish and Hiberno-Norse ironworking*, pp. 171, 173-74, 176-77, 180, 182, 190-91.
88. Ottaway, *Anglo-Scandinavian ironwork from Coppergate*, Fiche 3: G2.
89. Pratt, 'The arrow', in Hardy, *Longbow*, p. 201.
90. Ottaway, *Anglo-Scandinavian ironwork from Coppergate*, pp. 710-11; Mikkelsen, *Fangstprodukter i Vikingtidens*, Fig. 37:5.

triangular-flanged blade, is another very fine piece of forging, also paralleled in Norway and Sweden, whose form is probably of ultimate Magyar or Avar background[91].

91. E.g. Mikkelsen, *Fangstprodukter i Vikingtidens*, Fig. 20:4;   Wegraeus, 'Die Pfeilspitzen von Birka', Abb. 4:10, p. 28.

CHAPTER 4

BOWS AND ARROWSHAFTS

Background

The historiography of medieval archery, particularly in Britain and Ireland, has tended to concentrate on the longbow, practically to the exclusion of any other types of bow. This is understandable in view of the common perception that the longbow was the classic bow of medieval Britain, which gave England some of her greatest military successes, such as Crecy and Agincourt. Behind such perceptions, however, lie a host of questions which still require consideration by both archaeologists and military historians, including the fundamental question of whether the longbow can actually be considered as a distinct type of bow. Before presenting the historical and archaeological background to these issues, two preliminary points may be made specifically in regard to the longbow. Firstly, apart from the vague assumption that it is a wooden bow roughly 6 feet/180cm in length, few writers have attempted any definition of a longbow; this point will be returned to in more detail below.

Secondly, there is a fundamental problem for historians in the lack of terminology, which gives rise to an effective absence of documentary evidence for the longbow. There is apparently no Latin term which translates as "longbow", while Bradbury notes that the earliest possible occurrence in English of the term ("long bowe") dates to the middle of the 15th century. Even this reference (from the Paston Letters) may be purely descriptive (i.e. referring simply to bows which were too long to be used in a low-roofed building, rather than to a specific type of bow) and Bradbury argues that the modern usage of "longbow" dates only to the late 19th century[1]. A study might usefully be carried out into the significance and usage of the terms "long bow", "long-bow" and "longbow" between the 15th and 19th centuries, but this is beyond the scope of the present work.

Even Roger Ascham's *Toxophilus,* probably the earliest English treatise on archery (published in 1545), does not refer specifically to longbows and it was only from the later 16th century that the term "long bowe" was used retrospectively by English writers such as Sir John Smythe to refer specifically to the traditional English

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1. Bradbury, *The medieval archer*, pp. 71 n.1, 152 n.22. The earliest reference to "long bow" recorded in the *Oxford English Dictionary* is dated to 1500.

bow, as distinct from bows of other nations[2]. Prior to this, medieval documentary sources generally refer merely to bows or archers, rather than longbows or longbowmen[3]. Occasionally, incidental details confirm that a bow is what would now be called a longbow, such as the account of the bow used to kill Simon de Skeffington in Leicestershire in 1297, which was stated to be "one ell and a half" (c. 170cm) in length and 6 inches in maximum circumference, or the reference by the Irish parliament of 1465 to "an English bow of his own length, and one fist breadth at the least between the nicks" (see below)[4]. These are exceptional, however, and for most of the medieval period it is impossible to study the development and use of different types of bows based on documentary sources alone. Such questions can only be approached through a combination of archaeological and historical evidence.

The origins of the longbow have attracted particular attention. Hardy points out that bows of Neolithic and even Mesolithic date from Switzerland, Germany, Holland and Britain are similar in length and shape to the medieval longbow, but he feels that the distinct advantages of the "high-stacked" (i.e. deep D-shaped) cross-section and a timber conversion which combined sapwood and heartwood (see below) had not yet been recognised[5]. There is general agreement, however, that the bows of Roman Iron Age date (late 2nd-5th centuries AD) from Nydam, Vimose and Kragehul in Denmark can be considered true longbows. The bows from theAlemannic cemetery of Lupfen/Oberflacht in southern Germany (probably 7th century) are taken by Hardy as evidence of the survival of the longbow tradition through the early medieval period, but Riesch points out that although the surviving bows are c. 170-190cm in original length and of yew (with one exception, which is of elm), they "are of a unique design which is different from all other Iron Age bows found in Germany or Northern Europe". While the Oberflacht bows are distinctive in their cross-section and reinforced handles, however, it could be argued that the general similarities with the Danish bows are at least as significant as the differences[6]. In the 10th century the bow from Ballinderry

2. R. Ascham, *Toxophilus; the school of shooting*, ed. A.W. Hodkinson (Manchester, 1985); Bradbury, *The medieval archer*, p. 71 n.1; W.F. Paterson, 'What is a longbow?', *Journal of the Society of Archer Antiquaries* 25 (1982), p. 36.
3. E.g. Edward I's writs summoning men for the Scottish campaigns; see F. Palgrave (ed.), *The parliamentary writs and writs of military summons* (London, 1827), p. 270.
4. F. Cottrill, 'A medieval description of a bow and arrow', *Antiquaries' Journal* 23 (1943), pp. 54-55; Bradbury, *The medieval archer*, pp. 80-82. An ell is 45 inches (114cm).
5. Hardy, *Longbow*, pp. 16-18.
6. Hardy, *Longbow*, pp. 21-22, 30; H. Riesch, 'Alemannic bows: Early medieval bows and arrows found at the Alemannic burial ground of Oberflacht (southern Germany)', *Journal of the Society of Archer Antiquaries* 37 (1994), pp. 12-18; Rausing, *The bow*, pp. 57-58; E.G. Heath, *Archery: A military history* (London, 1980), p. 102; Bradbury, *The medieval archer*, pp. 14-15, 75.

crannóg, Co. Westmeath (no. 1; Figs 33, 34, 36) is a perfectly good longbow by any definition and while detailed information is not available, it appears that the same can be said of the yew bow from Hedeby, Denmark, which is of comparable date (9th-11th century) and very similar dimensions (see below)[7].

The immediate background of the medieval English longbow has been the subject of particular controversy. Some writers have argued for a Scandinavian origin, based on the Danish bog finds[8]. The most popular view, however, is that the longbow was first developed in Wales, where it was "discovered" in the 1270s and 1280s by Edward I of England and introduced by him into English warfare[9]. This theory of the development of the longbow was apparently first popularised by Sir Charles Oman, who in 1885 suggested that the origins of the longbow lay among the Welsh, and that "it is not till the last quarter of the thirteenth century...that we find the long-bow taking up its position as the ... national weapon of England". Oman claimed that the Norman archers at Hastings in 1066 had used a "short bow...drawn to the breast and not to the ear", rather than the longbow. Similarly he suggested that although the Scots had archers at Falkirk in 1298, they were ineffective because they too were using short bows as opposed to Edward I's longbows[10]. These suggestions were taken up in even more detail by J.E. Morris in 1901:

> At Hastings ... the [Norman] bow was the weak short bow ... the string was pulled only to the chest, and the arrow, except at close quarters, was shot high into the air, a high trajectory being in itself a confession of weakness ... The rise of English infantry to be a real power in Europe depended on this bow being a real longbow drawn to the ear, and, the attitude once learnt, it could be developed both in length and strength ... The bow of Edward I was probably at first not much more powerful than the short bow of Hastings ... but it was a longbow because it could be improved up to the standard of Crecy and Poitiers, whereas a short bow, drawn to the chest, does not admit of improvement ... The process of development was beginning in Edward's day, and the result was seen in his grandson's[11].

7. J. Graham-Campbell, *Viking artefacts: A select catalogue* (London, 1980), p. 74: no.266.
8. E.g. R.E. Kaiser, 'The medieval English longbow: Characteristics and origin', *Journal of the Society of Archer Antiquaries* 23 (1980), pp. 25-29; Rausing, *The bow.*
9. E.g. Oakeshott, *Archaeology of weapons*, pp. 293-94; H.L. Blackmore, *Hunting weapons* (London, 1971), pp. 143-44; Hardy, *Longbow*, pp. 36-38.
10 Oman, *The art of war in the Middle Ages*, pp. 96-97, 100.
11. Morris, *The Welsh wars of Edward I*, pp. 26, 34, 100-01.

The prestige of Oman and Morris has gained widespread acceptance for these ideas about the longbow, despite the fact that they have no basis in either historical or archaeological evidence. There is no evidence of any sort to suggest that the longbow was peculiar to Wales in the 12th and 13th centuries, still less that it was invented there. Indeed, there is hardly enough evidence to demonstrate that the longbow was even in use in Wales at this date. Put simply, no longbow of 12th/13th century date has ever been found in Wales (indeed, to the writer's knowledge, no Welsh longbows of any date are known), nor are there any contemporary documentary references to longbows in Wales, or to Welshmen using longbows.

In view of this total absence of evidence, Oman's original theory of a Welsh background for the longbow can only have been based on a misreading of Giraldus Cambrensis, as suggested in Chapter 2. It is essential to note that Giraldus never refers to longbows being used by the Welsh - indeed, he never refers to longbows at all. What he actually says about Welsh bows is as follows:

> The bows they use are not made of horn, nor of sapwood, nor yet of yew. The Welsh carve their bows out of the dwarf elm trees in the forest. They are nothing much to look at, not even rubbed smooth, but left in a rough and unpolished state. Still, they are firm and strong. You could not shoot far with them; but they are powerful enough to inflict serious wounds in a close fight[12].

There is nowhere any reference to the length of the bows. Indeed the only possible contemporary evidence for the form of Welsh bows is a marginal sketch of two Welsh archers on a 13th century manuscript (see Fig. 30). Although such drawings pose difficulties of interpretation, it would be very difficult to make longbows out of the strikingly short bows in this drawing, which otherwise accord well with the "rough and unpolished" bows of Giraldus' description.

Oman's and Morris' statements about short bows "drawn to the breast and not to the ear" at Hastings must be based on a combination of Roger Ascham and the Bayeux tapestry. In *Toxophilus,* Ascham had stated that

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12. Thorpe, *Gerald of Wales*, p. 113; Hardy, *Longbow*, pp. 37-38 appears to be correct in suggesting that the final sentence in this passage has been mistranslated, and should read:
    "Not only could you shoot far with them, but they are also powerful enough to inflict serious wounds in a close fight (*non tantum ad eminus missilia mittenda, sed etiam ad graves cominus ictus percutiendo tolerandos*)".

> Men in old time used other manner of drawing than we do. They used to
> draw low at the breast, to the right pap, and no further ... Now-a-day,
> contrariwise, we draw to the right ear, and not to the pap.[13]

Ascham's statement itself may have been partly based on the Bayeux tapestry, although
the authorities he quotes for it are Homer and Procopius. It is not at all clear what time-
frame he has in mind when contrasting "old time" with "now-a-day", although he
appears to accept that the transition to drawing to the ear had taken place by the time of
Procopius, in the 6th century. It does seem clear, however, that this statement is of
extremely doubtful historical value and of no value at all as support for Oman's claims.

The Bayeux tapestry depicts a number of archers at Hastings with bows
apparently fitting the description of short bows "drawn to the breast and not to the ear"
(see Fig. 31)[14] At least one of these bows, however, might perfectly well be described
as a longbow and it would be extremely unwise to read too much into such details of the
tapestry, which may reflect nothing more than careless or uninformed
draughtsmanship[15]. If one insists on taking literally the details of the tapestry, one must
acknowledge that the bows are apparently shown at considerably less than full draw and
should be perfectly capable of being drawn to the ear. Indeed, it would be quite valid to
argue that the archers are not holding their bows in shooting position at all, but merely
in the nocked position, prior to full draw. As Bradbury points out, Oman's and Morris'
distinction between bows drawn to the breast and bows drawn to the ear is essentially
nonsensical, since any bow capable of being drawn to the breast is equally capable of
being drawn to the ear. There is, in general, no agreement on whether the Norman
archers at Hastings, as depicted on the Bayeux tapestry, used longbows. Hardy is
convinced that some of the bows shown are clearly longbows and that others are clearly
not, while Bradbury argues that the evidence of the tapestry is inconclusive, which is
perhaps the only safe conclusion to draw[16].

Unfortunately, the influence of Oman and Morris has caused many modern writers
to make erroneous and even nonsensical statements about archery in this period. Wise,
for instance, after noting that there is good evidence for longbows in the early medieval
period, adds the contradictory statement:

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13. Ascham, *Toxophilus*, pp. 144-45.
14. Prestwich, *Armies and warfare in the Middle Ages*, p. 129, explicitly refers to the tapestry in this
    regard.
15. Bradbury, *The medieval archer*, p. 32.
16. *Ibid.*, pp. 36-38, 73; Hardy, *Longbow*, pp. 33-34.

It would appear, therefore, that the bow in use in the pre-conquest period was little different to the longbow, except that the string was not pulled back to the ear, only to the chest, suggesting either a weaker or more rigid stave or merely an inferior ability as archers[17].

Manley, while recognising that the Bayeux tapestry cannot be relied upon as an accurate record of archery practices and bow forms at Hastings, and rejecting Oman's idea of shortbows used by the Norman archers, nevertheless retains Oman's distinction between bows drawn to the chest and drawn to the ear[18]. DeVries contributes an equally unfounded statement:

> In fighting with or against the Welsh sometime during the thirteenth century, the English encountered a bow which made them discard their traditional short bow. This was constructed in a similar way and with similar wood as the traditional English bow, but it was longer, and its string was drawn to the ear instead of to the chest...Arrows fired from the longbow were capable even of piercing chain mail armor at a distance of 200 metres, a feat impossible at any distance by an arrow fired from a short bow[19].

Even Suppe, writing several years after Bradbury's work had been published, accepts the Oman/Morris theory of the Welsh origins and Edwardian promotion of the longbow[20].

The theory of a Welsh origin for the longbow must clearly be dispensed with. In view of the limitations of present knowledge, it is impossible on the basis of documentary evidence to argue for any precise origin for the longbow. Bradbury's view that "the longbow does not belong to any one area in particular" is probably the most profitable approach to take and is supported by the archaeological evidence (see below)[21].

The debate over the longbow's origins has raised a related issue - whether other forms of bow were in use prior to the late 13th/early 14th century, when the great age of the longbow is generally agreed to have begun in England. Writers such as Harris have

17. T. Wise, *Saxon, Viking and Norman* (London, 1979), p. 14.
18. J. Manley, 'The archer and the army in the late Saxon period', *Anglo-Saxon studies in archaeology and history* 4 (1985), pp. 226, 229.
19. K. De Vries, *Medieval military technology* (Ontario, 1992), p. 37.
20. Suppe, F.C. 1994 *Military institutions on the Welsh marches*, pp. 33, 147. See also Prestwich, *Armies and warfare in the Middle Ages*, pp. 129-30; Oakeshott, *Archaeology of weapons*, pp. 293-94; Blackmore, *Hunting weapons*, pp. 146-47; Hardy, *Longbow*, pp. 36-49.
21. Bradbury, *The medieval archer*, p. 84.

suggested that there were, and the assumption that the longbow was unknown in England before the time of Edward I demands the existence of other types of bows, such as the "short bows" of Oman, Morris and their followers. Other writers, such as Oakeshott and Blackmore have suggested that this assumed pre-longbow vacuum was largely filled by the crossbow[22]. Bradbury, however, argues that there is no fundamental difference between longbows and shorter wooden bows, and that since the force of a bow depends on its length, it is unlikely that military bows of the 11th-13th centuries were much shorter than the longbows of the 14th-16th centuries. He suggests that over this entire period (11th-15th centuries) the bow may have increased gradually in length, from about 5 feet (c.150cm) to about 6 feet (c.180cm)[23].

There is no doubt that both longbows and shorter bows were used in later medieval Ireland. This is made clear in 1397, when John de Perilhos described the bows used by O'Neill's warriors as "as short as half a bow of England". The short bows used by the Irish were again described two hundred years later, by Spenser in 1596, as "not past three quarters of a yard long with a string of weathered hemp, slackly bent". Spenser describes them as "Scottish bows", but there is no other evidence for a Scottish origin for these short bows; interestingly, a party of Scots in Ireland in 1545 were specifically described as having "long bows"[24]. It was undoubtedly because of the use of such shorter bows by the Irish that Anglo-Irish documents of the later Middle Ages refer specifically to "English" bows, which clearly meant bows that we would recognise as longbows[25]. A statute of the Irish parliament of 1465 is unusually detailed, requiring every man of the colony to equip himself with

> an English bow of his own length, and one fist breadth at the least between the nicks, with twelve shafts of the length of three quarters of the standard, the bows of yew, wych-hazel, ash, alder or any other reasonable tree, according to their ability, and the shafts in the same manner[26].

Clearly what is intended here is a classic longbow, 5½ to 6 feet (c.1.65m-1.8m) in length. The meaning of the reference to a "fist breadth ... between the nicks" is less clear; it seems to refer to the width of the bow being not less than some 2 inches (5cm),

22. P.V. Harris, 'From longbow to crossbow and back', *Journal of the Society of Archer Antiquaries* **18**, (1975), p.9; Oakeshott, *Archaeology of weapons*, p.293; Blackmore, *Hunting weapons*, p.147.
23. Bradbury, *The medieval archer*, pp. 73-75.
24. Mahaffy, 'Two early tours in Ireland', p. 7; Renwick, *A view of the present state of Ireland*, p. 57; White, 'Henry VIII's Irish kerne in France and Scotland', p. 222.
25. E.g. statutes of the Irish parliaments of 1460 (Berry, *Statute rolls: Henry VI*, pp. 647-49) and 1495 (Vesey, *The statutes at large*, pp. 48).
26. Berry, *Statute rolls: Edward IV*, pp. 293-98.

but it is also possible that it refers to the "fistmele", the traditional measurement of the distance between the bow and bowstring in a properly braced bow. The required arrow length, "three quarters of the standard", is probably to be interpreted as three quarters of a yard or 27 inches (68.5cm)[27].

In the early 16th century, English documents were bemoaning the fact that even the loyal inhabitants of the colony were using "Irish bows". The 1515 report on the *'State of Ireland...'* noted that "wher that bowes and arrowes, after thEnglyshe maner ... was alway the weypyn and harnoys of the comyn folke, ... now they have none other but short and Iryshe bowes". In the same year, a bill brought before the Irish parliament identified the lack of longbows as the reason for this adoption of Irish bows:

> in defaulte of long bowys, diverse of the King's subects applie themselfs to Irishe Archery as using Irishe bowys and Irishe spers, which inducith them to Irishe disposition.

In response, the bill provided for a renewed requirement on merchants trading from England to import longbows and arrows for sale in Ireland[28].

A possible example of one of these short "Irish bows" is shown in Albrecht Dürer's drawing of an Irish warrior or gallowglass, dated 1521 (Fig. 4). Pope suggested that this bow must have been of composite construction, since he felt it would have been impossible to draw a bow of its length (*c.*120cm) to the arc required by the arrows (apparently *c.*65cm long), without it breaking[29]. However, there is at present no evidence for composite bows ever having been used in medieval Ireland and perhaps too much should not be made of the relative proportions in Dürer's drawing.

Crossbows

There is probable evidence for the crossbow in the late Roman period and Credland notes that "in continental Europe the crossbow is recorded with increasing frequency after the seventh century"[30]. It is widely accepted that the Normans used crossbows at Hastings in 1066 and it has been suggested that this was the first use of the

27. Hardy, *Longbow*, pp. 192-93; A.G. Credland, 'The medieval war arrow', *Journal of the Society of Archer-Antiquaries* 25 (1982), pp. 34-35.
28. *State papers Henry the Eighth, Part III*, p. 12; Hist. Mss. Comm. 1883-84, p. 272; *Cal. State Papers Ireland 1601-03*, p. 675.
29. S.T. Pope, 'A study of bows and arrows', *University of California publications in American archaeology and ethnography* 13 (1923), p. 355.
30. A. MacGregor, 'Two antler crossbow nuts and some notes on the early development of the crossbow', *Proceedings of the Society of Antiquaries of Scotland* 107 (1975-76), pp. 319-20; A.G. Credland, 'Crossbow remains', *Journal of the Society of Archer-Antiquaries* 23 (1980), p. 14.

crossbow in Britain. Others argue, however, that it is unlikely that the crossbow reached Britain so much later than the Continent, but surprisingly, the best evidence for the use of crossbows in pre-Conquest Britain comes from Scotland, where it is claimed that a number of Pictish decorated stones depict crossbows[31]. A crossbow nut from a crannóg at Buston, Ayrshire has been taken as evidence for the use of the crossbow in Scotland as early as the late 7th/early 8th century, which Credland seems to suggest was a survival from Roman Britain; MacGregor, however, has expressed some uncertainty about the date of this object[32]. Biddle has also pointed to three possible crossbow boltheads from 9th and 10th century contexts in Winchester as apparent evidence for the crossbow in pre-Conquest Britain[33].

The debate about pre-Conquest use of the crossbow in Britain has clear implications for Ireland. On the basis of known documentary evidence, it would appear that the crossbow was first introduced into Ireland in the wake of the Anglo-Norman invasion; the earliest references to both *arbalistes* and *balistae* known to the writer occur in the pipe roll of 1211-12[34]. If a pre-Conquest date is accepted in Britain, however, the possibility of the crossbow being known in early medieval Ireland cannot be entirely ruled out, and even if a pre-Conquest date is rejected, the possibility of crossbows reaching Ireland (especially Dublin) from Anglo-Norman England before 1170 must be allowed.

It is noticeable that a very high proportion of known references to crossbows in medieval Ireland place them in the context of castles or walled towns. One advantage of the crossbow was its compactness, which allowed it to be used in more confined spaces (such as the embrasures of castle windows) than the ordinary bow, while the protection afforded by such spaces overcame the crossbow's greatest disadvantage - the length of time required to reload between shots. It is thus not surprising that the crossbow was particularly widely used in castles throughout the medieval period, in Ireland and elsewhere. Between 1211 and 1331 there are references to crossbows in use in the

31. Bradbury, *The medieval archer*, pp. 25-27; J.M. Gilbert, 'Crossbows on Pictish stones', *Proceedings of the Society of Antiquaries of Scotland* 107 (1975-76), pp. 316-17.

32. A.G. Credland, 'Crossbow nut', in Biddle, *Object and economy in medieval Winchester*, p. 1075; Biddle, *Object and economy in medieval Winchester*, pp. 1077-79; Credland, 'Crossbow remains', p. 14; MacGregor, 'Two antler crossbow nuts', p. 320.

33. Biddle, *Object and economy in medieval Winchester*, pp. 1078-79. One of the objects illustrated by Biddle is almost certainly a conventional arrowhead (see Chapter 3), but at least one of them (Fig. 346:4022) does appear to be a likely crossbow bolthead from an early 9th century context.

34. O. Davies and D.B. Quinn, 'The Irish pipe roll of 14 John, 1211-12', *Ulster Journal of Archaeology* 4 (1941), Supplement, pp. 47, 55, 59, 61; both *ballista* and *arbalista* are translated as "crossbow" in R.E. Latham, *Revised medieval Latin wordlist from British and Irish sources* (London, 1965).

castles of Dublin, Athlone, Carrickfergus, Antrim, Rathwire (Co. Westmeath), Moycove [probably Seafin, Co. Down], Roscommon and other Connaught castles and Castlekevin (Co. Wicklow)[35].

Walled towns also lent themselves to the use of the crossbow, for much the same reasons as castles. The surname *Balistarius* (crossbowman?) is to be found in the enrolled membership of Dublin's guild merchant by the 1230s, while slightly later in that century the poem on the walling of New Ross claimed that

> the townspeople have... / plenty of good crossbow men (*arblasters*)... / Never in any town where I have been / did I see... so many crossbows (*arblastes*) hanging on the walls / or so many bolts (*qarels*) ready for use...

The poet also states that the town could muster 363 crossbowmen[36].

It is frequently stated that the crossbow was widely used in the 13th century in England, before being superseded at the end of that century by the longbow, but this is based on the mistaken assumption that the longbow was a new introduction into England in the late 13th century[37]. There is, in fact, no convincing evidence that the crossbow was any more popular in the 13th century than at any later period. Crossbowmen were included in the Anglo-Irish forces sent to assist English armies in Scotland; 27 crossbowmen were in the force sent to assist Edward I in 1296, while the force sent to aid Edward III in 1335 brought 40 crossbows and in the ensuing siege of Rothesay Castle lost five of them, while over 300 quarrels were expended[38]. After the mid-14th century there is an apparent scarcity of references to the crossbow in Irish sources, the significance of which (if any) is unclear. However, Nowell's survey of the strength of Irish forces, dated *c.*1480, claimed that the earl of Desmond could muster a battalion of "crossbowmen and gunners"[39].

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35. *C.D.I.* i, no. 1227; *C.D.I.* iv, p.123; *43rd Rep. Dep. Keeper Pub. Recs Ireland*, p. 56; Davies & Quinn, 'The Irish pipe roll of 14 John', pp. 47, 55, 59, 61; *38th Rep. Dep. Keeper Pub. Recs Ireland*, p. 103; Mills, *Justiciary rolls, 1305-1307*, p. 85; *C.D.I.* ii, p.312; Mills, *Justiciary rolls, 1305-1307*, p.355; *42nd Rep. Dep. Keeper Pub. Recs Ireland*, p. 30.
36. Connolly and Martin, *The Dublin guild merchant roll*, pp. 71, 72, 91, 99; Shields, 'The walling of New Ross', ll. 170-185.
37. E.g. G.F. Laking, *A record of European armour and arms through seven centuries* (5 vols, London, 1920-22), vol. i, p. 125; Oakeshott, *Archaeology of weapons*, p. 293; Blackmore, *Hunting weapons*, pp. 177-180; P.V. Harris, 'From longbow to crossbow and back', *Journal of the Society of Archer Antiquaries* 18 (1975), pp. 9-12.
38. Lydon, 'An Irish army in Scotland'; Nicholson, 'An Irish expedition to Scotland in 1335'.
39. Price, 'Armed forces of the Irish chiefs', p. 203.

Arrowshafts

In studies of historic archery the form and development of the bow has understandably attracted most attention, but it could be argued that the bow is essentially an accessory (albeit an indispensable one) to the arrow, which is the real weapon. The medieval arrow had two main components, the iron head and the wooden shaft, but until recently practically the only archaeological evidence consisted of iron arrowheads. However, the English warship *Mary Rose*, which sank in 1545, has produced over 3,000 arrow shafts which are an invaluable source of evidence (although ironically, no iron arrowheads survived). A variety of woods, mainly poplar but including birch, alder, willow, ash, elder and hornbeam, have been recognised and this confirms the statement of the 16th century writer Roger Ascham that some 15 different types of wood were commonly used for arrows[40]. Although ash was regarded by Ascham and others as the best material, poplar was probably the main material used for mass production of war arrows in the later Middle Ages because of its lightness, workability and greater availability. Credland notes that the English crown purchased or manufactured almost 24,000 sheaves of arrows between 1353 and 1360 alone (a sheaf contains twenty-four arrows, hence a total of over half a million arrows) and that by an Act of 1416 Henry V banned patten- or clog-makers from using poplar wood, in order to preserve supplies for the manufacture of arrows[41].

The lengths of the *Mary Rose* arrowshafts show two concentrations, one at *c.*75cm and the other at *c.*80cm; both measurements include the tapered end which fitted into the socket of the arrowhead and thus actual draw lengths were 3-4cm shorter, i.e. *c.*71-72cm and *c.*76-77cm respectively[42]. The longer shafts are three times as numerous as the shorter and the more common draw length of *c.*76-77cm can probably be taken as typical for longbow arrows in medieval England. The average diameter of the *Mary Rose* shafts is *c.*11mm[43]. These figures are matched almost exactly by the arrow found in Westminster Abbey in 1878; its shaft is 77.5cm long and 11.5mm in diameter[44]. This and other medieval shafts from Caerlaverock castle, Dumfriesshire and Clifford's tower,

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40. Asham, *Toxophilus*, p. 117; unfortunately no detailed analysis of the *Mary Rose* material has appeared as yet, but see Hardy, *Longbow* (3rd edn, Sparkford, Somerset, 1992), pp. 194-221, and three interim summaries by W.F. Paterson: 'Mary Rose - a preliminary report'; 'Mary Rose - a second report'; 'A "Mary Rose" archery symposium', *Journal of the Society of Archer Antiquaries* **26** (1983), pp. 4-6.
41. Credland, The medieval war arrow, pp. 28-30.
42. Pratt in Hardy, *Longbow* (3rd edn, 1992), p. 212.
43. W.F. Paterson, 'Mary Rose - a preliminary report'; 'Mary Rose - a second report'; Hardy, *Longbow*, p. 5.
44. P.L. Pratt, 'The arrow found in Westminster Abbey in 1878', *Journal of the Society of Archer Antiquaries* **18** (1975), p. 22; Pratt in Hardy, *Longbow*, p. 201.

York are all barrelled, i.e. thickest in the middle and tapering slightly toward either end; the Westminster arrow tapers to 10.5mm at the front and 8.5mm at the rear. Modern physics reveals that such barrelling produces a more efficient shape than a simple cylindrical shaft, because the buckling pressures on an arrow are greatest in mid-shaft. Curiously, however, the *Mary Rose* shafts are apparently cylindrical rather than barrelled[45].

In later medieval Ireland arrows for longbows and crossbows presumably followed the English pattern, especially as many were clearly imported (see above). The specification in the act of 1465, that arrows were to be "of the length of three quarters of the standard" would imply an improbable arrow length of 86cm if the standard referred to were the ell (45 inches/114cm). It is more likely that the standard is the yard (36 inches/91cm) and the implied arrow length of 69cm is close to the shorter *Mary Rose* arrows, if this length referred to the arrowshafts exclusive of the head rather than to the entire arrow, although it is not clear if this was the case[46]. As noted earlier, shorter bows were also used in Ireland and these would have required shorter arrows. *A.Conn.* states that Failgi, son of Eogan O Conchobair Failgi was killed in 1401 "by one successful shot of a short arrow (*soigit girr*)". Another form of shorter arrow, distinct from those used by the Irish, is indicated by a reference to the purchase of "demi Arrows" by the Ordnance office in Dublin in 1537-39; the function of these demi-arrows is not clear. Spenser, in 1596, described the arrows used by the Irish as "not above half an ell long", i.e. about 57cm[47].

The mountainous region of Oppdal, in central Norway, has produced a collection of arrowshafts which is much smaller than that from the *Mary Rose* (only 22 complete shafts and fragments of 41 others), but which is valuable because of its wider chronological spread, *c.*300-1700 AD. Farbregd's analysis is of some relevance to the Irish material, although his results must be treated with some caution, both because of the size of the sample and because the Oppdal material is almost certainly derived from hunting rather than warfare[48]. He identifies two distinct types of arrow in use in the period *c.*400-600 AD: Type A were usually of birch, 66-70cm long and 6-8mm in

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45. Credland, The medieval war arrow, pp. 30-31; Pratt in Hardy, *Longbow*, p. 201; Paterson, 'A "Mary Rose" archery symposium', p. 50 seems to suggest a tapered profile, from *c.*1/2 inch (*c.*13mm) at the arrowhead socket to *c.*3/8 inch (*c.*9.5mm) at the nock.
46. Credland, The medieval war arrow, p. 34.
47. B. Trainor, 'Extracts from Irish ordnance accounts', *Irish sword* 1 (1949-53), p. 333; Renwick, *A view of the present state of Ireland*, p. 57.
48. O. Farbregd, *Pilefunn fra Oppdalsfjella* (Trondheim, 1972); English summary on pp. 105-09.

maximum diameter, with flattened nock ends indicating the use of the Mediterranean release[49] and no clear evidence of feathering. Type B arrows were usually of pine, 70-75cm long and 8-9mm in maximum diameter, with slightly swollen nock ends suggesting the use of the Primary release and evidence of feathering in the form of traces of resin glue and sinew lashing.

In the period $c.600$-1000 AD arrows were apparently of type A form, made of birch, but somewhat thicker (9-10mm in maximum diameter) and more varied in length (57-70cm). Unfortunately no arrows can be assigned to the period $c.1000$-1200 AD, but in the period $c.1200$-1700 AD a new form, type C, is identified, with arrows made of birch, 58-65cm in length and 9-11.5mm in maximum diameter, with flattened and broadened nock ends suitable for the Mediterranean release and evidence of feathering. It might be suggested that Farbregd's type C is not really distinct from type A, but rather represents a continuation of the trend towards shorter but thicker shafts noted in the period $c.1000$-1200 AD. In this scenario type A is dominant throughout the entire period $c.400$-1700 AD, with type B disappearing after $c.600$ AD. In either case, however, there appears to be a definite trend towards slightly shorter and thicker arrowshafts over the period as a whole.

Manufacture

In the Hiberno-Norse period there is no evidence for the importation of bows, nor is there any reason to believe that the bows of this period discussed below were not manufactured locally. There is little direct evidence for the manufacture of bows and arrows in Anglo-Norman Ireland, but there can be little doubt that this took place. In the early 13th century Dublin's guild merchant roll listed among its members Willelmus Faber *qui facit sagittas* in 1227-28 and David Drake *factor archarum* in 1237-38. Over

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49. The Mediterranean release is one of the standard techniques of drawing and releasing a bowstring (see Fig. 32), described as follows by Webb, *Archaeology of archery,* p. 46:

> The arrow nock is so constructed as to fit fairly tightly on the bow string. The string is drawn by the tips of three fingers with the arrow lightly held like a cigarette, if held at all, between the first and second fingers. The little finger and thumb are not used. A variant of this release is often called the *Flemish Release.* This only employs the first and second fingers, and is very efficient if one's fingers are strong enough to stand the strain. It seems to be the method used in medieval times.

The Primary release is another standard release technique, described as follows by Webb, *Archaeology of archery,* p. 45:

> The Primary Release requires the butt end of the arrow to be held between the straightened thumb and the first and second joints of the bent forefinger. The string is pulled back by pulling on the arrow. It is only possible to use this method with weak bows.

two centuries later Dublin's franchise roll again recorded the names of a bowyer, William White, and four fletchers, John Hill, Thomas Herford, John Davey and John Spenser, who were admitted to the franchise between 1471 and 1506. This surely indicates that bowyers and fletchers were resident and working in the city throughout the 13th, 14th and 15th centuries[50]. In 1305 the presence of a *talliator* in Roscommon castle, "assigned there to make and repair balistas and quarrels" is recorded[51].

Surprisingly, perhaps, there is even apparent evidence for the export of bows from Ireland to England. In 1437 the customs returns of Bristol recorded that the ship *Trinite* of Minehead, arriving in Bristol from Ireland, carried three quarters of bows imported by Nicholas Sawier and another three quarters imported by John Coupar', each load valued at £1 10s[52]. A possible explanation for this trade may be found in Hurley's assertion that yew must have been more common in Ireland than in Britain in the 12th and 13th century, because of the remarkably high proportion of yew artefacts found in recent excavations in Waterford and Cork and not matched on any contemporary British sites[53]. Perhaps yew continued to be more plentiful in 15th century Ireland than in Britain. As late as 1551 the Privy Council was advising the Lord Deputy about "the provision of bow-staves of the yew-tree growing in Ireland"; although the outcome of this advice is not recorded, it does at least suggest that bows were still being made of native Irish yew in the 16th century[54].

In the 16th century the Ordnance Office in Dublin employed both bowyers and fletchers, presumably to manufacture bows and arrows, and it is not unlikely that this also happened at earlier dates[55]. There is also evidence in the 16th century (and possibly in the 15th century) for the existence of a guild of bowyers and fletchers in Dublin (see Chapter 2, above). Thus it is reasonable to assume that some, at least, of the bows and arrows used by the Anglo-Irish and English in Ireland were made in Ireland, although it is impossible to estimate the relative proportions of imported and locally manufactured weapons. Local manufacture must have been even more significant

50. Connolly and Martin, *The Dublin guild merchant roll*, pp. 57, 72; C. Lennon and J. Murray (eds), *The Dublin city franchise roll, 1468-1512* (Dublin, 1998), pp. 5, 10, 15, 41.
51. Mills, *Justiciary rolls, 1305-1307*, p. 85.
52. E.M. Carus-Wilson (ed.) *The overseas trade of Bristol in the later Middle Ages* (Bristol, 1937) p. 204; H. Soar, 'The bowyers and fletchers of Bristowe', *Journal of the Society of Archer Antiquaries* **32** (1989), p. 27, suggests that each load of three quarters was 80lbs in weight.
53. M.F. Hurley and S.W.J. McCutcheon, 'Wooden artefacts', in Hurley, Scully and McCutcheon, *Late Viking age and medieval Waterford*, p. 555
54. *Cal. State Papers Ireland 1509-73*, p. 119.
55. *Cal. Carew Mss 1589-1600*, p. 52; *Cal. State Papers Ireland 1608-10*, p. 451.

among the Gaelic Irish who, as we have seen, used distinctive shorter bows which could hardly have been manufactured in England.

In the Anglo-Norman period and especially in the later Middle Ages, however, there is definite evidence for the import of bows and arrows into Ireland from England. As early as the 13th century, it is suggested, a few major manufacturing centres in England supplied large numbers of arrows to English armies. The castle of St Briavels in the Forest of Dean was a particularly important centre; according to one estimate it produced nearly one million crossbow quarrels (arrows) between 1223 and 1293, but Webb (who states that the first quarrel makers - two smiths and one fletcher - were assigned to St Briavels in 1228) notes the castle's required output as 100 quarrels per day in 1229 and 1265 and as 25,000 quarrels per annum in 1255 and 50,000 quarrels in 1257, which suggests a higher total over 70 years[56]. In 1251 the constable of St Briavels was instructed by the King to release 12,000 quarrels to John fitzGeoffrey, justiciar of Ireland. These arrows were probably intended for, and may well have been used in fitzGeoffrey's Ulster campaign of 1252, and undoubtedly many other bows and arrows, from St Briavels and elsewhere, were imported into Ireland[57].

In the later Middle Ages the provision of longbows was a major concern in the Anglo-Irish colony. The Irish parliament of 1460 stated that the colony was "now very nearly destitute of any great number of ... bows", leading to the 1473 law compelling all merchants importing goods from England to bring longbows, in proportion to the value of their merchandise, for sale in Ireland (see Chapter 2)[58].

Ironically, this act mirrored similar legislation introduced in England itself by Edward IV in the previous year, and even in England imported bows seem to have been preferred to native yew for the manufacture of longbows. Yew bowstaves were being imported into England from the Baltic area in the 1290s, and Prestwich records the purchase of 180 dozen (i.e. 2,160) bows of Spanish yew during the reign of Edward II (1307-27)[59]. A document of 1574 noted that the finest bows used in England came from Italy (via Venice), while the other main source areas, in descending order of quality, were the bishopric of Salzburg via the Rhine, Switzerland above Basle, and the Baltic

56. Heath, *Archery: A military history*, p. 124ff; Blackmore, *Hunting weapons*, p. 183; A. Webb, 'John Malemort - King's quarreler', *Journal of the Society of Archer-Antiquaries* 32 (1989), p. 53-54.
57. *Cal. Close Rolls Henry III, 1247-51*, p. 440; Otway-Ruthven, *History of medieval Ireland*, p. 193.
58. Berry, *Statute rolls: Henry VI*, pp. 647-49; Morrissey, *Statute rolls: Edward IV*, p. 99.
59. Riesch, 'Yew exploitation and long-bow trade', p.12 n.1; Prestwich, *Armies and warfare in the Middle Ages*, p. 359, n. 56.

countries[60]. Riesch has documented in detail the highly organised trade in yew longbow staves for the English market which developed in the Alpine areas of Austria, Switzerland and Bavaria in the 16th century. Up to one million yew staves may have been exported between 1521 and 1567 and the trade continued, although with declining profitability, to the end of the 16th century[61].

Hardy, a member of the team carrying out a detailed analysis of the longbows recovered from the *Mary Rose*, suggests on the basis of the density and fineness of the grain of the yew, that they are made of wood imported from the Continent[62], and such imported bows presumably also reached Ireland. The act of 1473 was re-enacted by parliament in 1516[63] and positive evidence of the import of longbows into Ireland from England is provided in the activities of Thomas Garth, who was authorised by Henry VII in 1492 to bring 100 bows and 200 sheaves of arrows to Ireland for the use of the army, and was reimbursed for the purchase of 120 sheaves of arrows by the collectors of customs in the port of Bristol that year[64].

Performance

The capabilities and efficiency of the longbow have been a matter of differing opinions. Pope was convinced of the superiority of the English longbow over other bows, including Oriental composite bows, but more recently Bergman *et al.* concluded that composite bows, as used in Asia and the Near East, are more efficient than the longbow, and even suggested that the Neolithic bow from Meare Heath, in England "is actually a better weapon than the ... medieval longbow". Kooi, on the other hand, argues that the composite bow has no inherent superiority over the wooden self-bow[65], and having studied several different bow types (including the *Mary Rose* longbows), suggests that all are potentially of roughly equivalent efficiency[66]. Pratt points out that after detailed study the *Mary Rose* bows have proved to be of more efficient design than their more recent successor, the traditional sporting longbow. He argues that "the medieval longbow was significantly more efficient than previously believed", which may account for the discrepancies between previous writers' conclusions[67].

60. Hardy, *Longbow*, pp. 128-29.
61. Riesch, 'Yew exploitation and long-bow trade', pp. 5-11.
62. R. Hardy, *Longbow: A social and military history* (3rd edn, Sparkford, Somerset, 1992), p. 201.
63. Quinn, 'Guide to English financial records for Irish history', p. 13.
64. *Ibid.*, pp. 35, 55.
65. I.e. a bow formed from a single stave of wood, without any additional or composite parts.
66. Pope, 'A study of bows and arrows', p. 373; Bergman *et al.*, 'Experimental archery', p. 668-69;
       B.W. Kooi, 'Archery and mathematical modelling', *Journal of the Society of Archer Antiquaries* **34** (1991), p. 27.
67. Hardy, *Longbow* (3rd edn., 1992), pp. 217.

Whatever the truth of this, the later medieval longbow was undoubtedly capable of impressive performance. Many estimates of the longbow's range have been attempted but some confidence can be placed in the calculations of Hardy and Pratt, based on theoretical physics combined with practical experience with the *Mary Rose* material. They suggest that the strongest of the *Mary Rose* bows had a maximum range of 320-350 yards (*c.*290-320m), depending on the weight of arrow used, while for the lightest bows the maximum range was 220-250 yards (*c.*200-230m). They also point out, however, that by regulation of 1542 the minimum target distance to be used in mandatory archery practice in England was 220 yards (*c.*200m)[68]. A unique surviving arrow from Westminster Abbey, apparently a typical late medieval English war arrow, is thought to have been designed for a bow of *c.*130lbs draw weight which could propel it at least 280-290 yards[69]. It is worth noting that computer-generated estimated draw weights[70] of the *Mary Rose* bows (100-185lbs / 45-84kg) were initially treated with considerable scepticism, as being far beyond the ability of most modern archers, but the estimates have apparently been confirmed by actual measurement of carefully made replica bows. It has also been suggested that human skeletons found on the *Mary Rose* may display anatomical anomalies which could be interpreted as resulting from the stresses of constant use of such powerful bows[71].

Bows

Bows are rare finds in archaeological contexts. Complete bows are even rarer and of the eighteen examples[72] discussed here - eight from Dublin, seven from Waterford, two from Cork and one from Ballinderry, Co. Westmeath - only three are substantially complete (the Ballinderry bow is missing one terminal; see Fig. 36). All are wooden self bows and all, with the exception of nos 6 and 8, are of yew (*Taxus baccata*). The assemblage may be divided into two chronological/cultural groups - a Hiberno-Norse group of nine examples (nos 1, 4, 6-8, 11 and 13-15) dating from the late 10th to mid-12th centuries (see Figs. 33, 34), and an Anglo-Norman group of eight examples (nos 3, 5, 9-10, 12 and 16-18) dating from the late 12th to early 14th centuries (see Fig. 35).

68. *Ibid.*, pp. 217-18; P.L. Pratt, 'The arrow', in Hardy, *Longbow*, p. 203: Fig 4.
69. Pratt, 'The arrow found in Westminster Abbey'; Pratt in Hardy, *Longbow*, 1986, p. 203
70. A measure of the strength of a bow, expressed as the force or weight required to brace a bow to full draw.
71. Hardy, *Longbow* (3rd edn., 1992), pp. 200-01, 212-17.
72. One of the sixteen objects listed in the Inventory, No. 4, is probably not a bowstave and for this reason is excluded from statistical calculations in this discussion.

Comparing the two groups is naturally of great interest, but unfortunately the present condition of the bows is a serious obstacle to this. A bow is essentially a spring which stores potential energy when drawn and transfers this energy on release to the arrow, and the main point of interest in studying bows is how successfully and efficiently they perform this basic function. The primary measure of the capability of a bow is its draw weight, but in their current condition any attempt to brace the complete bows to full draw would be likely to cause serious damage and would, in any case, yield results which could not be relied upon[73]. The performance of a bow is largely a function of two characteristics, its length and its cross-section, reflecting the method of shaping the original piece of wood to harness its natural qualities. Some conclusions about the Irish bows can be drawn in this regard, but in the case of incomplete bows the original length and (in many cases) cross-section can only be guessed at.

Length

The complete bows (nos 1, 10 and 16) are of strikingly different dimensions. No. 10 is 67.8cm in length and no. 1 is nearly three times as long, at 185cm (originally *c.*190cm), while no. 16 is almost exactly half-way in between, at 126cm (see Fig. 36). This clearly indicates that considerable variety is possible in the lengths of early medieval bows. The majority of the Irish bows, however, are incomplete fragments and it is extremely difficult to reconstruct their original lengths with confidence. In terms of length, the incomplete bows fall into two groups, with most being between 7cm and 31cm in length, while two (nos 13 and 15) are approximately 65cm and 71cm respectively (see Chart 23)[74].
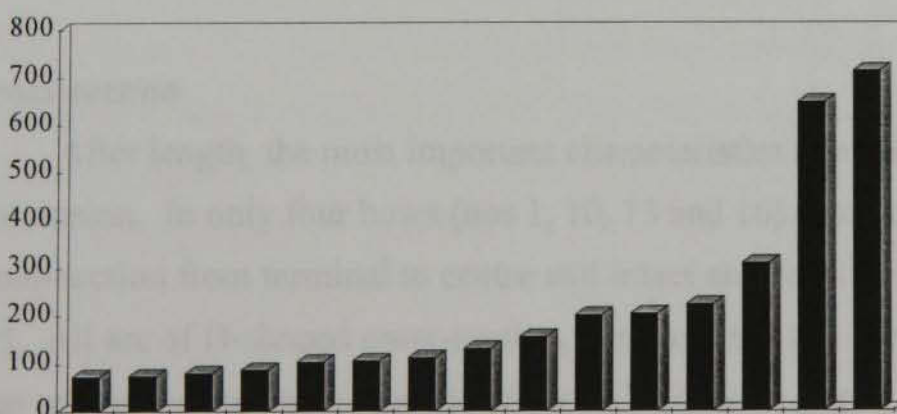
Bowstave fragment lengths

Chart 23: Histogram of lengths of incomplete bow fragments (in mm).

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73. Experiments with some of the *Mary Rose* bows (which appear to be in better condition than the much older Irish bowstaves) resulted in damage to several of the bows, and a recognition that the results obtained were seriously misleading because of substantial degradation of the wood; see Hardy, *Longbow* (3rd edn., 1992), pp. 212-16.
74. No. 15, however, has clearly been worked subsequent to breaking and the original fragment may have been longer.

This distribution of fragment lengths could be interpreted as supporting Webb's observations on the differing breakage patterns of simple self-bows and handle-reinforced bows. He notes that a simple bow bends in a full arc and tends to break at or near the point where the arrow passes, that is, just above the mid-point of the bow (see Fig. 37). A broken fragment of such a bow, therefore, should be approximately half the length of the original bow. By contrast, handle-reinforced bows[75] bend in a restricted arc, with the centre remaining relatively rigid, and tend to break near the end of the upper limb - usually 15-20cm from the end. Webb argues that the traditional longbow is essentially a handle-reinforced bow, because it is shaped so as to preserve disproportionate strength in the handle area, but that it has a less specific breakage pattern, often breaking 45-60cm from the lower end. Hardy, however, points out that the *Mary Rose* bows are not reinforced in this way, and it is likely that they are more typical of the medieval longbow than the more recent, traditional sporting longbows on which Webb based his observations[76].

The two longest bow fragments, nos 13 and 15, are probably best interpreted as fragments of simple (i.e. non-handle reinforced) self-bows, in which case they should represent only slightly more or less (depending on whether they are the upper or lower limb) than half of the bow. The original lengths of the bows should therefore have been *c.*130cm and *c.*140cm respectively, give or take 5-10cm (see Fig. 36). Thus one might suggest that no. 13 was *c.*120-140cm long, and no. 15 *c.*130-150cm long originally. The remainder of the incomplete bows, which are 31cm or less in length, may be fragments of handle-reinforced bows, and it is not possible to make any suggestions as to their original lengths.

Cross-section

After length, the most important characteristics of a bow are its cross-section and conversion. In only four bows (nos 1, 10, 13 and 16) is the complete development of cross-section from terminal to centre still intact and similarities are evident (see Fig. 39). All are of D-shaped cross-section, with roughly flat backs and convex bellies[77] and thus reproduce the classic profile of the traditional longbow. There are, of course, some

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75. where the central handle area is strengthened by the addition of an extra piece of wood, or by a binding, or simply by leaving extra wood in shaping the bow
76. A. Webb, *Archaeology of archery* (Tolworth, Surrey, 1991), pp. 11-12; A. Webb, 'Prehistoric bows from Ireland', *Journal of the Society of Archer-Antiquaries* 23 (1980), pp. 20-21; Hardy, *Longbow* (3rd edn, 1992), p. 201.
77. In archery terminology, the *back* is the outer face of the bow, facing away from the archer, while the *belly* is the inner face, facing toward the archer (see Fig. 37).

differences; nos 1 and 16, for example, have definite sides distinct from back and belly, whereas no. 13 has a deeply convex belly which joins the back in an unbroken curve, without any distinct sides. There are also slight differences in the "stacking", or depth of the cross-section. Hardy notes that in a modern longbow the ratio of depth to width should not be less than 3:4 (i.e. 75%), but suggests that for medieval longbows it tended to be between 4:5 (80%) and 6:7 (86%)[78]. For the Irish bows the ratio of depth to width at the centre of the stave is as follows:

Bow	Width	Depth		Ratio
no. 1	39	29	....	74%
no. 10	25	20	....	80%
no. 13	31	21	....	68%
no. 16	25	20	....	80%

Thus nos 10 and 16 are well within Hardy's suggested range for the longbow, while nos 1 and 13 are only marginally outside the range.

The incompleteness of the other bows is a serious problem. The cross-section of a bow develops and can change considerably from the terminals towards the centre; thus a fragment of one end of a bow may give an incomplete or even misleading picture. No. 5, for example, has a good D-shaped cross-section but the slope of the nock and the occurrence of sapwood indicate that the back is the more convex face, while the belly is the flatter face; this is the opposite of what might be expected but it is quite possible that if the full bow were available, a different cross-section would be found nearer the centre. The same is true of nos 7, 12, 14 and 18 and possibly no. 11 (see Fig. 39). Furthermore, a number of bow fragments (nos 3-4, 7-8, 11, 15 and 17) display marked sides, distinct from back and belly, so that the cross-section is almost more sub-rectangular than D-shaped (Fig. 39). This feature is not noted in the fully developed cross-sections of nos 1, 10, 13 or 16, which are more truly D-shaped, with back and belly meeting in almost unbroken curves. Again, it is quite possible that if the full cross-section of the other fragments were available, the impression of rectangularity would be dispelled.

Selection and conversion of timber

A number of definite patterns of selection and conversion of timber seem to be present in the Irish bows. The primary pattern is the preference for yew (*taxus baccata*),

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78. Hardy, *Longbow*, p. 9.

which is used in all but two bows (88% of the total)[79]. Again, this may reflect Hurley's suggestion that yew was more common in Ireland than in Britain in the 12th and 13th century, but there are particularly good reasons for the specific choice of yew for manufacturing bows, which will be discussed below. Of the two non-yew bows, no. 8 is of Scots pine (*Pinus sylvestris*) and no. 6 is almost certainly of elm (*Ulmus* sp.). Interestingly, both of these species are thought to have been extremely rare in early medieval Ireland[80]. Where they could be examined, the growth ring patterns of many bows suggested that small trunk or branch wood of *c.*30 years growth was used. Opportunities to examine age and growth patterns were, however, very limited.

In examining the bows, attention was paid not just to the profile of the cross-section but also to the conversion of the wood within the cross-section. Evidence was sought of any pattern in the age and type of wood used, and particularly of a characteristic combination of sapwood and heartwood[81] in the bow. In the traditional conversion of a yew longbow most of the stave consists of heartwood, but sapwood is retained along the back (see Fig. 38). The purpose of such a conversion is to achieve a natural laminate of woods with different properties, reflecting the fact that a bow, on bending, is subjected simultaneously to two different forces - compression on the belly (the inner bend of the bow) and tension on the back (the outer bend of the bow). The traditional conversion of a yew longbow produces a bow in which the strong and resilient heartwood provides resistance to compression (Hardy has described yew heartwood as "probably the most resistant timber to compression known to man") and hence the strength to shoot an arrow with power and distance, while the highly tensile sapwood on the back helps prevent breakage under the stress of bending. This technique, widely used in making traditional longbows in recent centuries, has been recognised among the longbows recovered from the *Mary Rose*, and is thought to have been common practice in the great era of late medieval English military archery[82].

Analysis of the patterns of conversion of the Irish bows was inevitably limited. It was not considered appropriate to cut clean sections through the bows, as was done on

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79. No. 4, which is not included in these statistics, is also of yew.
80. Hurley and McCutcheon, 'Wooden artefacts', p. 555; F. Mitchell and M. Ryan, *Reading the Irish landscape* (rev. edn, Dublin, 1997) pp. 111, 284.
81. Heartwood is the inner wood, forming the greater part of a trunk or branch; sapwood is the softer, outer layers of recently formed wood, between heartwood and bark.
82. R. Hardy, 'The longbow', in Curry and Hughes, *Arms, armies and fortifications in the Hundred Years War*, p. 172;   Pope, 'A study of bows and arrows', pp. 354-55;   Hardy, *Longbow* (3rd edn, 1992), pp. 30, 54-55, 195-96;   Bergman *et al.*, 'Experimental archery', pp. 662-64;   M. Rule, *The Mary Rose: The excavation and raising of Henry VIII's flagship* (2nd edn, London, 1983), p. 183.

some of the *Mary Rose* bows. Thus analysis was restricted to visual inspection of existing surfaces and even this was greatly hindered by the present condition of the bows and the fact that many of them are so incomplete. Heartwood and sapwood are distinguished in fresh yew wood by pigmentation from the chemical extractives in the cell walls; heartwood is amber and sapwood creamy in colour. On examination with a 10X lens and the naked eye, this distinction was frequently visible in the Irish bows and there were at least some cases in which the traditional longbow conversion had apparently been employed. In at least twelve of the fifteen yew bows (the possible exceptions being nos 2, 11 and 15) the belly is cut from nearest the centre of the branch and is heartwood (see Fig. 39). At least ten bows (59% of the total, or 67% of the total of yew bows) displayed evidence of a heartwood/sapwood distinction and in all cases, with the possible exception of no. 15, the sapwood was present on the back of the stave.

It should be stressed that these are minimum figures. While there are four yew bows in which no heartwood/sapwood distinction was observed (nos 2, 11, 16 and 18, while no. 12 remains uncertain), it cannot be inferred that no such distinction exists. In most of these cases analysis was hindered by the fact that so little of the bow survives (or conversely, in the case of no. 16, by the fact that it is complete, with no broken faces). On the other hand, because of the incompleteness of these bows, it is often not possible to be certain that the traditional longbow conversion is present, even where sapwood is observed on the back. The traditional longbow conversion is undoubtedly present, however, in nos 1 and 13 and probably also in nos 3, 5, 7, 9 and 10 (see Fig. 39). Perhaps more importantly, there were no cases in which it could definitely be said that the traditional conversion was not present. In view of the very limited level of analysis which was possible, these must be considered extremely impressive and significant results. On this basis it can surely be stated with confidence that the traditional longbow conversion has a far earlier currency than the late Middle Ages and was clearly known and used by both Hiberno-Norse and Anglo-Norman bowyers.

Few significant differences were noted in the conversion patterns of the Hiberno-Norse and Anglo-Norman groups, as the following table illustrates:

	Hiberno-Norse	Anglo-Norman
Selection of yew	75%	100%
Sapwood present	75%	56% (minimum)
Sapwood on back	62%	56% (minimum)

In view of the many uncertainties caused by the incompleteness of the bows, it would probably be unwise to read too much into the apparent differences between the Hiberno-Norse and Anglo-Norman groups, which are in any case relatively minor. It is clear that there was a definite preference for yew as the material for bows in both Hiberno-Norse and Anglo-Norman periods, apparently amounting to a 100% rule in the later period. Moreover, the traditional conversion, retaining sapwood on the back of the bow, was definitely present (to put it no more strongly than this) in both periods, although it may not have been the unvarying rule. A modern technical study has confirmed the suitability of yew due to its unusually high bending strength and low level of stiffness and concluded that in terms of material, length and shape, the traditional yew longbow "represents something close to an optimum of design"[83]. Clearly, bowyers of the Hiberno-Norse and Anglo-Norman periods had a definite understanding of these issues, even if it was intuitive and customary, rather than scientific. All of the essential elements of yew longbow design are present in the Irish bows, in some cases many centuries before the flowering of the late medieval longbow tradition.

Terminals

A final feature of the bows is the form of the terminals, including the nocks (the notches where the string was attached at either end of the bow). All are self-nocked, i.e. the nocks are cut into the staves rather than being separate pieces such as the applied nocks, probably of horn, with which the *Mary Rose* bows were originally fitted, and which are standard on traditional longbows[84]. On the Irish bows the nocks are simple cuts in the stave, either triangular or rectangular in shape and between 4mm and 9mm wide at the mouth (see Figs 34, 35).

Nocks occur either in single or double form, in roughly equal numbers - eight bows are double-nocked, i.e. with two nocks opposite each other at each end of the bowstave, and nine are single-nocked. It may be significant, however, that six (75%) of the Hiberno-Norse group are double-nocked, whereas the corresponding figure for the Anglo-Norman group is only two (22%), nos 9 and 10, both of which are from early 13th century riverside reclamation deposits at Wood Quay, Dublin and could quite conceivably be residual Hiberno-Norse bows. Thus it appears that a strong preference for double nocks in the Hiberno-Norse period gave way to a preference for single nocks

83. P.H. Blyth, 'The design and materials of the bow', in Hardy, *Longbow*, pp. 195-98.
84. Hardy, *Longbow* (3rd edn, 1992), pp. 6, 199; No. 4, which has no surviving nocks and may not be a bowstave at all, is an exception.

in the Anglo-Norman period. Only two bows retain nocks at each end; no. 10 has similar double nocks at either end, while no. 16 has single nocks, which occur on opposite sides of the stave at either end. The assumed attachment of the bowstring on no. 4, by means of a transverse ridge rather than nocks, is unparalleled and heightens the suspicion that it is not, in fact, a bow fragment.

An interesting feature clearly to be seen on no. 10 and possibly also on no. 5, are secondary nocks at the tips of the bow (see Fig. 35). These may be "stringing nocks", intended to hold a second string, distinct from the actual bowstring, used to brace the bow for stringing. Normally a bow was strung by holding it vertically with one end on the ground, wedged against the archer's foot, and bending the other end, but this placed disproportionate strain on one end of the bow and increased the risk of breakage. A second, outer string allowed a bow to be braced evenly from the centre, with much lower risk of breakage. It is possible that the pronounced waisting evident above the nocks on the terminals of nos 4, 6, 13 and 14, served a similar function.

Two bows (nos 5 and 7) also display a small perforation in the centre of the stave near the tip, a feature also present on the missing Adare castle bow (see Fig. 40). It might be assumed that these holes were used to attach the bowstring to the bow, but the presence of nocks below the perforations, on all three bows, argues against this. Many modern wooden bows are made with similar perforations; loops of string or thonging are attached through these perforations, which hold the bowstring to prevent it from slipping down the bow when unbraced, and it is likely that this is the function of the perforations on the medieval bows. A similar feature exists on the prehistoric bow fragment from Drumwhinny bog, Co. Fermanagh and when first found, a "thong of leather ending with a knot" was still in position in the hole. Glover suggests that this was actually a fragment of the bowstring of gut or sinew, misidentified as leather, but it is perhaps more likely that the original identification was correct and that what survived was a leather thong used to hold the bowstring when unbraced[85].

Many bows display carved, more or less decoratively shaped terminals (see Figs 34, 35); these are of uncertain functional significance but may have some value as cultural indicators. Eight bows (nos 1-3, 5, 7, 8, 11 and 15) essentially have simple flat or tapered terminals; another five (nos 9, 11 and 16-18) have terminals which are only barely more elaborate, with slightly expanded tips to the tapered terminals. The most

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85 Glover, 'A prehistoric bow fragment from Drumwhinny Bog', p. 326.

finely carved terminals, nos 4, 6, 13 and 14, are to some extent similar in being gracefully waisted above the nocks; nos 4, 6 and 13 taper abruptly above this, while no. 14 ends in an expanded fan shape. It is notable that these elaborate terminals (nos 4, 6, 13 and 14) are all of Hiberno-Norse date, while the terminals of the Anglo-Norman bows appear relatively simple[86]. This may, in time, prove to be a real pattern, but at present it may be unwise to read too much into it.

Curvature

Many of the bows (nos 1, 3, 5 and 11-17) display a greater or lesser degree of curvature in profile (see Fig. 36). In all but one case, this curvature is toward the belly, i.e. in the direction in which the bow would have curved when braced. In archers' terminology, these bows are said to have "followed the string", having taken on permanently, to some degree, the curvature caused by the bowstring on a braced bow. This a common phenomenon in bows. The exception to this is no. 1, in which the present curvature of the stave is reflexed away from the belly, although the ends are slightly recurved (see Figs. 33, 36). Hardy notes that this feature is also to be found on the majority of the *Mary Rose* bows, and argues that no processes during the lifetime of the bows, or post-deposition, are convincing explanations for this feature. He concludes that it must reflect a deliberate choice of yew timber displaying a natural reflexed curvature, the purpose of which was

> to achieve optimum straightness when the bow was well used, a straightness which means a longer and faster return of the limbs from full-draw to the braced position at which the arrow quits the string; the faster that return the greater the cast of the bow[87].

Crossbow nut

The nut, normally made of antler, is the most durable part of the early medieval crossbow and the part which most frequently survives in archaeological contexts. It is thus not surprising that the only definite part of a medieval crossbow known from Ireland is a nut from an early to mid-13th century context at Waterford (Fig. 41). The Waterford nut, which is formed from a disc of antler beam, probably shaped on a lathe, was an essential part of the trigger mechanism of a medieval crossbow. It would originally have been mounted in a socket in the wooden stock of the crossbow, held in

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86. The terminals of no. 10 may appear relatively elaborate, but this is merely an impression produced by the secondary nocks.
87. Hardy, *Longbow* (3rd edn, 1992), pp. 202-03.

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place by pinning through the central axial perforation. The string of the crossbow was held in the transverse groove across the perimeter of the nut, and the butt of the arrow or bolt apparently lay against the string in the adjacent straight-sided groove along the perimeter. The other groove, on the opposite side of the perimeter of the nut, engaged the sear of the trigger mounted on the underside of the stock, thus preventing the nut from revolving. When the trigger was pulled and disengaged from this groove, the nut was free to revolve, releasing the string and the bolt (see Fig. 41). The perforation running eccentrically through the nut between the two grooves was apparently intended for the insertion of an iron plate to protect the lower groove from undue wear; this may indicate that the crossbow was of composite manufacture, producing greater power and more strain on the nut. However, very little can be said with certainty about crossbows of this period. The Waterford nut is of typical medieval form, being almost identical to a 13th century example from Winchester, though of slightly larger proportions[88].

Bowstring

Heckett has suggested that a tablet-woven tubular silk cord from a mid-12th century context in Waterford may be a bowstring[89]. This identification is not certain but it is noted that there are historic precedents for the use of silk in bowstrings, and no alternative suggestion is presented. Although broken in three pieces, Heckett notes that the cord is complete and gives the full length of the cord as 117cm. There is, however, no reference to the loops which should have been present at either end if this were a bowstring, tied around the nocks of the bow. Heckett has confirmed to the writer that there is at present no evidence for this cord having been looped and knotted at either end, as one should expect in a bowstring. Although it is possible that such traces have disappeared because of the resilience of silk, this must raise serious doubts about the identification of this cord as a bowstring[90]. Such loops, if present, must have reduced the actual working length of the bowstring by at least 5cm at either end, leaving not much more than 100cm actual string length between the nocks of the bow. Thus, if this cord is actually a bowstring, it must have been designed for a bow which was no more than 110-120cm long between the nocks (measured along the belly of the bow) when

88. M.F. Hurley, 'Artefacts of skeletal material', p. 667; A. MacGregor, *Bone, antler, ivory and horn: The technology of skeletal materials since the Roman period* (London, 1985), pp. 160-61; Credland, 'Crossbow remains', 12-17; Credland, 'Crossbow nut', in Biddle, *Object and economy in medieval Winchester*, pp. 1074, 1076.

89. E.W. Heckett, 'Textiles, cordage, basketry and raw fibre', in Hurley, Scully and McCutcheon, *Late Viking age and medieval Waterford*, pp. 752-53.

90. Mrs E. Wincott Heckett (pers. comm.); I am grateful to Mrs Heckett for assistance on this point.

properly braced. Allowing an additional 10-20cm for the length of the terminals of the bow beyond the nocks, this suggests a total bow length of 120-140cm.

Arrowshafts

Arrowshafts survive even less frequently than bows and arrowheads in archaeological contexts; only two complete arrows are known from archaeological contexts in Ireland, as well as a substantial part of a third and two other possible arrowshaft fragments. The three definite arrowshafts are of Hiberno-Norse date, while the two possible fragments are of Anglo-Norman date.

No. 5 is a complete arrow, from an 11th century context in Dublin, which retains its simple Type 1 variant arrowhead (no. 85). The arrow is 59.5cm in overall length; the shaft is currently 53.9cm long, exclusive of the head (see Fig. 42). A drawing made shortly after discovery shows what seems to be a separate sleeve, presumably of wood or bark, wrapped around the tang of the arrowhead and inserted with it into the arrowshaft, but unfortunately no trace of this survives today. The shaft appears slightly barrelled, but this may be a misleading effect of post-depositional distortion as it is somewhat flattened towards the middle, but rounded near either end. It is, however, definitely and deliberately flattened at the nock end. The shaft is self-nocked, without any separate strengthening insert of horn or other material, and clear traces of the adhesive and spiral binding used to attach the fletchings can be seen between 24mm and 142mm above the nock end. The wood used is Scots pine (*Pinus sylvestris*).

The second complete arrow (no. 7), from a mid-12th century context in Waterford, was 60.5cm in overall length and found complete with a Type 7 arrowhead (no. 786). It was in poor condition and disintegrated upon excavation, but most of its salient features were noted beforehand. The shaft was 58cm in length, of which 2.5cm was inserted in the socket of the arrowhead; thus the length of the shaft exclusive of the arrowhead was 55.5cm. The bowstring nock was noted at the base of the shaft, indicating that the length of 60.5cm is original and complete. The shaft was rounded in cross-section and was described as tapering from *c.*9mm in diameter at the top (i.e. nearest the arrowhead) to c.4.5mm at the base; such an extreme taper is unlikely and it is probable that the shaft was, in fact, flattened at the nock end like the Dublin example. The wood species was not identified but it was apparently not yew.

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A fragment of an arrow shaft (no. 4), complete with the socket of its arrowhead (no. 841), is from a late 10th/early 11th century context in Dublin (see Fig. 43). The shaft fragment is 215mm long and apparently parallel-sided and 8mm in maximum diameter, although some flattening and distortion has taken place. The wood is willow (*Salix*).

No. 2 is a probable arrowshaft fragment from a 13th/14th century context in Cork, 281mm in length and 8mm in maximum diameter (see Fig. 43). The fragment tapers slightly, to 7mm diameter, toward either end (only one of which is complete) but it is unlikely that this represents deliberate "barrelling" (see below). The intact end narrows abruptly to 5mm diameter for the final 11mm; this narrower section is parallel-sided rather than tapering. The wood is yew (*Taxus baccata*).

Another possible arrowshaft (no. 6) from a late 12th/early 13th century context in Waterford consists of two fragments, respectively 282mm and 102mm in length. The fragments do not join and are not definitely from the same piece, but are similar in form and dimensions. Each has been shaped by a knife into a roughly straight, round-sectioned piece, although a number of knots have been left unsmoothed. The longer fragment, which is broken at both ends, is *c.*9mm in diameter throughout; the shorter fragment is broken at one end and is also *c.*9mm in diameter apart from the unbroken end, which tapers gradually over 18mm from 9mm to 4.5mm in diameter. The wood used is yew (*Taxus baccata*).

It is tempting to see the narrowed and tapered ends of nos 2 and 6 as designed to fit into the socket of an arrowhead, but in the final analysis these fragments cannot definitely be identified as from an arrow shaft. It is interesting to note, however, that these possible Anglo-Norman arrowshafts are both of yew. It has already been seen that the preference for yew in bows of Anglo-Norman date amounted to an unvarying rule and this may even have extended to the choice of wood for arrowshafts. It is, however, far too early as yet to make any meaningful statements about patterns in the choice of woods used for arrows in medieval Ireland, save to record that willow, Scots pine and yew have been noted to date.

Crossbow shafts

The arrows used in crossbows, often referred to as bolts or quarrels, tended to be shorter (because of the shorter bow) and thicker than for ordinary bows. Blackmore suggests average dimensions of about 30cm long and from 12mm to 20mm in

diameter[91], although this no doubt varied with the size of the crossbow. The greater thickness of the shafts reflects the greater forces released by crossbows, especially in the later Middle Ages. A small portion of such a shaft (no. 1) was found, unfortunately unstratified, complete with its arrowhead of Type 8 (no. 831) at Market St, Armagh (see Fig. 29). The shaft fragment, which is 87mm long, exclusive of that part within the socket of the arrowhead, is rounded in cross-section and unusually, tapers from a diameter of 13.5mm immediately below the head to 8mm at the present broken end. The wood species has not been identified.

Discussion

While the arrowhead is the actual weapon which delivers the wound, and thus is clearly of crucial importance, it is in many respects the capabilities of the bow which determines the archer's effectiveness. Thus studies of military archery tend to devote far more attention to the bow than to the arrow, but unfortunately, much discussion of the bow in medieval warfare has been carried on in the absence of solid evidence in the form of actual medieval bows, which are rarely met with[92]. The recent spectacular discoveries from Henry VIII's ship *Mary Rose*, in England, will undoubtedly shed substantial new light on the longbow of the later Middle Ages. However, the earlier medieval period, before the longbow acquired an almost exclusive position as the only type of bow used in warfare, is an equally interesting area of study. The controversy about the English longbow's origins is only one of the interesting issues arising in this period.

The Irish assemblage provides a rare opportunity to look in detail at actual archery equipment from this period. At the outset one thing seems clear: most of the Irish bows are not longbows. It could, in fact, be argued that there are three distinct groups, in terms of length, visible in the Irish material (see Fig. 36). The Ballinderry bow (no. 1) is by any definition a perfectly good longbow in terms of length, material, timber conversion and cross-section, although the cross-section is not particularly highly stacked and thus the bow was probably somewhat less powerful than, say, the typical *Mary Rose* bow. The Ballinderry bow fits comfortably into the known pattern of Viking-age archery; the yew bow from Viking-age Haithabu is of almost identical

91. Blackmore, *Hunting weapons*, pp. 182-183.
92. E.g. Heath, *Archery: A military history*; Hardy, *Longbow*; Bradbury, *The medieval archer*.

dimensions to the Ballinderry bow[93]. The evidence from Oppdal of arrows up to 70cm long in the Viking period (to *c.*1000 AD) suggests the existence of bows *c.*170cm in length; these, it should be remembered, were hunting bows and it is likely that a preference for longer bows was even more pronounced in the military arena.

At the other extreme, no. 10 is exceptionally short at 68cm, raising the possibility that it may not be a conventional self-bow at all, but perhaps the bow of a crossbow. There is no evidence at the middle of the bow for its having been attached to a perpendicular stock, as one would expect on a crossbow, and the secondary nocks, if they are stringing nocks, would seem unnecessary on a crossbow. Nevertheless, so little is known about the form of early 13th century crossbows that this possibility cannot be ruled out; the notable straightness, in profile, of this bow raises the possibility that it may never have been used, which would account for the lack of evidence of attachment to a stock. Bows as short as no. 10 are often interpreted as children's or toy bows, but this seems most unlikely in the present case as no. 10 probably had a draw weight beyond the ability of a young child[94]. It thus appears that no. 10 must be considered either as a conventional, though extremely short, self-bow of the early 13th century, for which no convincing parallels are known, or as a bow intended for a crossbow.

The other complete bow, no. 16, is 126cm in length, and clearly a conventional self-bow. It is suggested above that two other fragments, nos 13 and 15, were originally 120-140cm and 130-150cm in length, respectively. A further bow which can be included in this discussion is that from Desmond Castle, Adare (now unfortunately missing), which Rynne suggested was roughly 100cm in original length[95]. While too much weight should not be put on the 14th century date suggested by Rynne, this bow must surely date to the Anglo-Norman period, if not later. Thus there is, arguably, a middle group of bows, 100-150cm in length, between the extremes represented by nos 1 and 10 (see Fig. 36).

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93. Hardy, *Longbow*, p. 30; J. Graham-Campbell, *Viking artefacts: A select catalogue* (London, 1980) p. 74: no. 266: The Haithabu bow is 192cm in length, of "ovoid" cross-section and measures 40mm wide x 32mm deep at the centre, compared to 40mm x 31mm for the Ballinderry bow.

94. See for example H. Soar, 'Tudor longbows', *Journal of the Society of Archer Antiquaries* 33 (1990), pp. 5-6, where bows of 102cm and 96cm are described as children's bows, and J. Baart *et al.*, *Opgravingen in Amsterdam: 20 jaar stadskernonderzoek* (Amsterdam, 1977), pp. 462-63 (English summary p. 471); I am grateful to Mr Boyd Rankin, an experienced archer, for his assessment of bow no. 10 which, inevitably, can be no more than a personal opinion unsupported by conclusive evidence. It is hoped to test this hypothesis by the manufacture of a replica bow in the near future.

95. E. Rynne, 'Was Desmond Castle, Adare, erected on a ringfort?' *North Munster Antiquarian Journal* 8 (1958-61), p. 199, Fig. 5.

Surviving arrowshafts and even arrowheads also provide indirect evidence for the length of the bows that fired them, as there is a direct functional relationship between the lengths of bow and arrow. Despite the limited survival of arrowshafts, quite an amount of information about arrows can be adduced, taking into account the surviving bows and arrowheads, historical references and, not least, the mechanics of the bow and arrow. An important point, often not appreciated by non-archers, is that if a bow is to function efficiently, the arrows used with it must be carefully matched to it in terms of the length, weight and flexibility (or *spine*) of the arrow.

The length of the arrow determines the draw length of the bow, which is, effectively, the arrow length exclusive of the head. If the arrow is too short, the bow cannot be fully drawn and its full potential cast is not realised; on the other hand, increasing arrow length beyond the maximum draw of the bow merely adds weight and reduces the velocity of the arrow. Pratt points out that an arrow length of *c.*76cm (which excludes the arrowhead) is about the maximum that can be comfortably and safely drawn by most modern adult males and this can usually be taken to be the practical maximum in even the longest bows. In shorter bows the maximum length of the arrow is determined by the length of the bow: The ratio of bow length to draw length (and, by implication, arrow length exclusive of the head) should not be less than 2:1 and is usually somewhat greater, perhaps around 2.4:1[96].

In relation to the weight of an arrow the basic issue appears simple - the heavier an arrow, the lower the velocity and range of shooting. However, in the context of medieval warfare range of shooting was not always the dominant consideration, as bows would often have been used at relatively short range in combat. For armour-piercing arrows, in particular, greater weight (and hence greater momentum) will often have been considered desirable to increase penetration, even at the cost of reduced potential range and velocity. In experiments on arrow penetration, Pope concluded that the heavier the arrow, up to certain limits, the greater the penetration. There are indications that a *Mary Rose* longbow was designed to function more efficiently (in terms of the percentage of its stored energy transferred to the arrow) with a heavy arrow with armour piercing head, than with a lighter arrow. Essentially, therefore, in terms of weight the arrow was matched not so much to the bow as to the purpose for which it was used, but clearly there will always be an upper weight limit beyond which an arrow is simply too heavy to be shot effectively from a bow; this will vary depending on the strength of the bow[97].

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96. Pratt in Hardy, *Longbow*, p. 199; Bergman *et al.*, 'Experimental archery', p. 661.
97. Pratt in Hardy, *Longbow* (3rd edn, 1992), pp. 199, 203:Table 4, 217 Pope, 'A study of bows and

A more complex issue is the *spine* or flexibility of the arrowshaft, which must be carefully matched to the *cast* or strength of the bow. When a fully drawn bow is discharged a strong compressive force is released which, acting on the inertia of the arrow, causes the latter to buckle and vibrate laterally as it accelerates. This creates a risk of the arrow striking the bow as it passes and being deflected off course, but if the spine of the arrow is properly matched to the bow this danger is avoided through an effect known as the "archer's paradox". Put simply, the frequency and amplitude of the arrow's vibration are such that the arrow bends around the bow without striking it and gradually straightens out to resume its true course (see Fig. 44). If the arrow is too stiff (i.e. its spine is too low) it will not buckle sufficiently and is likely to strike the bow and fly off course. Too flexible an arrow (i.e. too high a spine) will buckle too much, again making it liable to strike the bow, and will continue to vibrate after clearing the bow, militating against true flight. Webb refers to arrows with too high a spine value actually breaking under the impact of the cast of the bow[98].

It should be noted that spine values (i.e. stiffness/flexibility) of arrows are significant only in relation to the bows in which they are shot; thus an arrow which is too stiff for a particular bow may be ideally matched to another, stronger bow. Broadly speaking, the stronger the cast of a bow, the stiffer (i.e. lower in spine value) the arrows it requires, and *vice versa*. Modern archers express spine values in precisely quantified terms[99]; the medieval archer presumably relied more on an intuitive judgement born of experience, but he cannot have been any less aware than his modern successors of the need to match correctly the spine of the arrow and the cast of the bow. The spine value of an arrow is largely a function of the thickness or diameter of the shaft; the larger the diameter of a shaft, the stiffer it is likely to be. The cast of a wooden self bow, in turn, is largely a function of its length - the longer the bow, the greater its cast. Thus it can be concluded, in very general and simplified terms, that the deeper the draw of a bow (i.e. the longer it is), the thicker the arrow must be in order to fly true. This generalisation is perhaps particularly valid in the medieval Irish context where all shafts were made of wood and all bows were self bows[100].

This phenomenon of matching arrows to individual bows allows for a certain degree of prediction based on surviving medieval archery material. A good example is

arrows', p. 359.

98. See Pratt in Hardy, *Longbow*, pp. 199-200; Webb, *Archaeology of archery*, pp. 23-25.

99. GNAS units, a measure of the deflection of an arrow under the force of a specified weight; see Pratt in Hardy, *Longbow*, p. 200.

100. See Pope, 'A study of bows and arrows', p. 360; Rausing, *The bow*, p. 163.

the arrow found in Westminster Abbey in 1878, long thought to be a unique surviving medieval war arrow. Its length (77.5cm) clearly indicates that it was designed for a typical late medieval longbow of *c.*180-190cm, while a calculation of its spine value allowed Pratt to suggest that it was intended for a bow with a draw weight of 130-147lbs, which could have shot the arrow to a range of at least 280-290 yards[101].

Applying a 2.4:1 ratio of bow length to draw length to the complete Irish bows and arrows, one can suggest that the Ballinderry bow, no. 1 (*c.*190cm long originally) might have shot arrows *c.*79cm long (exclusive of the head) or *c.*76cm if one accepts Pratt's estimate of the practical maximum. Bow no. 16 (126cm long) would have been suitable for arrows *c.*53cm long (exclusive of the head), while bow no. 10 (68cm long) would have been suited to arrows *c.*28cm long. The complete arrowshafts, nos 5 and 7, (which were *c.*54cm and *c.*55cm long exclusive of the head, respectively) should each have been used with bows *c.*125-135cm in length[102].

The estimated bow lengths indicated by the two surviving arrows are particularly interesting; the 'middle group' of bows between 100cm and 150cm in length, proposed above, now contains not only the majority of surviving bows whose original length can be determined (nos 13, 15 and 16 and the Adare bow), but also the bows represented by both surviving complete arrows, the bow represented by the possible bowstring from Waterford, and possibly also the majority of the bows represented by the surviving socketed arrowheads (see Chapter 5, below). A range of evidence indicates with striking consistency that many, if not most bows in early medieval Ireland were relatively short, probably between 120cm and 150cm in length. In the Anglo-Norman period, indeed, there is evidence for even shorter bows, the missing Adare bow being *c.*100cm and bow no. 10 being *c.*70cm in length. The strongly military nature of the arrowheads found with the bows in Dublin, Waterford and Cork makes it impossible to argue that they were used for hunting and that longer bows were used in war; these are military bows.

The Irish evidence clearly disproves the 'Oman/Morris' theory of the Welsh origins of the longbow. Not only is the Ballinderry bow (no. 1) an example of a perfectly fine longbow in 10th century Ireland, but the evidence indicates that the bows

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101. Pratt, 'The arrow found in Westminster Abbey', p. 22; Pratt in Hardy, *Longbow*, p. 203 and Fig. 4.
102. It was not possible in the present study to go beyond prediction of original lengths of bows and arrows, as prediction of original draw weights and spine values requires elaborate mathematical modelling which is beyond the scope of this study. See Kooi, 'Archery and mathematical modelling'; Pratt in Hardy, *Longbow* (3rd edn, 1992), pp. 209-213.

used by Anglo-Norman archers in late 12th century Ireland (including, presumably, Giraldus Cambrensis' Welshmen) could not be considered as longbows. There is direct evidence for this in the form of the bows, two of which (no. 5, from Dublin and no. 17, from Waterford) are of late 12th/early 13th century date and could conceivably be the very bows of Giraldus' Welsh archers. There is also indirect evidence in the form of arrowheads of late 12th century date, which show no evidence of larger socket diameters such as would be consistent with the sudden appearance of the longbow (see Chapter 5, below).

To say that most of the Irish bows were not longbows, however, begs the question: what is a longbow? Perhaps the best answer, which may appear facetious but actually makes an important point, is Hardy's: "A longbow is only a bow that is long rather than short". Much of the confusion already noted in earlier literature is due to the assumption that the longbow is a distinct type of bow, qualitatively different from other wooden self-bows. This is an unfounded assumption, however. Few writers have attempted to define what exactly constitutes a longbow, but Hardy and Bradbury isolate a number of essential features: A longbow is a wooden self-bow traditionally - although not exclusively - made of yew wood characterised by its rounded surfaces and "stacked" (i.e. deep) D-shaped cross-section, tapering towards the ends, and, of course, its length. Interestingly, Bradbury does not actually mention length at all, while Hardy refers only to a minimum length of to 5 feet (152cm) or 5.5 feet (168cm), depending on the length of arrow used[103].

What is interesting about this definition is that, if the question of length is left aside, it fits the Irish bows almost perfectly. Even bow no. 10, only 68cm in length, fits all the other requirements, with stacked D-shaped cross-section and even, in all probability, the traditional longbow conversion retaining sapwood on the back of the bow (see Fig. 39). It is not going too far to say that most of the Irish bows are essentially identical to the later medieval longbow in all respects other than length. But any attempt to distinguish the longbow from other wooden self bows purely on grounds of length must always be entirely arbitrary and ultimately unsustainable. As Bradbury puts it

> Where then does one draw the dividing line? What is the magic measurement, above which an ordinary wooden bow becomes a

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103. Hardy, *Longbow*, p. 9; Bradbury, *The medieval archer*, pp. 71-74.

longbow, and below which it is the 'short bow' which can never improve?"[104].

Rather than treating longbows and "ordinary" wooden self bows as two separate species, it is more helpful to see the medieval wooden self bow as a single type, within which length (like other characteristics) was a variable factor, depending on circumstances.

If the Irish bows were not longbows, however, it was not because longbows were unknown - the Ballinderry bow is clear evidence that longbows were known, at least in Hiberno-Norse Ireland - but rather because their makers chose not to make them particularly long. The reasons for this choice can only be guessed at. Since the force of a bow largely depends on its length, most of the Irish bows must have been somewhat less powerful than a longbow from the *Mary Rose*, and this may tell us something about the conditions of warfare at the time, and specifically about the quality of armour and/or the prevalence of its use. It would seem that throughout both the Hiberno-Norse and Anglo-Norman periods in Ireland relatively short bows were widely used for military purposes, and were presumably considered effective.

It may well be, moreover, that the tradition of using relatively short bows persisted unbroken from pre-Norman times until the end of the Middle Ages. In 1397 de Perilhos described the bows used by O'Neill's warriors as "as short as half a bow of England"; on the basis that the typical late medieval English longbow was approximately 180cm (6 feet) long, this might suggest a length of some 90cm for the Irish bows. Spenser in 1596 described Irish bows as "not past three quarters of a yard long", which suggests a length of just under 70cm (27 inches). Spenser's observations are inconsistent, however, since he also describes the arrows used with these bows as "not above half an ell long", a length of some 57cm (22.5 inches)[105]. Even allowing that this figure includes the arrowhead and that the actual draw length of these arrows was somewhat less - perhaps 45-50cm - a significantly longer bow length of *c.*110-120cm is indicated. It might, therefore, be suggested that the late medieval 'Irish' bows, whose use by the Anglo-Irish was the cause of such concern in official documents, were roughly 90-120cm in length and it is quite conceivable that they represent the descendants of bows of comparable lengths which were used in the Hiberno-Norse and Anglo-Norman periods.

104. Bradbury, *The medieval archer*, pp. 73-75.
105. Renwick, *A view of the present state of Ireland*, p. 57.

Leaving aside the interesting, but limited issue of bow lengths and longbows, some more general points can be made about the archery tradition prevalent in Hiberno-Norse and Anglo-Norman Ireland. On the basis of even the limited the surviving evidence, it seems clear that there was a well-established tradition of bowmaking, characterised by an extremely marked preference for yew as the standard material used and a definite pattern in the selection of pieces of yew and in the manner in which the wood was shaped to form the bow. The traditional conversion of later longbows, retaining sapwood along the back of the bow, was present in a number of cases and may well have been widely used, reflecting a clear understanding of the physics of the bow and of the unusually suitable properties of yew, which must have been born of long experience. All of this indicates the existence of a long-standing tradition of military archery, even in Hiberno-Norse Ireland, where it must surely have an ultimately Scandinavian background, although there is no reason to suppose that the Hiberno-Norse bows were not made in Ireland.

Bow no. 6 (see Fig. 34), which is of elm (*Ulmus*) is particularly interesting in view of Giraldus Cambrensis' specific statement that the Welsh archers, immortalised in his writing, made their bows of elm rather than of yew. Although bows of elm are known from early prehistoric Denmark and northern Germany, and from the 7th century Alemannic cemetery of Oberflacht, no. 6 is (to the writer's knowledge) the first bow of elm recovered in Ireland or Britain, and the first from a later medieval context anywhere in north-western Europe[106]. It is not a Welsh bow, nor can it be taken as direct confirmation of Giraldus' account, since it is from a context of late11th/early 12th century date and its period of actual use may have been even earlier. It does, however, tend to reinforce the view expressed below, that both Hiberno-Norse and Anglo-Norman bowmaking traditions share many common features and, quite possibly, a common background.

It is particularly interesting to note how similar are the Hiberno-Norse and Anglo-Norman bows. Apart from a possible tendency towards more elaborately carved terminals and a greater use of double, rather than single nocks in Hiberno-Norse bows, and a slightly greater reliance on yew in Anglo-Norman bows, remarkably little difference is apparent between the two groups. This might suggest that the Hiberno-Norse bowmaking tradition continued on relatively unchanged into the Anglo-Norman

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106. Hardy, *Longbow*, p. 17; Glover, 'A prehistoric bow fragment from Drumwhinny Bog', p. 325; Clark, 'Neolithic bows from Somerset, England', pp. 89-92; Riesch, 'Alemannic bows', p. 18 n.2.

period, but it is perhaps more likely that the Anglo-Normans brought their own bowmaking tradition which was, however, very similar to the Hiberno-Norse tradition because of a common north European (or perhaps specifically Scandinavian) background.

CHAPTER 5

ARCHERY: THE ARCHAEOLOGICAL EVIDENCE

Following the detailed morphological and typological study of surviving bows, arrows and arrowheads in Chapters 3 and 4, the present chapter will focus on some of the important features of the assemblage as a whole and attempt to draw these together into an overall assessment of the archaeological information on archery and its role in medieval Ireland.

Chronology

One of the aims of the study was to investigate any changes or developments in the arrowhead assemblage, by comparing the arrowheads in successive chronological periods. Such changes could be significant indicators of developments in contemporary warfare, but establishing chronological groups for comparative purposes is difficult, for two main reasons. Firstly, with the exception of the Anglo-Norman conquest, there are few obviously major turning points in the period covered by the study, making the definition of periods an inevitably arbitrary exercise. A more serious difficulty is that whatever chronological periods are chosen, the contextual dates for excavated projectile heads will not necessarily align neatly with them. Even the most precise contextual dates can span the junction between two periods, but the reality of archaeological excavation is that contextual dates are often relatively imprecise and can span two, or even three periods. In addition, since full stratigraphic analyses have yet to be prepared for some of excavations, notably the earlier Dublin excavations at High Street, Winetavern Street and Christchurch Place, the contextual dates can only be regarded as preliminary suggestions.

Following considerable experimentation, however, four internal chronological markers have been identified, allowing the study period as a whole (800-1600 AD) to be subdivided into five periods, as follows:

Period 1:	800-950 AD
Period 2:	950-1066 AD
Period 3:	1066-1170 AD
Period 4:	1170-1300 AD
Period 5:	1300-1600 AD

The first marker, 950 AD, was indicated by the archaeological evidence itself, notably by the first appearance of armour-piercing projectile heads (Types 6 and 7) in the second half of the 10th century. The next marker, 1066 AD, was chosen to permit identification of any new influences reaching Ireland in the wake of the Norman conquest of England[1]. The third marker, 1170, is taken as a round figure for the Anglo-Norman invasion of Ireland, while the fourth marker, 1300, was chosen to reflect the period of dominance of the longbow from the 14th century onwards. On the basis that arrowheads are more likely than most artefact types to be intrusive in their contexts, arrowheads whose contextual dates span more than one period have been assigned to the later (or latest) period. However, for the reasons cited above, too much weight should not be placed on the assigning of specific projectile heads to particular periods. Almost certainly this periodisation is not correct in every case, but it is hoped that the process will give reasonably accurate indications of developments in the Irish arrowhead assemblage.

A total of 667 projectile heads can be assigned contextual dates. Their distribution within the chronological periods outlined above is extremely uneven, with only 1.5% in Period 1 and as much as 47% in Period 3 (see Chart 24). It must be stressed that these proportions should not be seen as reflecting in any way the relative popularity of archery in the various chronological periods, but rather as an essentially accidental function of the survival of archaeological deposits and the pattern of recent archaeological excavation.
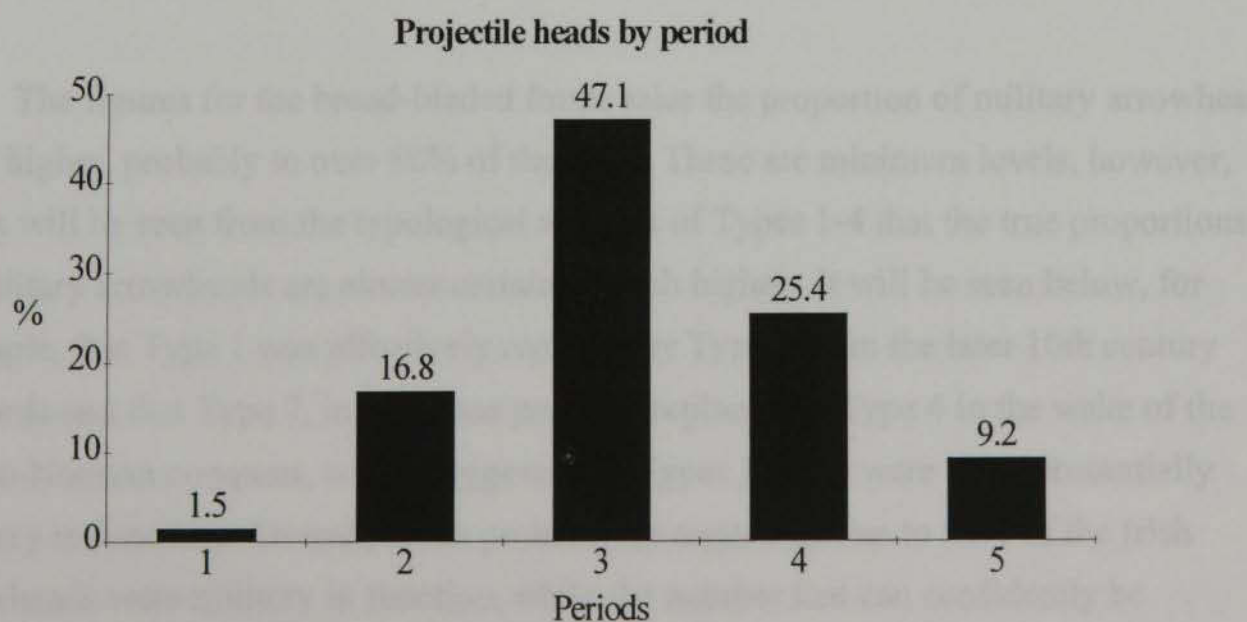
Projectile heads by period

Chart 24: Distribution of datable projectile heads, by period.

1. As will be seen below, no such influences were detected, and Periods 2 and 3 could in many respects be regarded as a single period.

Function

A particularly important issue is the functions of the arrowhead types, specifically the question of whether they were used for warfare or hunting. In this regard the conclusions of the discussion of each type in Chapter 3 can be summarised as follows: Three types - 6, 7 and 8 - are interpreted as armour-piercing types which are purely military in function (see Fig. 5). Type 5, which is interpreted as an incendiary arrowhead, and the later medieval subtype 4B are also classified as military types. Type 9, even if interpreted as an arrowhead for archery practice rather than an armour-piercing form, is also best classified as a military type. These types which can be considered purely military in function together account for some 61% of the entire Irish assemblage.

The broad-bladed forms (Types 1-4) are more difficult to classify, as they could theoretically have been used either for warfare or hunting. In the case of Type 1, it is suggested that at least 29% of examples (representing *c.*3% of the total assemblage) can definitely be considered as military, that 52% are best considered as multipurpose, and that the remaining 19% may have been intended for hunting. Over 70% of Type 2 arrowheads and 50% of Type 3 arrowheads (together representing over 4% of the total assemblage) can probably be interpreted as military, while none can confidently be interpreted as hunting arrowheads. In the case of Type 4 it is difficult to assign precise figures, but the type as a whole (*c.*17% of the total) is interpreted as primarily, if not entirely, military. Even the barbed subtypes 3A and 4A are possibly to be interpreted as substantially multipurpose, rather than entirely as hunting types.

The figures for the broad-bladed forms raise the proportion of military arrowheads even higher, probably to over 80% of the total. These are minimum levels, however, and it will be seen from the typological analysis of Types 1-4 that the true proportions of military arrowheads are almost certainly much higher. It will be seen below, for example, that Type 1 was effectively replaced by Type 7 from the later 10th century onwards and that Type 7, in turn, was partially replaced by Type 4 in the wake of the Anglo-Norman conquest, which suggests that Types 1 and 4 were also substantially military in function. Overall, it can probably be argued that up to 90% of the Irish arrowheads were military in function, while the number that can confidently be classified as hunting arrowheads is less than 5%. These statistics strikingly demonstrate the essentially military nature of archery in medieval Ireland.

Relative popularity of arrowhead types over time

Any consideration of the relative popularity of arrowhead types, or of changes during successive periods, must take account of the overall proportions of arrowhead types, regardless of period (see Chart 25). This reveals Type 7 to be by far the most common type, with almost half of the total (*c.*48%), followed by Type 4 (*c.*17%), Types 1 and 6 (both *c.*10%) and Type 2 (*c.*6%). Type5 and subtype 4A (both *c.*2%) and subtype 4B (*c.*1.5%) are relatively rare forms, while the remaining types and subtypes are all extremely rare, at less than 1% each. These overall figures provide the benchmark against which to measure the significance of the representation of any type in a specific period.

Projectile head types
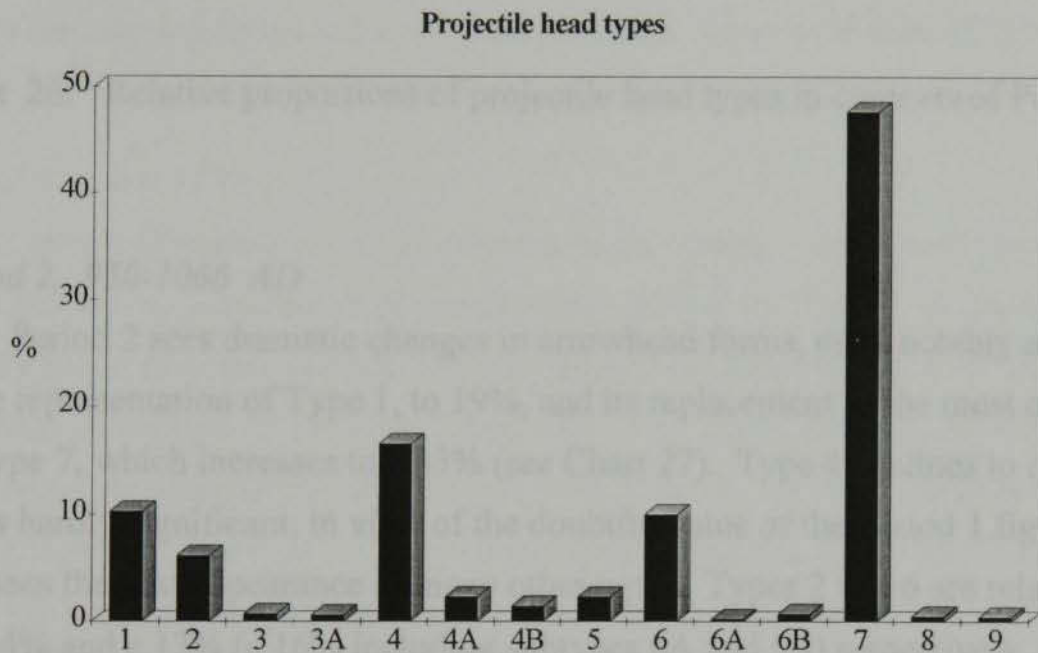
Chart 25: Relative proportions of projectile head types of all periods.

Period 1, c.*800-950 AD.*

The Period 1 arrowhead assemblage is very small (only 10 arrowheads in total) and any statements made about it may not, therefore, prove to be entirely reliable. Nevertheless the very strong representation of Type 1 is notable (see Chart 26); indeed, it is quite dominant, at 80% of the total with only single examples of Types 4 and 7 (i.e. 10% each). This clearly represents strong Scandinavian influence, as Type 1 is the typical Scandinavian arrowhead type of the Viking period, and reflects the role of the Vikings in the introduction and early use of archery in Ireland.
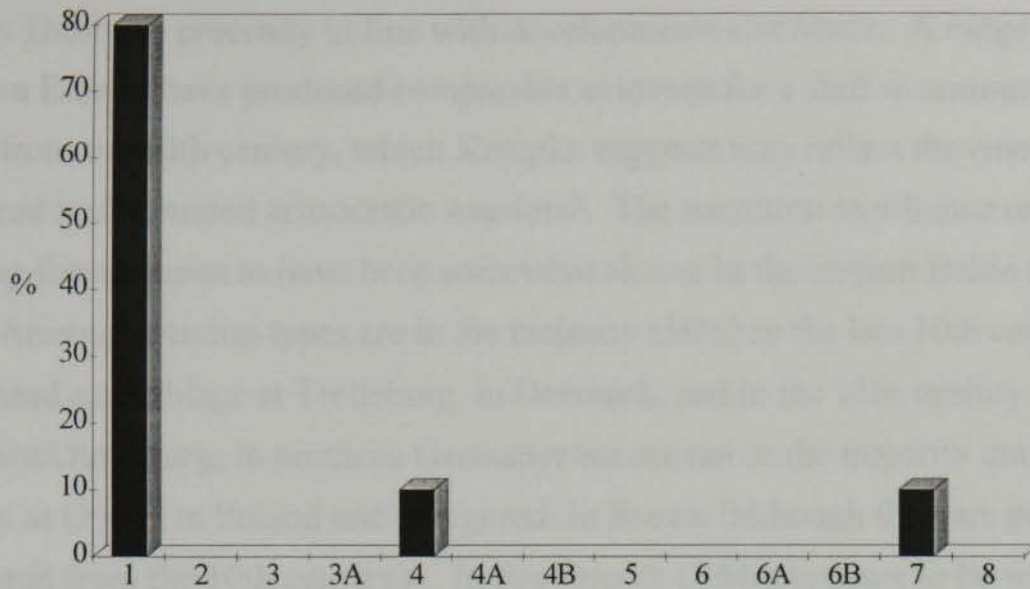
Projectile head types: Period 1

Chart 26: Relative proportions of projectile head types in contexts of Period 1.

Period 2, 950-1066 AD

Period 2 sees dramatic changes in arrowhead forms, most notably a huge decline in the representation of Type 1, to 19%, and its replacement as the most common form by Type 7, which increases to *c.*43% (see Chart 27). Type 4 declines to *c.*5%, although this is hardly significant, in view of the doubtful value of the Period 1 figure. Period 2 also sees the first appearance of many other types: Types 2 and 6 are relatively common at *c.*14% and *c.*13% (*c.*16% including subtypes 6A and 6B) respectively, while Types 3 and 5 and subtypes 3A and 4A are at much lower levels (*c.*1% each).

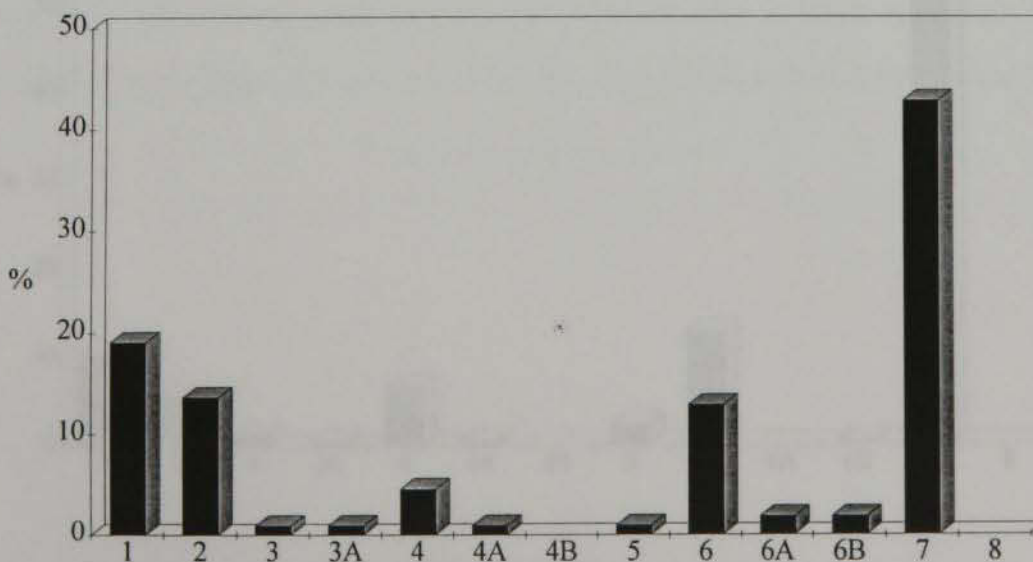**Projectile head types: Period 2**

Chart 27: Relative proportions of projectile head types in contexts of Period 2.

The appearance of armour piercing arrowheads (Types 6 and 7) in later 10th century Dublin is precisely in line with developments elsewhere. A range of sites across northern Europe have produced comparable evidence for a shift to armour-piercing forms from the 10th century, which Kempke suggests may reflect the emergence of armoured and mounted aristocratic warriors[2]. The transition to reliance on armour-piercing forms seems to have been somewhat slower in the eastern Baltic than further west. Armour-piercing types are in the majority (56%) in the late 10th century arrowhead assemblage at Trelleborg, in Denmark, and in the 11th century at Starigard/Oldenburg, in northern Germany, but are not in the majority until the 12th century at Opole, in Poland and Novgorod, in Russia (although they are present in Novgorod from the 10th century)[3]. In this respect Dublin appears to be well to the fore, as armour-piercing forms are in a majority (52%), even in the later 10th century.

Period 3, 1066-1170 AD

Few significant changes are obvious in the Period 3 arrowhead assemblage, which rather features a continuation of trends seen in Period 2. Type 7, which had increased steadily in the previous periods, becomes absolutely dominant, at over 58%, and Type 1 continues its decline, to 11% (see Chart 28). Type 2 also declines, to below 6%, but the other types are all relatively unchanged, with Types 3, 3A, 4A, 5 and 6B at low levels, *c.*2% or lower. Type 6, at 13%, is the most common form after Type 7, so that between them, the armour piercing forms account for over 70% of the Period 3 assemblage.
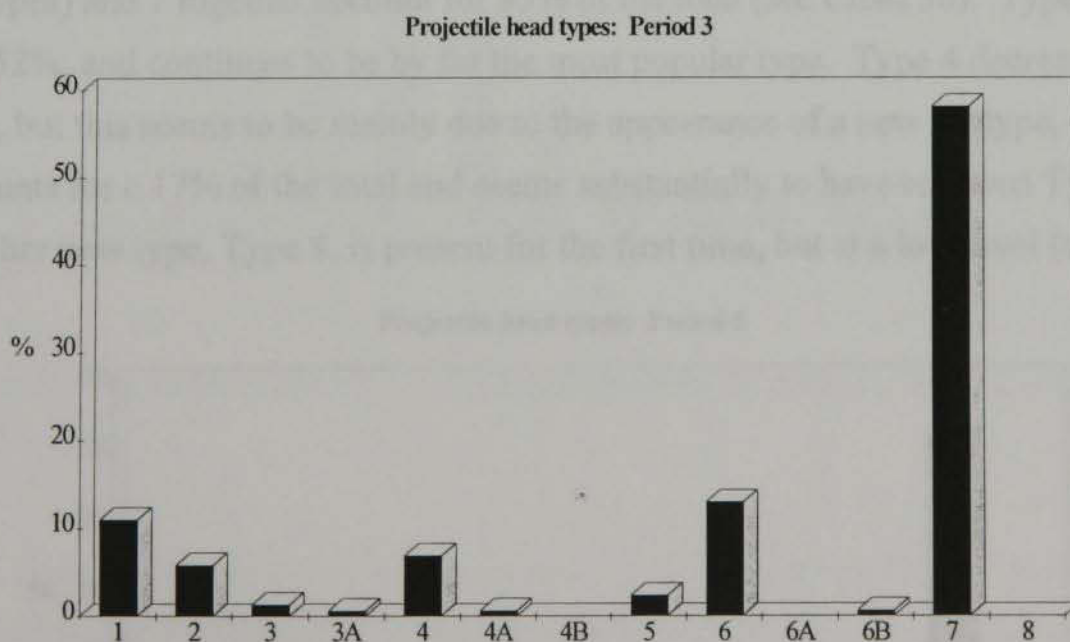
Projectile head types: Period 3

Chart 28: Relative proportions of projectile head types in contexts of Period 3.

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2. Kempke, 'Starigard/Oldenberg', pp. 301-02.
3. *Ibid.*, p. 302: Tab. 1.

Period 4, 1170-1300 AD

The impact of the Anglo-Norman invasion is most clearly seen in a dramatic increase in the representation of Type 4, to *c.*37%, and the virtual disappearance of Types 1, 3 and 6, which together account for only 13% of the total (compared with an average of over 30% over Periods 1-3), most of which are actually most likely to be pre-Norman in date (see Chart 29). Type 2 declines further, to just over 2% and Types 4A and 5 are also at low levels (*c.*2%). Type 7 continues to be the most popular form but even this has declined considerably from Period 3 levels, to below 43%.
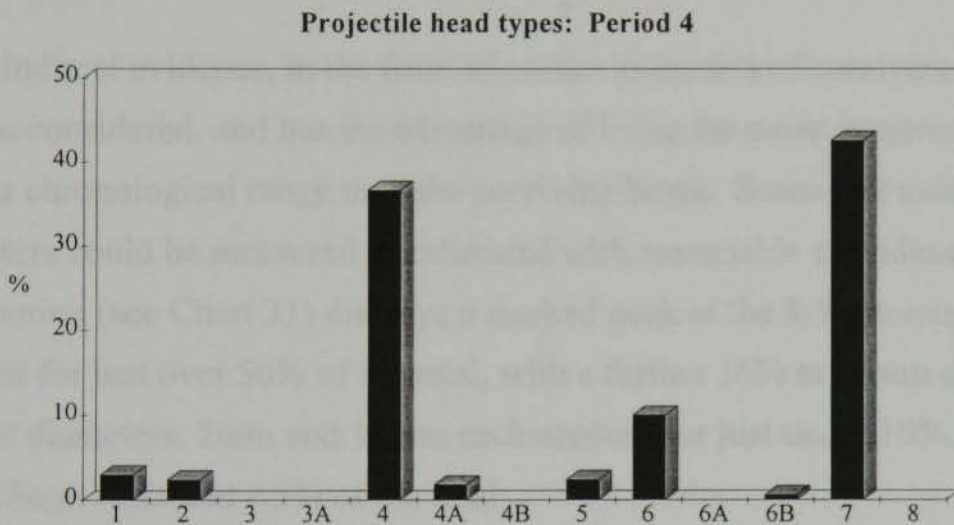
Projectile head types: Period 4

Chart 29: Relative proportions of projectile head types in contexts of Period 4.

Period 5, 1300-1600 AD.

By Period 5 Types 1, 2, 3, 5 and 6 have effectively disappeared; Types 4 (with subtypes) and 7 together account for 95% of the total (see Chart 30). Type 7 increases to *c.*52%, and continues to be by far the most popular type. Type 4 decreases sharply, to 18%, but this seems to be mainly due to the appearance of a new subtype, 4B, which accounts for *c.*17% of the total and seems substantially to have replaced Type 4 proper. Another new type, Type 8, is present for the first time, but at a low level (under 2%).
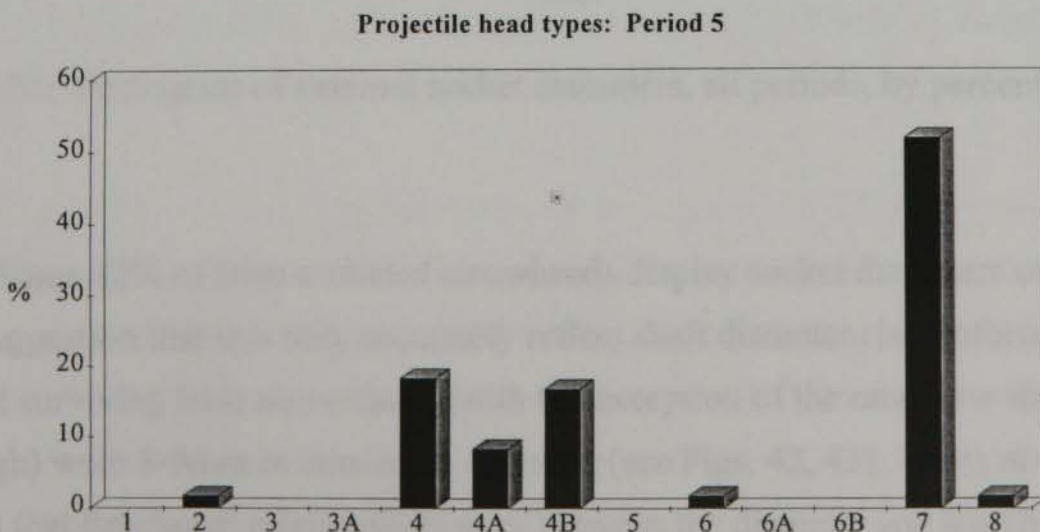
Projectile head types: Period 5

Chart 30: Relative proportions of projectile head types in contexts of Period 5.

Bows and bow lengths

The direct evidence for the forms and morphology of medieval Irish bows has been discussed in Chapter 4, where it was noted that with the exception of the crossbow and other projectile machines, all bows appear to have been of the same basic type, but could vary considerably in length. The true longbow is represented at Ballinderry in the 10th century, and was undoubtedly used in the later Middle Ages, although no surviving examples are known. The bulk of the surviving evidence, however, is indicative of relatively short bows, between 100cm and 150cm in length (see Fig. 36).

Indirect evidence, in the form of socket diameters of surviving arrowheads, may also be considered, and has the advantage of being far more numerous and covering a greater chronological range than the surviving bows. Some 550 external socket diameters could be measured or estimated with reasonable confidence. The overall distribution (see Chart 31) displays a marked peak at the 8-9mm range, which together account for just over 50% of the total, with a further 16% at 10mm diameter. The next nearest diameters, 7mm and 11mm each account for just under 10%. Socket diameters over 13mm represent c.5% of the total.
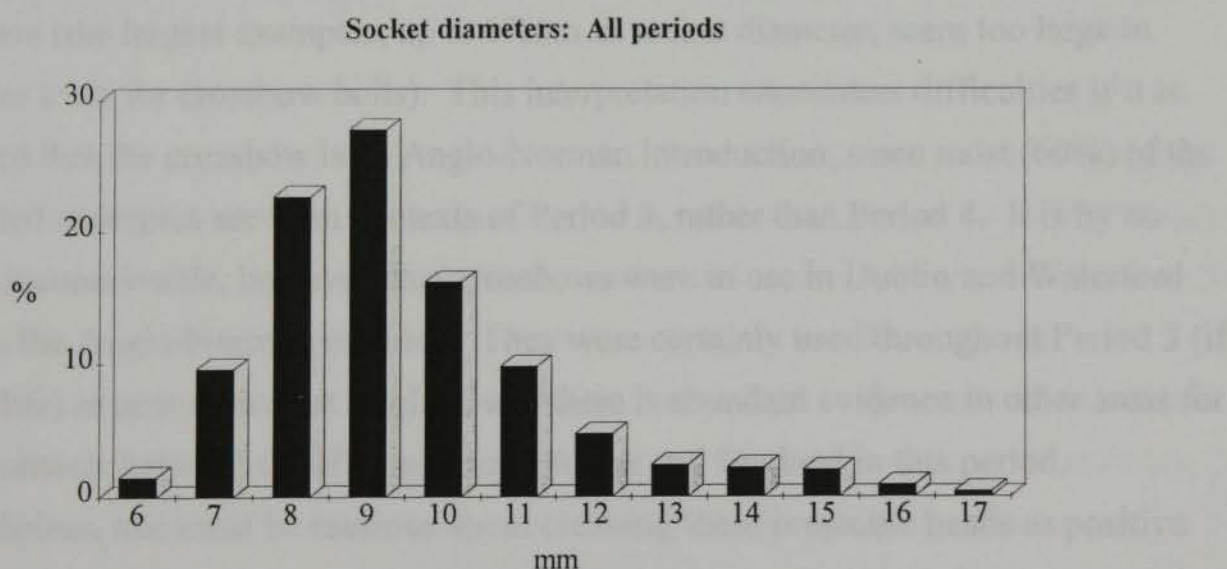
Socket diameters: All periods

Chart 31: Histogram of external socket diameters, all periods, by percentage (in mm).

Some 62% of Irish socketed arrowheads display socket diameters of 9mm or less. The suggestion that this may accurately reflect shaft diameters is reinforced by the fact that all surviving Irish arrowshafts (with the exception of the crossbow shaft from Armagh) were 8-9mm in maximum diameter (see Figs. 42, 43). It has already been shown that functional relationships exist between the diameter and length of an arrowshaft and between the lengths of arrow and bow. Arrows must be thick enough to

remain relatively rigid under the force released by the bow and this force, in turn, is largely a function of the length of the bow. As a result it can be said (at the risk of over-simplification) that the longer the bow, the thicker the arrow must be in order to fly true[4].

The evidence of Irish arrowheads indicates that the majority of them were fitted to shafts of smaller diameter (9mm or less) than the average for late medieval longbow arrows (10-12mm). The most reasonable explanation for this is that the shafts were shorter than longbow arrows and were intended for use with somewhat shorter bows. The fact that both complete Irish arrowshafts were 8-9mm in maximum diameter and c.55cm in draw length suggests that the most common arrowhead socket diameter, 8-9mm, may reflect shafts of comparable length, approximately 55-60cm, and in turn, bows of c.125-135cm length.

Just over 5% of projectile heads are over 13mm in socket diameter and thus cannot be considered as arrowheads. It is notable that the large majority (c.80%) of these are of Type 7 form, while another 7% are of the closely related Types 8 and 9. These might best be interpreted as heads of missiles fired from crossbows or even larger machines (the largest examples, up to 17mm in socket diameter, seem too large in diameter even for crossbow bolts). This interpretation encounters difficulties if it is accepted that the crossbow is an Anglo-Norman introduction, since most (60%) of the contexted examples are from contexts of Period 3, rather than Period 4. It is by no means inconceivable, however, that crossbows were in use in Dublin and Waterford prior to the Anglo-Norman invasion. They were certainly used throughout Period 3 (if not earlier) in post-Conquest England and there is abundant evidence in other areas for close contacts between the Hiberno-Norse towns and England in this period. Nevertheless, one must be cautious about claiming these projectile heads as positive evidence for the use of the crossbow in pre-Norman Ireland without further supporting evidence.

Comparison of the distribution of socket diameters in different periods is also interesting. Little can be said regarding Period 1, for which only two socketed arrowheads are known although it is interesting to note that one of these (no. 217) is 13mm in diameter. If this indicates a shaft of comparable diameter, it may in turn suggest that the shaft and the bow for which it was intended were relatively long. In

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4. Rausing, *The bow*, p. 163; Pope, 'A study of bows and arrows', p. 360.

this regard it should be remembered that the Ballinderry bow (originally *c*.190cm long), although found in a Period 2 context (late 10th century) may well have been actually used partly or entirely within Period 1. Advancing to Period 2, a histogram of socket diameters (Chart 32) shows a clear concentration in the 8-10mm range, with reasonable representation in the 11-12mm range. In view of the presence of the Ballinderry bow, these larger socket diameters could be interpreted as evidence for the use of relatively long bows, but the bulk of the evidence points to shorter bows.

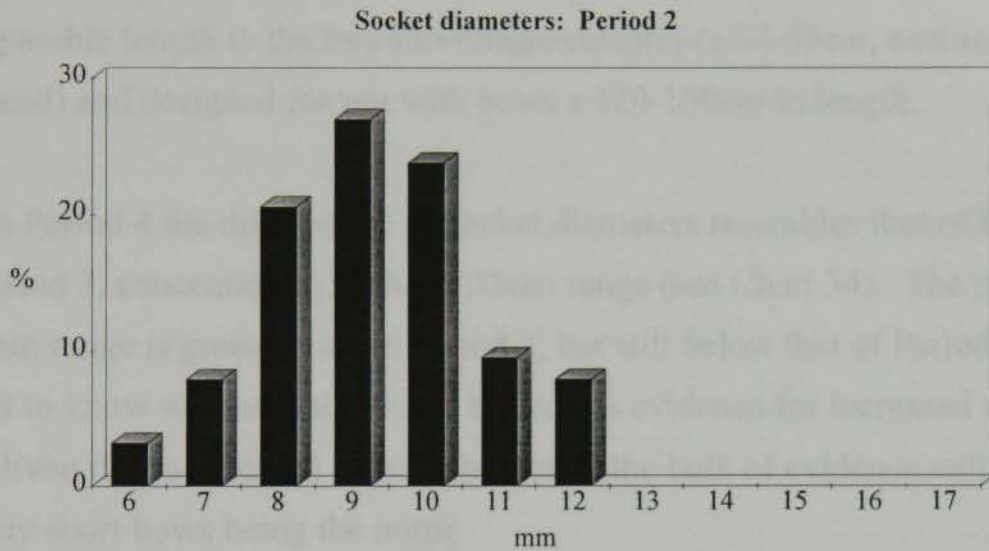**Socket diameters: Period 2**

Chart 32: Histogram of external socket diameters, Period 2, by percentage (in mm).

A histogram of Period 3 socket diameters (Chart 33) appears to display a slight but distinct change from Period 2. The main concentration is now in the 7-9mm range and the proportion of diameters in the 10-12mm range has declined almost to one-third of Period 2 levels, which may indicate a decline in the use of relatively long bows. Conversely, diameters above 12mm are present for the first time, which, as discussed above, may be evidence for the presence of crossbows and other projectile machines.
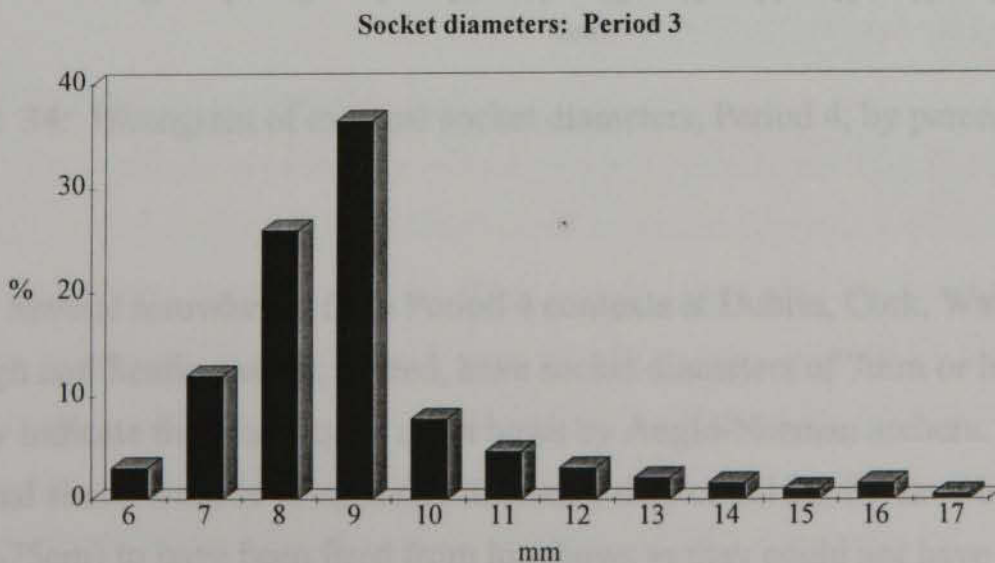
Socket diameters: Period 3

Chart 33: Histogram of external socket diameters, Period 3, by percentage (in mm).

Period 3 is also particularly well served in terms of surviving bow and arrowshaft remains, and these tend to support the indications that relatively short bows were the norm. Thus the two bows whose length can be estimated, nos 13 and 15, were 120-150cm in length, while the two complete arrowshafts, nos. 3 and 4, should each have been used with bows c.125-135cm in length. It is surely no coincidence that the diameters of both arrowshafts are in precisely the same range (7-9mm) as the majority (75%) of Period 3 arrowhead sockets. It is difficult to avoid the conclusion that the majority of arrowshafts in Period 3 were 7-9mm in diameter, and as such were probably of comparable length to the two surviving examples (c.54-55cm, exclusive of the arrowhead) and designed for use with bows c.120-150cm in length.

In Period 4 the distribution of socket diameters resembles that of Period 2 more than Period 3, concentrating in the 8-10mm range (see Chart 34). The proportion in the 11-12mm range is greater than in Period 3, but still below that of Period 2, and it is difficult to know whether this should be seen as evidence for increased use of longer bows. Even if it is accepted as such, however, the bulk of evidence still clearly points to relatively short bows being the norm.
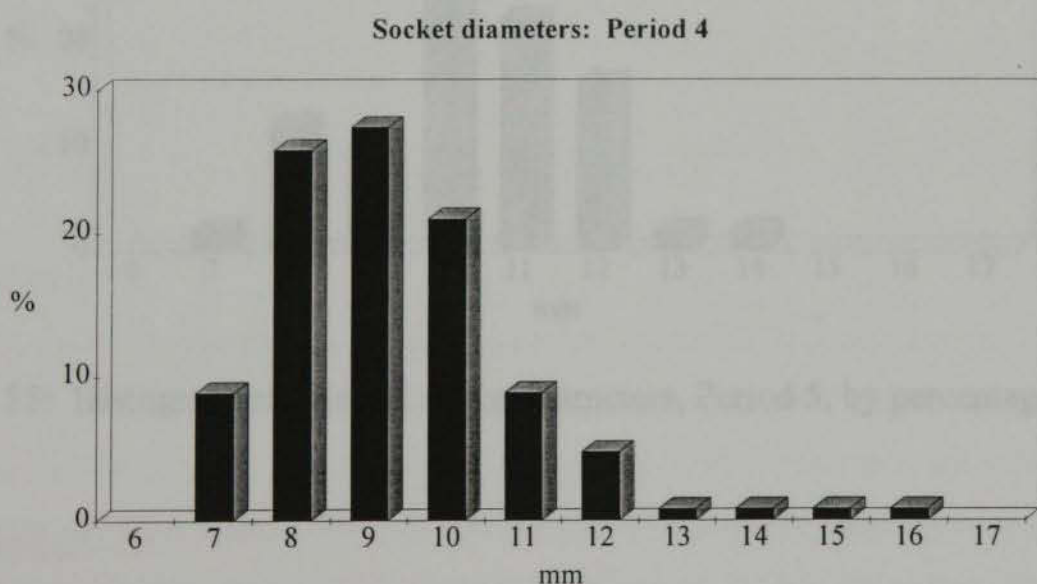
Socket diameters: Period 4

Chart 34: Histogram of external socket diameters, Period 4, by percentage (in mm).

Several arrowheads from Period 4 contexts at Dublin, Cork, Waterford and Clough and Seafin castles, indeed, have socket diameters of 7mm or less, and must surely indicate the use of quite short bows by Anglo-Norman archers. Assuming the original shafts were of comparable diameter, they could hardly have been long enough (c.70-75cm) to have been fired from longbows as they could not have withstood the forces exerted in firing. This is supported by the evidence of actual bows of the Anglo-

16), with the missing Adare bow in between, at c.100cm. Moreover, the probable 13th century arrowshaft from Cork (no. 2) is only 8mm in diameter, which again suggests that it was relatively short. Thus there is nothing in the Period 4 archaeological evidence to support the idea that early Anglo-Norman archers in Ireland used longbows.

The distribution of Period 5 socket diameters is significantly different from any of the preceding periods, as the main concentration has shifted decisively to the 10-12mm range (see Chart 35). This corresponds to the average diameters of surviving late medieval longbow arrowshafts in Britain, and taking account of the historical context there can be no doubt that it reflects a significant increase in the use of relatively long bows. Nearly 25% of diameters are still in the 7-9mm range, which may reflect the continuing use of relatively short bows, while some 4% in the 13-14mm range may reflect the use of crossbows.
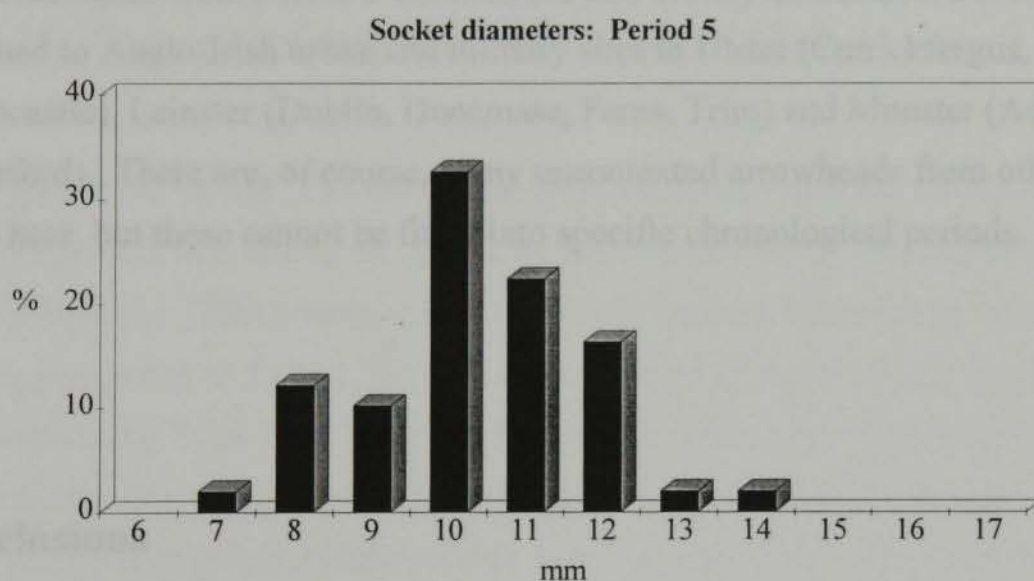
Socket diameters: Period 5

Chart 35: Histogram of external socket diameters, Period 5, by percentage (in mm).

Distribution of projectile heads

The distribution of Irish medieval projectile heads (see Fig. 3) displays a marked difference between the Viking/Hiberno-Norse period (Periods 1-3) and the Anglo-Norman and later medieval period (Periods 4-5). Projectile heads from contexts of Periods 1 and 2 (c.800-1066) are almost exclusively confined to Dublin (including Kilmainham/ Islandbridge), although Type 1 arrowheads from Cahercommaun (Co. Clare), Dunbell (Co. Kilkenny) and Lagore (Co. Meath) and the bow from Ballinderry (Co. Westmeath) are important indicators that archery was undoubtedly more widely distributed around Ireland during these periods. Arrowheads from Period 3 contexts

occur in very large numbers (over 300) but are known only from the Hiberno-Norse towns of Dublin, Waterford and Limerick (where a number of arrowheads are from contexts which, although technically of Period 4, i.e. post-1170, date are nevertheless Hiberno-Norse rather than Anglo-Norman).

In contrast to earlier periods, projectile heads from Period 4 contexts are known from a range of Anglo-Norman sites, both urban and military, distributed widely over the island in Ulster (Ballyroney, Castleskreen, Clough, Seafin), Leinster (Dublin, Dunamase, Dundrum, Ferrycarrig, Lurgankeel, Pollardstown, Trim) and Munster (Cashel, Cork, Limerick, Waterford). In addition, three arrowheads are known from the presumably native Irish crannog site of Loughpark, Co. Galway; it is unclear whether these represent evidence of Anglo-Norman activity at or near this site, or whether they can be seen as the earliest instance of arrowheads occurring in a native Irish context. Projectile heads from Period 5 contexts are also widely distributed, but are apparently confined to Anglo-Irish urban and military sites in Ulster (Carrickfergus, Downpatrick, Greencastle), Leinster (Dublin, Dunamase, Ferns, Trim) and Munster (Adare, Waterford). There are, of course, many uncontexted arrowheads from other sites not listed here, but these cannot be fitted into specific chronological periods.

Conclusions

Even without reference to documentary sources, the Scandinavian origins of archery in medieval Ireland are clear from the archaeological evidence, specifically in the dominance of Type 1 arrowheads in Period 1, and the fact that arrowheads are effectively confined to the Hiberno-Norse towns of Dublin, Waterford and Limerick until the Anglo-Norman period. A noticeable feature of the arrowhead assemblage as it develops through the study period, however, is the steady decline in the representation of the tanged Types 1, 3 and 6. These forms are taken to be of ultimate Scandinavian origin, and their occurrence in Ireland is interpreted as ultimately representing Scandinavian influences. Kempke comes to essentially the same conclusion regarding the occurrence of these types (his types 1, 2 and 3) in northern and central Europe generally; he notes that they occur along the North Sea and Baltic Sea coastal areas from Germany to Russia, but not inland, and suggests an ultimate Scandinavian origin[5].

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5. Kempke, 'Starigard/Oldenberg', pp. 293-300.

In Ireland, these types represent 80% of the total assemblage in Period 1, but this falls to 37% in Period 2 and to 26% in Period 3. In Period 4 the total falls to 13%, most of which cannot be dated more precisely than to the second half of the 12th century, and are more likely to be pre-1170 (i.e. Period 3) than Anglo-Norman.
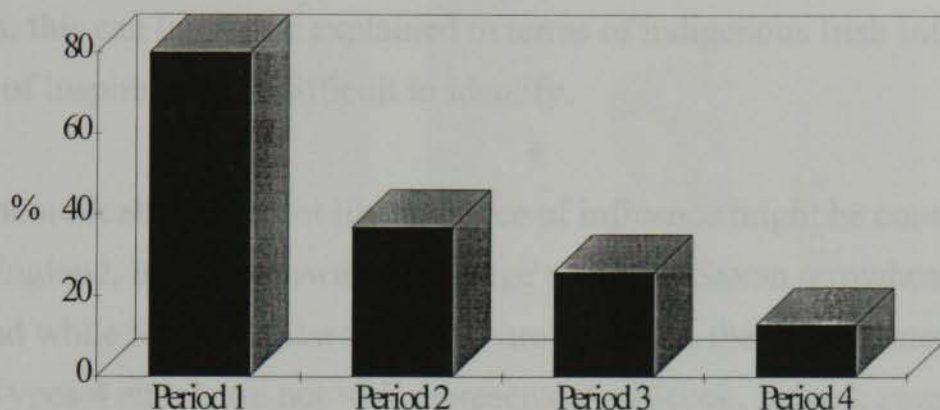
Tanged arrowheads, by period

Chart 36: Proportion of tanged projectile heads, by period.

Thus it can be said that the Scandinavian-derived types effectively disappeared after 1170, but it is also notable that Scandinavian influence was apparently declining steadily from the 10th century onwards. This is perhaps best seen by comparing the relative popularity of Type 1, the Viking arrowhead type *par excellence*, and the armour-piercing Type 7, which is rarely found in Viking-age contexts in Scandinavia. As the histogram (Chart 37) shows, the steady decline of Type 1 through the Hiberno-Norse period is mirrored almost exactly by a corresponding increase in the popularity of Type 7. Incidentally, this indication that Type 1 was effectively replaced by Type 7 supports the suggestion that Type 1 is very largely a military type.
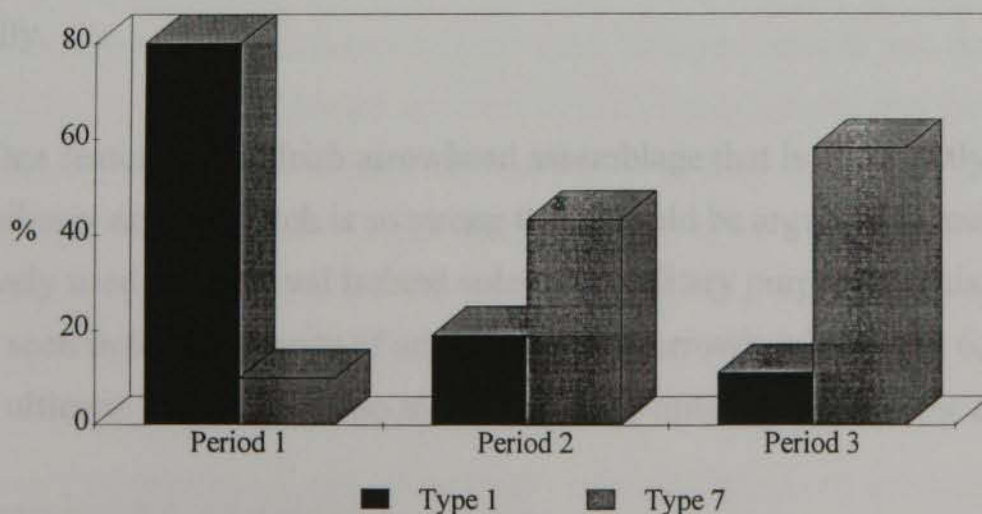
Arrowhead Types 1 & 7

Chart 37: Comparison between popularity (as percentage of totals) of projectile heads of Types 1 and 7, by period.

It is not altogether surprising that Scandinavian influence should decline from the 9th to 12th centuries. What is surprising, perhaps, is the relatively low level of Scandinavian influence even in the later 10th century. Even in Period 2, the Scandinavian-derived forms represent only 37% of the arrowhead assemblage; the majority of arrowheads are of forms which, it seems, were not commonly used in contemporary Scandinavia. In view of the lack of evidence for any native Irish archery tradition, this can hardly be explained in terms of indigenous Irish influences but other sources of inspiration are difficult to identify.

Theoretically, the most likely source of influence might be contemporary Anglo-Saxon England, but the known assemblage of Anglo-Saxon arrowheads is extremely small and while forms similar to Type 2 are common, the most numerous socketed forms, Types 4 and 7, are not well represented[6]. Alcock, indeed, suggests that arrowheads are not only rare in Anglo-Saxon England but are largely confined to south-eastern areas exposed to Frankish influences[7]. Arrowheads of Types 4 and 7 were widely used in post-Conquest England by the Normans, but their popularity in Ireland can hardly be attributed to Norman influence since it clearly predates the Conquest. It would be useful to compare the Irish pattern with that in pre-Conquest Normandy, but unfortunately no detailed study of the latter is available.

The Irish pattern is in many respects comparable to that reported for Starigard/Oldenburg, on the Baltic coast of Germany. Kempke, however, sees the non-Scandinavian elements of the Starigard/Oldenburg arrowhead assemblage as deriving from central Europe, which can hardly be seen as a direct source of influence on Ireland[8]. In the final analysis, the makeup of the Irish arrowhead assemblage in the Hiberno-Norse period can probably not be satisfactorily explained until further research has been carried out in contemporary Scandinavia, England and north-western Europe generally.

One feature of the Irish arrowhead assemblage that is abundantly clear, however, is its military aspect, which is so strong that it could be argued that archery was effectively used in medieval Ireland solely for military purposes. This is particularly clearly seen in the popularity of armour-piercing arrowheads (Types 6, 7 and 8), which are the ultimate (although by no means the only) military types in the arrowhead

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6. Manley, 'The archer and the army in the late Saxon period'.
7. Alcock, *Economy, society and warfare*, p. 298.
8. Kempke, 'Starigard/Oldenberg', pp. 300-01.

assemblage. Apart from in Period 1, armour-piercing types always account for more than 50% of the total assemblage, and peak at over 70% in Period 3 (see Chart 38).

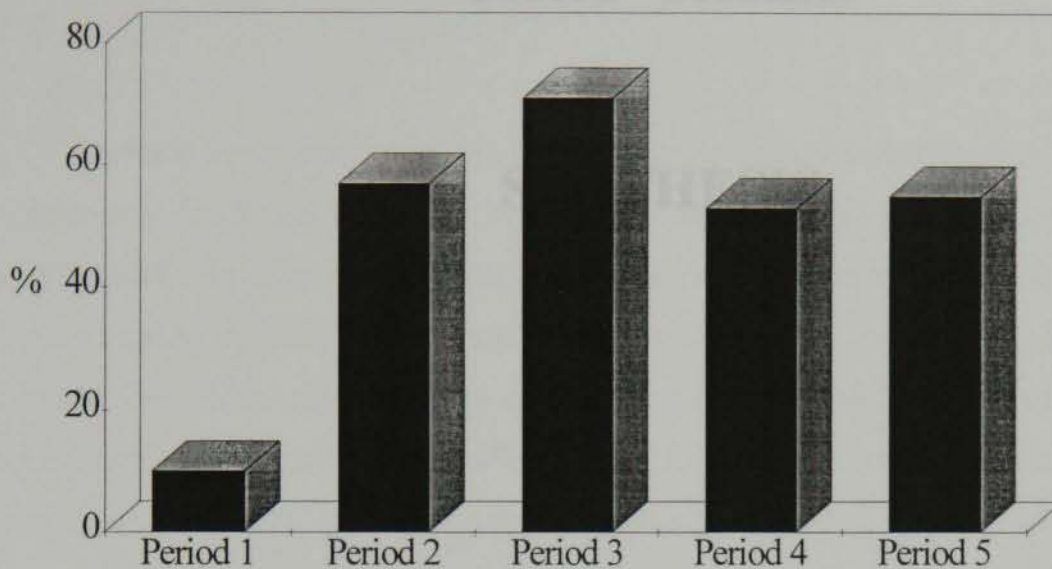**Armour-piercing arrowheads**

Chart 38: Popularity (as percentage of totals) of armour-piercing projectile heads (Types 6, 7 and 8), by period.

This statistic for Period 3, together with the implications for the wearing of armour which it carries and the possible evidence for the use of crossbows in Period 3, underlines the high level of military technology in late Hiberno-Norse Ireland. The evidence of the bows also indicates a well established tradition of bowmaking in Period 3 (and possibly even Period 2) in which many of the features of the late medieval English bowmaking tradition were already present.

There is little archaeological evidence for significant changes in the Irish archery assemblage in the wake of the Anglo-Norman invasion. There were changes in the arrowhead assemblage, notably in the disappearance of the tanged types and the dramatic increase in popularity of Type 4, but both arrowheads and the bows themselves indicate that Anglo-Norman bows were of much the same size and form as those of the preceding Hiberno-Norse period. It is only after 1300 (Period 5) that there is evidence, in the form of increased arrowhead socket diameters, for a widespread adoption of longer bows. Period 5 also sees the introduction of new arrowhead types (types 4B and 8) but the arrowhead assemblage is still dominated by the older Types 7 and 4. Perhaps the most striking change visible in Periods 4 and 5, compared to previous periods, is the much more widespread distribution of arrowheads throughout most parts of the country, although this may say more about the patterns of Irish archaeological research than about medieval archery.

PART THREE

SYNTHESIS

CHAPTER 6

ARCHERY AND WARFARE IN MEDIEVAL IRELAND

Archery in medieval Ireland is inextricably linked to warfare. It is difficult to point to any documentary or representational references to archery being used for hunting, and while arrowheads such as nos 296 and 839 are clear evidence that archery was, on occasion, used for the hunt, the rarity and nature of such objects indicates that this was a restricted pursuit of the relatively wealthy. The vast bulk of archaeological and historical evidence clearly indicates the military nature of archery, and any assessment of it must be made in the context of the military history of medieval Ireland.

The Viking and Hiberno-Norse periods.

The Viking background to the reintroduction of archery to Ireland is surely incontestable. The lack of either documentary or archaeological evidence for archery in pre-Viking Ireland is quite conclusive; indeed, there is no definite evidence for the use of archery among the Gaelic Irish before the 13th century. It is no coincidence that the first Irish documentary references to archery occur in annalistic entries of the 9th century and always, as far as one can tell, in relation to Vikings. Nor is it coincidental that the archaeological record of arrowheads of the 9th and early 10th centuries is dominated by Type 1, the classic Viking arrowhead type. A number of surviving bows of 10th to 12th century date, although mainly fragmentary, indicate the existence of a well-established tradition of bowmaking in the Hiberno-Norse towns, and one which in many respects anticipated the more famous late medieval English tradition. The sheer volume of archaeological evidence, mainly in the form of arrowheads, is clear testimony to the widespread use of archery in warfare by the Vikings and their Hiberno-Norse descendants, but its full military significance is more difficult to assess. Documentary sources suggest that archery was used mainly in preliminary missile exchanges, essentially to "soften up" the enemy at the beginning of a battle. There is no evidence that the potential of archery was exploited to anything like the same extent as in the later Middle Ages, nor is there evidence for specialist archers - the bow was simply one of a number of weapons used by Viking warriors.

This raises the broader issue of Viking military superiority, specifically in military technology, an area in which Viking superiority has always been assumed. It must be

borne in mind that this assumption largely rest on comparison of Viking weapons (mainly swords) of 9th or even 10th century date with Irish weapons which cannot definitely be dated later than the 7th century[1]. While there is no doubting the superiority of the former over the latter if they ever were actually used contemporaneously, the chronological difficulty must raise some doubts about the validity of the argument. Even accepting an initial Viking technological superiority, it is likely that there was quite rapid and early borrowing and adaptation of military technology by the Irish in the wake of the early Viking incursions. Ballinderry crannog, Co. Westmeath provides a graphic example of how far this process could have advanced by the 10th century; this presumably native site produced not only a magnificent bow which must be seen as ultimately of Viking background, but also the finest "Viking" sword known from Ireland and other typical "Viking" weapons.

Such borrowings, however, are not easily detected in the historical record because, on paper, few new weapon types were introduced by the Vikings, with the important exceptions of the bow and the axe. Where new weapon types - and hence new terminology - are involved, the documentary record can be most instructive. Thus we can contrast the bow, apparently not adopted by the Irish, with the axe, which was so widely adopted as a cheaper alternative to the sword that it appears in the pages of Giraldus Cambrensis in the late 12th century as a veritable national weapon of the Irish. It is remarkable that even at this late date Giraldus Cambrensis was aware that the axe had been borrowed by the Irish from the Norse[2]. Viking influence can also be traced in the historical record in relation to body armour which, in all probability, was effectively unknown in pre-Viking Ireland but is clearly attested by the 11th century in the historical record. In general, however, documentary sources tell us little about military technology because the spear and sword continue to be the main offensive weapons, and the shield the main instrument of personal defence, as in the pre-Viking period. In reality, there were many developments in the forms of spears, swords and shields, and probably also in their proliferation, but only extended archaeological research can assess this.

The commonly-held view of the clear military superiority of the Vikings is hardly borne out in the historical record of encounters with the Irish which, as Clarke has

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1. Rynne, 'The impact of the Vikings on Irish weapons'; Mallory, 'The sword of the Ulster cycle'; A. Walsh, 'Viking swords in Ireland', *Archaeology Ireland* 9, no. 3 (Autumn 1995), p. 37.
2. Scott and Martin, *Expugnatio Hibernica*, pp. 37, 39.

shown, indicate as many Viking defeats as victories[3]. It must be borne in mind that Irish sources, especially the 12th century propagandist pseudo-historical texts, may quite possibly have exaggerated the military superiority of the Vikings in order to display the successes of Irish leaders such as Brian Boroimhe in an even more flattering light. While initial Viking technological and, perhaps, tactical superiority can hardly be doubted, this could have been made up fairly readily by the more powerful Irish kings. Military technology has always been an area in which rapid responses to new influences can be expected.

On the other hand, the lack of decisive military superiority apparent in the subsequent history of Viking activity in Ireland may have been due to other factors. In the most recent discussion of this issue, Charles-Edwards argues that for the Vikings to have established military and political dominance in Ireland would have required "quite extraordinary resources", resources which clearly were never forthcoming[4]. The limited military success and restricted extent of Viking conquest in Ireland may largely reflect the fact that this was never a priority for any Scandinavian ruler who was in a position to provide the necessary resources.

While it is difficult to argue that Viking archery was a decisive factor in Irish military history, the study of the archaeological remains of Viking archery is nevertheless of considerable interest for military history because it is such a sensitive indicator of other developments, especially in relation to armour. The development of medieval military technology can in many respects be seen as an interplay between offence and defence - weaponry and armour - with each area struggling for advantage over the other. Once such an advantage was achieved, a response in the other area almost inevitably followed, which in turn created a need for a further reaction in the first area.

Perhaps the most striking feature of the Hiberno-Norse archery assemblage is the dominance of armour-piercing arrowhead types, first appearing - in Dublin, at least - in the later 10th century. This is precisely in line with developments elsewhere. A range of sites across northern Europe have produced directly comparable evidence for a shift to armour-piercing forms in the later 10th century[5]. Such a widespread transition must be in reaction to equally significant developments in the use of defensive armour,

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3. Clarke, 'The bloodied eagle', pp. 97, 105-08.
4. Charles-Edwards, 'Irish warfare before 1100', p. 50.
5. Kempke, "Starigard/Oldenburg", pp. 301-02.

developments which can be placed in a historic context. Kempke interprets the appearance of the armour-piercing arrowhead as a response to the emergence of armoured, mounted aristocratic warriors in the Baltic area during the 10th century. In a wider European context, this can be seen as a manifestation of the rise of the *miles*, the armoured, mounted warrior who was such an important part of the feudal package developing in the 10th century. In fact the trend toward the use of mounted warriors with chain mail armour probably began under Charlemagne (if not even earlier), but became widespread throughout most of western Europe in the 10th century[6]. In England, Brooks has argued that it is precisely in the later 10th century that most Anglo-Saxon warriors begin to wear chain mail armour, apparently as a result of the encouragement of Aethelred II, who was "concerned to improve the quality of his army by seeing that his earldormen and thegns had armed retinues of men with effective body-armour"[7].

Any suggestion of feudal knights in pre-Norman Ireland would be rejected out of hand by most historians, who might have difficulty in accepting even the widespread use of armour. The archaeological evidence of armour-piercing arrowheads is most persuasive, however, and is supported by the consistent suggestion of contemporary Irish sources that the Vikings and Hiberno-Norse, at least, wore armour. The archaeological evidence is, in fact, remarkably strong. 67% of all Hiberno-Norse arrowheads are armour-piercing types - more than in most contemporary European sites. Statistics supplied by Kempke indicate, not surprisingly, that there was a certain progression in the shift to reliance on armour-piercing arrowheads, with some areas displaying this development earlier than others. Thus whereas armour-piercing forms are already in the majority in the arrowhead assemblage at the great Danish fort of Trelleborg in the late 10th century, they do not predominate at Starigard/Oldenburg until the 11th century, while further east, at Opole in Poland and Novgorod in Russia, armour-piercing forms are not in the majority until the 12th century[8]. Dublin, however, is apparently in the vanguard of these developments, as some 63% of all arrowheads which may be dated to the second half of the 10th century are of armour-piercing form.

This not only indicates that Hiberno-Norse towns were well in touch with the mainstream of European military development, but surely raises questions about the use

6. Contamine, *War in the Middle Ages*, pp. 30-31; Oakeshott, *Archaeology of weapons*, pp. 164-80; Beeler, *Warfare in feudal Europe*, 25-27; Brooks, "Arms, status and warfare", pp. 81-82.
7. Brooks, "Arms, status and warfare", pp. 87-93.
8. Kempke, "Starigard/Oldenburg", p. 302.

of armour by the native Irish. The Irish sources which testify to Hiberno-Norse use of armour are equally consistent in indicating that the Irish themselves did not use armour. If accepted, however, this raises a question: Against whom were these armour-piercing arrowheads intended to be used, if not the native Irish? It is possible that they were intended for use in the wider Irish Sea arena, against other Scandinavians, Anglo-Saxons or Anglo-Normans, but this alone can hardly explain the sheer volume of material. It might also be suggested that armour-piercing arrowheads were used by the Hiberno-Norse simply because they were the type currently fashionable in north-western Europe generally; or that they were favoured because they were the cheapest and easiest arrowhead type to manufacture. However, both of these suggestions fail to take account of the fact that armour-piercing arrowheads are actually less efficient against bare flesh than broad-bladed arrowheads. It is extremely difficult to believe that the Hiberno-Norse were, for reasons either of fashion or economy, going to war with arrowheads which were relatively inefficient in an Irish context, when more efficient broad-bladed arrowhead types (such as Types 1-5) were readily available. In the final analysis, the extent of usage of armour among the Gaelic Irish in the 11th and 12 centuries must remain an open question.

Despite their distinctly mixed military record in Ireland, the Vikings and their descendants had a profound effect on Irish military and political development. The historical survey of Irish warfare in this period (Chapter 1) reveals many changes and innovations, particularly in military organisation and appearing most obviously in the 12th century. The archaeological evidence of archery material, which in other parts of Europe would be interpreted as reflecting the emergence of the feudal knight, typifies the extent of such developments. While it is not suggested that this evidence should be interpreted in this manner, it is worth noting that Byrne, for entirely different reasons, speaks of a "new feudalism" and "feudalisation" of Irish society evident at this period, the effects of which were particularly noticeable in warfare[9]. Kings now had the resources to undertake prolonged campaigns, on water as well as on land, and to fortify their kingdoms with castles; furthermore Byrne sees implicit evidence for the existence of a "military caste" of noble warriors.

Regardless of whether this should be interpreted in terms of feudalism, it clearly amounts to a radical transformation of Irish warfare. It is difficult not to see the Viking impact and subsequent Hiberno-Norse activity in Ireland as prime agents in this,

9. Byrne, 'The trembling sod: Ireland in 1169', pp. 10-12.

although direct Viking influence alone is insufficient explanation for the innovations detectable in the 12th century. One must also look to the increasing openness of later 11th and 12th century Ireland to contemporary trends in Britain and continental Europe. It is a moot point whether some or all of these developments would have occurred even without the Viking presence in Ireland, simply because these trends were affecting most of Europe. In the event, however, the Vikings and their descendants were a crucial channel through which these influences were mediated to Ireland.

The extent of military developments in this period is best illustrated by the fact that the entire range of late medieval Gaelic warrior and weapon types can be shown to have been present before the Anglo-Norman invasion. The noble horseman is clearly emerging by the later 11th century, if not earlier, and kern are attested not later than the beginning of the 12th century. The major element which might appear to be absent are gallowglass, but gallowglass must surely be seen as a later medieval substitute for Hiberno-Norse and other Scandinavian mercenaries, which were widely used by pre-Norman Irish kings. Indeed, the gallowglass military tradition is entirely Scandinavian in origin and the well-attested late medieval picture of gallowglass, as mail-clad heavy infantry armed with swords or axes, is essentially identical to the picture of Hiberno-Norse warriors which emerges from Irish sources of the 11th and 12th centuries.

When the supply of such mercenaries within Ireland was destroyed by the Anglo-Norman conquest of the Hiberno-Norse towns, it was natural that Irish kings should seek similar warriors from the nearest available location, western Scotland. This area was, of course, itself heavily Norse-influenced and had always been closely linked to Dublin and the other Irish towns. Giraldus Cambrensis tells us that the defeated Dubliners fled to this area after Strongbow's capture of the city in 1170[10]. It is quite conceivable, indeed, that the gallowglass who began to operate in Ireland in the 13th century were, in part, descendants of Hiberno-Norse warriors who had fled from the Irish towns in the late 12th century.

The Anglo-Norman period

The scale of initial Anglo-Norman successes with relatively small numbers of troops must reflect a significant military advantage, although this should not be overstated. Even in the rising tide of early conquests the Anglo-Normans suffered defeats at the hands of the Irish and many of their victories (such as the defeat of

10. Scott and Martin, *Expugnatio Hibernica*, p. 69.

Ruaidri Ua Conchobair at Dublin in 1171) were close-run things which might easily have gone the other way. As with the Vikings, it is difficult to argue for any decisive Anglo-Norman advantage in military technology, as they actually introduced little that was new. Armour, swords, shields, spears and bows were clearly not new; the myth of the Welsh longbow must be discarded and even the crossbow may already have been known in Ireland, or at least in Dublin. It could be argued, indeed, that the only demonstrably new weapon type was the mace, which clearly was never a weapon of decisive military importance[11].

Of course, while it can be shown that state-of-the-art armour and weaponry were known in Ireland before 1170, the extent to which this technology was available and used by Irish warriors is quite another matter. While the Anglo-Normans may have had no qualitative advantage in terms of new military technology, they may well have had a quantitative advantage in the availability of armour and weaponry. Gillingham is convinced of the importance of greater availability of armour in the Anglo-Norman conquest of Ireland, but this is a difficult issue to assess[12]. The detailed analysis of archery in the present study has revealed that Anglo-Norman and late Hiberno-Norse archery were technologically almost indistinguishable. Thus the greater impact and success of Anglo-Norman archers in Ireland may be due to other factors, presumably in military organisation. This idea is supported by the fact that this period sees the first use of specific terms for "archers", and by the evidence of large numbers of archers. Much the same can be said about late Hiberno-Norse armour and weaponry generally, which was probably not significantly different or technologically inferior to that of the Anglo-Normans. The indications are, however, that Gaelic Irish warriors at this period did not use armour or archery to any great extent, and this may have given the Anglo-Normans a significant advantage.

Whatever about technology, it seems clear that the Anglo-Normans enjoyed a real superiority in Ireland in the area of military organisation - which, of course, can never be entirely divorced from technology - particularly in relation to the use of cavalry and of a large and organised archery wing. Giraldus Cambrensis seems to suggest that the main contribution of the archers in the original Anglo-Norman invasion forces was in protecting the heavy cavalry, who were the real conquerors of the Irish[13]. This dismissive attitude can probably be attributed to aristocratic prejudice against archers

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11. Halpin, 'Irish medieval bronze maceheads'.
12. Gillingham, 'Conquering the barbarians', pp. 75-76.
13. Scott and Martin *Expugnatio Hibernica*, pp. 247-49.

and the sheer numbers of archers involved suggests that they must have made a very significant contribution, while the practical military impact of cavalry has probably been over-emphasised. While it can probably never be proved, one is left with the impression that archery was indeed a major factor in the success of the Anglo-Norman conquest.

Despite this, the indications in the official documentary record are that in the 13th and early 14th centuries archery was subordinate in importance to the armoured horseman, both heavy and light, in the military economy of the Anglo-Irish colony. This, however, is a difficult issue to assess properly; the same caution regarding prejudice in the sources applies, and archaeological evidence gives no indication of a decline in archery. Apart from the archers in various expeditionary forces, the Anglo-Normans also introduced a new English population with a culture which almost certainly included a tradition of archery. Craftsmen were manufacturing bows and arrows in Dublin no later than the early 13th century and there is much other evidence for the use of the bow, particularly in the towns.

In archaeological terms, the impact of Anglo-Norman archers is most clearly seen in the occurrence of arrowheads on a wide range of urban and castle sites; indeed, there is scarcely an excavated Anglo-Norman castle site which has not produced arrowheads. Armour-piercing arrowheads (Type 7) continue to be the most common type, but at just over 40% of the total they are considerably less dominant that in the late Hiberno-Norse period. What this means, if anything, is unclear; in reality it probably does not reflect a decline in armour-piercing forms so much as a dramatic increase in the triangular-bladed Type 4, which is almost as common as Type 7. As Type 4 arrowheads also appear to be extremely popular in at least some Anglo-Norman assemblages in Britain, this may actually tell us little or nothing about conditions in Ireland.

Fewer in number, but no less significant than the arrowheads are the surviving bows and bow fragments, which provide concrete evidence that the received theory about the Welsh origins of the longbow is untenable. While it is not impossible that some Anglo-Norman archers may have used bows that we would call longbows, there was nothing new about such bows and, in any case, the evidence strongly suggests that most Anglo-Norman bows were relatively short. What is perhaps even more important is that these Anglo-Norman bows are clearly an early manifestation of the later medieval English longbow tradition, yet are also practically identical to the preceding Hiberno-Norse bowmaking tradition. This indicates that the English longbow tradition

must be ultimately derived, if not directly from Scandinavia, then at least from a common north European bowmaking tradition.

The later medieval period

In view of the initial Anglo-Norman military advantage, perhaps the most remarkable feature of the later medieval military history of Ireland is the extent to which what could be called the Gaelic military tradition won out over the English tradition. The role of heavy cavalry declined steadily in importance - although the Anglo-Irish colony seems to have retained an emphasis on traditional heavy cavalry somewhat later than did England - and even the modified, later medieval English tradition of men-at-arms and archers was effectively confined to the contracting redoubt of the Pale. Even within the Pale, the Gaelic pattern of (light) horsemen, gallowglass and kern was increasingly adopted and this became almost universal over the remainder of the country, both in Gaelic and Anglo-Irish lordships.

Of course this later medieval "Gaelic" military tradition was much enriched by other influences, including English, but as was noted above, it had stronger roots in pre-Norman Ireland than is often realised. This underlines the very real possibility that the quality of the pre-Norman Irish military system, transformed as it was by Viking influences, has been seriously under-estimated. Flanagan has recently and persuasively argued that Anglo-Norman warfare was not so dramatically superior to, or even different from native Irish warfare of the 12th century as has been supposed[14]. This view is supported by the evidence presented in this study, that Irish military organisation and tactics in the later medieval period were not radically different from those of the 12th century.

Conventional views of the inadequacy of Gaelic Irish military tactics and technology, while containing more than a germ of truth, are often simplistic and fail to give sufficient weight to the actual conditions of medieval Irish warfare. Thus a recent expression of this view highlights the inability of Gaelic armies to successfully besiege a major castle, the inability of their horsemen to mount a cavalry charge with couched lances, the lack of armour of their kerne and the lack of power of their bows relative to the English longbow[15]. Such a statement fails to recognise that Gaelic chieftains rarely had any interest in besieging major castles, and their horsemen rarely (if ever)

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14. Flanagan, 'Irish and Anglo-Norman warfare in twelfth-century Ireland', pp. 66-75.
15. S.G. Ellis, 'The Tudors and the origins of the modern Irish states: A standing army', in Bartlett and Jeffery, *A military history of Ireland*, p. 118.

encountered situations in which a charge with couched lances might be useful. Given the nature of the kern's role in warfare, armour was likely to be more of a hindrance than a help, but Gaelic nobles and their mercenaries wore armour that was little different from that of their Anglo-Irish counterparts. Finally, while Irish bows may have been less powerful than English longbows (although this is still only an assumption), they were in all probability quite effective against the forms of armour being worn in Ireland - so much so that the Anglo-Irish seem to have been quite happy to use Irish bows rather than English longbows (see Chapters 2 and 3).

Medieval Irish warfare certainly differed in several respects from contemporary trends in England or continental Europe (although these regions should not be viewed as monolithic blocs in this regard) but to characterise it simply as "outmoded" does not take account of the complex interrelationship of political, socio-economic, demographic and environmental factors which determined its outlines. Whatever its limitations in terms of military organisation and technology, the Gaelic military tradition had the distinct advantage of being well adapted, through centuries of experience, to these factors.

However, the differences between Irish and European warfare can be overstated. The small-scale, indecisive nature of warfare and the scarcity of pitched battles was by no means unique to Ireland, but was, to a greater or lesser extent, true of almost every region of medieval Europe[16]. Even the much-discussed Irish reluctance to face the English in open battle was not so far out of touch with European norms. Battles were a risky business and common sense dictated that one avoided them unless one was confident of success. As Prestwich points out, this had been an accepted canon of Western military theory since at least the time of Vegetius, in the 4th century.[17] Gillingham's studies of three such redoubtable warriors as William the Conqueror, Richard the Lionheart and William Marshal reveal that all displayed a similar reluctance to face the unpredictable hazards of pitched battle, which Gillingham stresses was quite typical of medieval warfare in general[18].

16. Contamine, *War in the Middle Ages*, pp. 219, 228-29.
17. Prestwich, *Armies and warfare in the Middle Ages*, p. 186.
18. J. Gillingham, 'William the Bastard at war', in C. Harper-Bill, C.J. Holdsworth and J.L. Nelson (eds), *Studies in medieval history presented to R. Allen Brown* (Woodbridge, Suffolk, 1989) p. 143-48; J. Gillingham, "Richard I and the science of war the Middle Ages", reprinted in M. Strickland (ed.), *Anglo-Norman warfare: Studies in late Anglo-Saxon and Anglo-Norman military organisation and warfare* (Woodbridge, Suffolk, 1992), pp.196-97; J. Gillingham, "War and chivalry in the *History of William the Marshal*", reprinted in Strickland, *Anglo-Norman warfare*, pp. 256, 262.

In assessing and seeking to explain the Gaelic military "revival" of the later Middle Ages one must begin with some questions about the validity of this concept. It is indisputable that large areas of Ireland which had been in English or Anglo-Irish control in the 13th century subsequently reverted to Gaelic control. It is far less clear, however, to what extent this was due to military, rather than political, social or economic factors, and even where military factors are present, whether this really reflects a sudden new advance in Gaelic military capacity. Frame, for one, is in no doubt that "the shrinkage of the lordship in the late middle ages was ... not the product of a native war of reconquest"[19].

The concept of a Gaelic military revival is based on the assumption that Anglo-Norman forces, in the initial phase of conquest, enjoyed a decisive military advantage, which had to be overcome before any Gaelic recovery was possible. As was noted above, some Anglo-Norman superiority must be accepted, but its extent is open to question. Any advantage in military technology was more a matter of quantity than quality, and would inevitably be made up by ambitious Gaelic kings; indeed, this may have happened far more quickly than is often recognised. Anglo-Norman superiority in military organisation, on the other hand, was not so easily compensated for by Gaelic kings, but was largely eroded by a combination of socio-economic factors - notably, perhaps, a decline in the population of the Anglo-Irish colony. In the absence of any conclusive evidence for revolutionary changes in Gaelic military capacity in the later Middle Ages, such non-military factors may have been more significant in the Gaelic revival than purely military ones.

The history of archery in later medieval Ireland may in many respects be seen as a metaphor for the changes taking place in the military balance of power and, indeed, for the fate of the Anglo-Irish colony as a whole. Particularly in the official English mind, archery came to be utterly identified with the English military tradition which was seen (with some justification) as being under threat in Ireland. The ultimate failure of English-style archery in Ireland is clearly a reflection of the wider phenomenon of the failure of the late medieval English military tradition to supplant the indigenous tradition. The earlier Anglo-Norman military tradition had to a large extent merged with the native Gaelic tradition, producing not later than the early 14th century a hybrid - but still largely Gaelic - tradition which was ideally suited to physical, social and political conditions in Ireland, and which came to be adopted by both Gaelic and Anglo-

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19. Frame, 'The defence of the English lordship', p.76.

Irish lords in most parts of the island. The later medieval English military tradition, however - perhaps precisely because it was more technologically advanced and specialised - was never capable of being integrated into the Irish context so successfully.

From the mid-14th century the importance of archery was increasingly emphasised in Ireland, in response to developments in England. This change should not be exaggerated - archers were clearly important in the earlier period and cavalry continued to be in the later - but its effect was such that by 1460 parliament could state that the security of the colony depended on the longbow. In the almost complete absence of pitched battles, the bow is likely to have earned this tribute in countless minor campaigns, skirmishes and patrols, but there is still little evidence of its having been used to decisive advantage against the Gaelic Irish. Perhaps, however, the surviving sources do serious injustice to the true contribution of the bow. There are at least two recorded instances in which (if the Anglo-Irish sources are to be believed) forces of archers overcame much larger forces of Gaelic troops. At Corbally, Co. Louth, in 1468 a force backboned by "500 chosen Archers" from Drogheda defeated a force of some 2400 led by O'Reilly, McCabe and McBrady[20]. During the Fitzgerald revolt in 1535, "Silken" Thomas and his retinue of 120 horsemen, 240 gallowglass and 500 kerne were apparently put to flight by a force of only 60 English mounted archers[21].

The latter incident is particularly ironic, because it could be said that the failure of English archery in Ireland is definitively signalled in the late 15th and early 16th centuries, when the earls of Kildare as chief governors tended to provide their own retinues, composed mainly of gallowglass and kerne rather than archers (although this may have been largely for political, rather than military reasons). The 1535 incident, if it is accurately reported, dramatically underlines both the enormous potential of longbow archery and the fact that this potential was never really exploited in late medieval Ireland. Incidents such as those of 1468 and 1535 were apparently isolated; in general, the colony was never able to assemble the large numbers of trained archers necessary to exploit the full potential of the longbow, revealed in these encounters. Even more fundamentally, the pattern of warfare in late medieval Ireland and specifically the lack of pitched battles meant that there were few arenas in which English military archery could be effectively employed.

20. Mac Iomhair, 'Two old Drogheda chronicles', p. 91.
21. *State papers...King Henry the Eighth, Part III*, p. 234.

Whatever the true impact of the bow in later medieval Ireland, the major contribution seems to have been made by English archers brought over to serve here rather than by the men of the colony. The attempt to develop throughout the colony a corps of peasant archers on the English model is a fascinating chapter in medieval social and legal history, but seems largely to have been a failure. Outside of the Anglicised core of the Pale and, perhaps, some of the larger towns elsewhere, the Gaelic military system prevailed in the later medieval period. 16th century English commentators explained this failure very simply: it was because most of the country had been largely abandoned by Anglo-Irish colonists, and those that remained had adopted Irish weaponry and modes of fighting. Thus it could be argued that the failure of the English archery tradition merely reflects the failure of the Anglo-Irish colony in general.

Archery had not died out, however. Ironically, the most enduring legacy of English archery in Ireland was a Gaelic archery tradition, which outlasted both the Anglo-Irish and the parent English traditions. Irish archery is first noted in 13th century sources and increased in the later medieval period, right down to the Ulster wars of the 1590's. There is no suggestion either among contemporary writers or modern historians that archery ever achieved the same prominence in the Gaelic military system as it did in England. The late medieval Gaelic military revival is generally attributed to other factors, such as the adoption of body armour, the impact of gallowglass mercenaries and the effects of the Bruce invasion[22]. Similarly, the growth of Irish military power in the later 16th century is attributed to the adoption of firearms, the use of new tactics and improved organisation[23]. However, although archers were never of the same crucial significance as in late medieval English forces, they undoubtedly played an important role in Gaelic warfare (the most notable examples being provided by Scottish archers in the 16th century), a role which may well have been underestimated by historians.

Indeed, it could be argued that archery was the only element of the late medieval Gaelic system which was not already present in the pre-Norman period, and thus if one is looking for new developments to explain the military "revival", archery must be included in the equation. Such an argument cannot be taken too far, however. Insofar as there was a Gaelic military revival, which saw Gaelic forces being able to compete on equal terms with Anglo-Irish forces, it must be explained in terms of the proliferation

22. Hayes McCoy, *Irish battles*, pp. 40-46; J.F. Lydon, *'The lordship of Ireland in the Middle Ages'*, (Dublin, 1972), 152-53, 159-63.
23. Falls, 'The growth of Irish military strength', p. 104; S. O Domhnaill, 'Warfare in sixteenth-century Ireland', *Irish Historical Studies* 5 (1946), 29-54.

and increased availability of armour and weaponry, and of specialist or professional warriors. Gaelic archery was clearly a part of this military revival, but there is nothing to suggest that it was a dominant part. These developments, in turn, have to be seen as products of the political and economic transformation of late medieval Gaelic lordships, while the political, economic and social changes affecting the Anglo-Irish colony must also be taken into account. Such issues, however, are beyond the scope of the present study.

No surviving examples of the bows used by Irish kerne and gallowglass auxiliaries are known, but documentary sources consistently indicate that they were relatively short. English documents refer to them as "Irish" bows, as distinct from "English" bows, meaning longbows. These short "Irish" bows were also used by the Anglo-Irish, much to the annoyance of the government who saw this as another example of Gaelicisation and degeneracy. It is likely, however, that these short bows are in fact the direct descendants of the bows used by earlier Anglo-Norman archers, and that the use of relatively short bows persisted unbroken from pre-Norman times until the end of the Middle Ages.

The idea that Anglo-Norman archers introduced the longbow to Ireland has been dismissed earlier; all the evidence indicates that most bows in the late 12th and 13th centuries were relatively short. Undoubtedly, however, longer bows became widely used in England and elsewhere from the 14th century onwards. If this cannot be put down to Welsh inventiveness and Edwardian foresight, how is it to be explained? The answer almost certainly lies in the fact that new forms of armour were being developed at precisely this period. From the later 13th century onwards, chain mail was gradually replaced by plate armour over much of Europe, probably due in great measure to the effectiveness of armour-piercing arrowheads such as the Type 7 form[24]. This in turn led to new responses in offensive weaponry, including the development of new arrowhead forms. The old Type 7 armour-piercing form was largely replaced by thicker, squatter forms such as Type 8, which could penetrate plate armour, if fired with sufficient force. This, surely, is the real explanation for the emergence of the late medieval longbow, which is simply a more powerful version of the type of bow used earlier. While such longer bows could be, and were produced at earlier periods, the requirement for greater force generated by the development of plate armour was the impetus for longer bows to become standard.

24. Oakeshott, *Archaeology of weapons*, pp. 282-93, 297-98.

Ireland, however, was clearly not typical of the general European pattern. The continued use of shorter bows is paralleled in the late medieval arrowhead assemblage, the most striking feature of which is the virtual absence of forms developed for use against plate armour, and the persistence of type 7, which continues to be the most popular type, even in the 15th century. This retention of older bow and arrowhead forms mirrors a pattern in late medieval Irish swords, which are similarly dominated by blade forms designed for use against chain mail rather than plate and which in broad European terms would normally be dated no later than the 14th century[25].

A definite pattern of conservatism in late medieval Irish weaponry is now becoming apparent, which can be explained in terms of the forms of armour in use, as weapons in every age have a close functional relationship to the armour against which they are likely to be pitted.. It is clear that most armour worn in 15th and 16th century Ireland was of forms which, in European terms, would hardly be dated later than the 14th century because of the limited adoption of plate elements. There is a logical explanation for the retention of apparently antiquated armour and weapons in late medieval Ireland - an explanation first articulated, indeed, by Giraldus Cambrensis. Even in the late 12th century it was clear that the trend toward increasingly strong (and therefore heavy) armour must in Ireland be limited by the overriding requirement of mobility, dictated by the physical environment and the prevailing tactics of highly mobile warfare.

It seems that in the development of armour and weaponry in Ireland a kind of equilibrium was reached around the end of the 14th century. Thereafter improvements in European armour came at a higher price, in terms of increased weight and rigidity, than the Gaelic or Anglo-Irish were willing to pay. The forms of armour in use would in turn have largely determined the forms of weaponry. The same phenomenon is visible in Highland Scotland and has been explained in the same terms and, indeed, may well be detected in regional studies in other relatively peripheral parts of Europe[26]. The archaeological evidence for the forms of weapons and armour in use in late medieval Ireland complements the view of late medieval warfare proposed by historians; the historical evidence interprets the archaeology, while the archaeology is compelling evidence for the accuracy of the historical interpretation.

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25. Halpin, 'Irish medieval swords', pp. 195-213, 215-16.
26. K.A. Steer and J.M.W Bannerman, *Late medieval monumental sculpture in the west Highlands* (Edinburgh, 1977), pp. 28-29.

As much as one might wish to do so in the context of this study, it is difficult to argue that archery had a decisive military effect in Ireland. The actual military record of archery in medieval Ireland could, perhaps, best be described as one of unfulfilled potential. Archery was probably a major factor in the military success of the early Anglo-Normans, and there were some notable successes in the later medieval period. In general, however, the physical conditions and tactical patterns of warfare in medieval Ireland did not provide opportunities for archery to be employed to its full potential, even in the late Middle Ages when the potential of English archery was truly enormous.

Nevertheless, from both the archaeological and historical points of view Irish medieval archery makes a fascinating study. In the archaeological record of medieval Ireland, archery has left a remarkable legacy of artefacts in both wood and iron which are an eloquent source of information on medieval technology, and about patterns of cultural contacts in medieval Ireland Apart from the intrinsic interest of the subject itself, this archery material provides important and almost unique insights into the development of armour and patterns of warfare generally in medieval Ireland - information not available from other sources. Despite the lack of comparable studies elsewhere, this study has demonstrated both the value of historical sources in illuminating the archaeological record, and the corresponding ability of detailed archaeological research to augment and, on occasion, be a corrective to received historical theories.

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