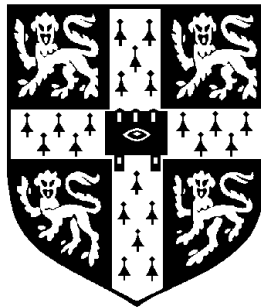


H. M. CHADWICK MEMORIAL LECTURES 21

WENDY DAVIES

Water Mills and Cattle Standards:
Probing the Economic Comparison between
Ireland and Spain in the Early Middle Ages



DEPARTMENT OF ANGLO-SAXON, NORSE AND CELTIC

UNIVERSITY OF CAMBRIDGE

Hector Munro Chadwick (1870–1947) was Elrington and Bosworth Professor of Anglo-Saxon in the University of Cambridge from 1912 to 1941. Through the immense range of his scholarly publications, and through the vigorous enthusiasm which he brought to all aspects of Anglo-Saxon studies — philological and literary, historical and archaeological — he helped to define the field and to give it the interdisciplinary orientation which characterizes it still. The Department of Anglo-Saxon, Norse and Celtic, which owes its existence and its own interdisciplinary outlook to H. M. Chadwick, has wished to commemorate his enduring contribution to Anglo-Saxon, Norse and Celtic studies by establishing an annual series of lectures in his name.

Water Mills and Cattle Standards: Probing the Economic Comparison between Ireland and Spain in the Early Middle Ages.

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ABBREVIATIONS

The following abbreviations are used for charter collections:

C1, C2 etc.: *Colección documental del monasterio de San Pedro de Cardeña*, ed. G. Martínez Díez (Cardeña, 1998)

Cell, Cel2 etc.: *O Tombo de Celanova: Estudio introductorio, edición e índices (ss. ix-xii)*, ed. J. M. Andrade Cernadas, with M. Díaz Tie and F. J. Pérez Rodríguez, 2 vols (Santiago de Compostela, 1995)

Li1, Lii259 etc.: *Colección documental del archivo de la catedral de León (775–1230)*, vol. 1 (775–952), ed. E. Sáez, vol. 2 (953–85), ed. E. Sáez and C. Sáez (León, 1987, 1990)

La Coruña 1, 2 etc.: *La Coruña. Fondo Antiguo (788-1065)*, ed. C. Sáez and M. del Val González de la Peña (Alcalá, 2003)

PMH DC 1, 2 etc.: *Portugaliae Monumenta Historica a saeculo octavo post Christum usque ad quintumdecimum, Diplomata et Chartae*, ed. A. Herculano de Carvalho e Araujo & J. J. da Silva Mendes Leal, vol. 1 (Lisbon, 1867–73)

S1, S2 etc.: *Colección diplomática del monasterio de Sahagún (857-1230)*, vol. 1 (*siglos ix y x*), ed. J. M. Mínguez Fernández (León, 1976)

T1, T2 etc.: *Cartulario de Santo Toribio de Liébana*, ed. L. Sánchez Belda (Madrid, 1948)

**WATER MILLS AND CATTLE STANDARDS:
PROBING THE ECONOMIC COMPARISON BETWEEN IRELAND
AND SPAIN IN THE EARLY MIDDLE AGES**

Hector Munro Chadwick was an early hero of mine and I am particularly honoured by the invitation to give this lecture.¹ I am going to spend some time on northern Iberia but I shall range across cultures and across disciplines (and focus on some words), which I hope will meet the spirit of his legacy.

Let me begin with my title and some Irish and Iberian *comparanda*. Firstly, water mills: one day, on the *meseta*, the central plateau of Spain, not far from the city of León, a dispute arose between the people of San Juan en Vega (led by a man called Gondemaro) and the abbot of the nearby monastery of Valdevimbre. The dispute was about the water course that fed the abbot's mill. Gondemaro said that he and his neighbours had been drawing water from that stream for generations (*avis* and *trysavis*) but the abbot protested against this. The dispute over the water went to the king's court, which was close by in León, and the king sent four men he trusted (*fideles*) to investigate. They went to the stream and measured the water levels, which the abbot had claimed were not high enough to power his mill. Using some stakes to check the levels, they found the water running in equal measures for both parties, and so the king proclaimed that Gondemaro and his neighbours could go on drawing water from that stream. The same thing happened the next year; this time three prominent royal judges went to investigate; again the water levels were high enough for all; the king again confirmed in favour of Gondemaro and his neighbours and on 25 June 938 ordered the monastery not to stop them.² This is but one of many such disputes.

An extraordinary number of early medieval water mills has been discovered in Ireland; they include the early seventh-century mills at Little Island, Co. Cork, in the south, at Strangford Lough, by Nendrum, Co. Down, in the north, and the substantial wheel pit at Killoteran, near the early Viking site of Woodstown, not far from Waterford.³ Physical evidence apart, there is

¹ I am very grateful to Máire Ní Mhaonaigh and ASNC colleagues for the opportunity to deliver the lecture and to the especially enthusiastic and responsive audience; as also to Máire, Jinty Nelson and Thomas Charles-Edwards for comments on the paper.

² Li128.

³ C. Rynne, 'The craft of the millwright in early medieval Munster', in *Early Medieval Munster. Archaeology, History and Society*, ed. M. A. Monk and J. Sheehan (Cork, 1998),

written evidence too: the Spanish story of Gondemaro and his neighbours seems to be the kind of situation for which the Irish eighth-century law tract *Coibnes Uisci Thairidne* (Kinship of Conducted Water) was providing; quite apart from fixing fees for the cutting of new water channels to power mills, it provided that water should be allowed to flow where two generations had been used to drawing it:

Ar ata[a]t .iii. cáini nad chungat comarbai do chumscuchud dia n-árdamat a n-athair [7 a senathair] fria n-aimsir: cáin cach uisci t[h]airidne ... Neoch ma 'd-rodmatar (neoch) dle(a)ga[i]r a mb[u]ith samlaid co bráth, im deólad fa lóg dlegar ...

‘For there are three rules which heirs are not capable of altering if their father and grandfather have acknowledged [them] throughout their lifetime: the rule of every watercourse ... If they have been acknowledged, they are to remain so for ever, whether they be gratis or whether a fee is due ...’⁴

It provides a nice mirror, in its emphasis on past generations, of the reported Gondemaro case.

As for cattle standards: on 18 October 991 a man called Munio Ovequiz sold part of a farm in Orga, in southern Galicia, to the monastery of Celanova; he sold it for three horses, three oxen, some silver and a skin. One of the horses he received was worth fifteen oxen, the second five oxen and the third seven oxen.⁵ Many calculations in cattle feature in the early Irish law tracts, of

pp. 87-101; T. McErlean and N. Crothers, *Harnessing the Tides. The Early Medieval Tide Mills at Nendrum Monastery, Strangford Lough*, Northern Ireland Archaeological Monographs VII (Norwich, 2007); D. Murphy and S. Rathbone, ‘Excavation of an early medieval vertical watermill at Killoteran, County Waterford’, in *Settlement, Industry and Ritual. Proceedings of a Public Seminar on Archaeological Discoveries on National Road Schemes, September 2005*, ed. J. O’Sullivan and M. Stanley, National Roads Authority Monograph Series 3 (Dublin, 2006), pp. 19-28.

⁴ D. A. Binchy, ed. and trans., ‘Irish law-tracts re-edited: I. *Coibnes Uisci Thairidne*’, *Ériu* 17 (1955), 52-85, at pp. 68, 69. See R. Sharpe, ‘Dispute settlement in medieval Ireland: a preliminary inquiry’, in *The Settlement of Disputes in Early Medieval Europe*, ed. W. Davies and P. Fouracre (Cambridge, 1986), pp. 169-89, at p. 180.

⁵ *placuit mihi, ego Munio Ovekiz cum uxore mea Guldregoto facerem tibi cartulam venditionis, sicuti et facimus hanc tibi fratri Cresconio de ipsa villa [Orga] ... Abeas firmiter ipsas villas de meo dato pro que accepimus de te pretium, id est, caballos tres, uno*

the eighth century, and in subsequent commentaries, although the Irish cattle standards have more refinements than the Iberian – they distinguish between the milch-cow, the two-year-old heifer, the three-year-old dry heifer, and so on. The Old Irish tract on land values, *Cis lir fodla tire?* (How many kinds of land are there?), proposes, for example:

Etham rem[i]-bi ethamnaib, cumal .iiii. bo fichit mblicht a log; etham taulcach, cumal fichit mbo mblicht ... Antren(n)d, cumal da bo ndec seisc n-airi. Andomain, cumal ocht mbo seisci n-airi ... Mad sligi ad-cuma o thir co flaith no mainistir, do-formaig .iii. bu.

‘First-class cultivable land, its value is a *cumal* of twenty-four milch cows (i.e. a *cumal* [measure] of it is worth twenty-four); upland cultivable, a *cumal* of twenty milch cows ... Very rough [land], a *cumal* of twelve dry cows for it. Shallow [land], a *cumal* of eight dry cows ... If it be a way that extends from [the] land to [the dwelling of] a lord or to a monastery, it adds three cows’ (as do a sea, a stream or a mountain).⁶

In both regions such references are to standards of value, using cattle to set a notional standard against which payments could be calibrated.⁷

This lecture is about asking questions. Are these similarities in the use of cattle standards, and in collisions over access to water to power mills, real or illusory? Were these economies actually functioning in similar ways or are these superficial similarities? I could cite other kinds of similarity: the use of graded penalties for different qualities of wound; the use of paying and enforcing sureties to guarantee the terms of a settlement, and so on; although, of course, there are plenty of differences. But if things that look similar really were similar, what does this signify? What, if anything, does it tell us about economic relationships and the operation of production, distribution and exchange? It is striking that, unlike much of western Europe, neither region minted coin until the eleventh century and neither seems to have used much coin from external sources before the tenth century, although both were certainly using metal by weight to make payments at that time.

de boves XV, alio de boves V. Ille tertius de boves VII, boves ... ariento ... pelle ..., Cel248. Use of Latin in these texts often deviates from classical usage.

⁶ G. Mac Niocaill, ‘Tír Cumaile’, *Ériu* 22 (1971), 81-6, at pp. 82, 85.

⁷ See further below for the *cumal*, and other standards of value.

In each case the difficulty of making a rational assessment is complicated by source problems. There is no Domesday Book and there are no polyptyques; there is nothing in the way of a ‘comprehensive’ survey, however imperfect. That means that we cannot quantify or measure in any robust fashion. The available evidence is also extremely uneven and often not strictly comparable: there are several thousand charters from late ninth- and tenth-century northern Iberia but only a handful of charter fragments (of earlier date) from Ireland.⁸ Charters have especial significance because they are often localizable, taking us, literally, to ground level. Hardly any texts from post-Visigothic Iberia survive before the late ninth century; but Ireland has a very substantial corpus of eighth-century written material – annals, computation, exegesis, genealogy, hagiography, laws, penitentials, poems.⁹ As for archaeology: there has been a remarkable quantity of (recent) excavation of early medieval sites in Ireland, of high quality: 2,214 excavation summaries (all periods) for the single year 2006, for example, and 2,208 early medieval sites now (March 2011) on the EMAP (Early Medieval Archaeology Project) database.¹⁰ There is a growing body of early medieval archaeology from Iberia, which is important, but the volume is small by comparison – tens of

⁸ For northern Iberia, the most important collections of texts are noted in the Abbreviations list, together with: *Colección documental del monasterio de Santa María de Otero de las Dueñas*, ed. J. A. Fernández Flórez and M. Herrero de la Fuente, vol. 1 (León, 1999); *El Tumbo de San Julián de Samos (siglos VIII – XII)*, ed. M. Lucas Álvarez (Santiago de Compostela, 1986); *Cartulario de San Millán de la Cogolla (759-1076)*, ed. A. Ubieta Arteta (Valencia, 1976); *Tumbos del monasterio de Sobrado de los Monjes*, ed. P. Loscertales de García de Valdeavellano, 2 vols (Madrid, 1976); J. M. Ruiz Asencio, I. Ruiz Albi and M. Herrero Jiménez, *Los becerros gótico y galicano de Valpuesta*, Colección Beltenebros 25, 2 vols (Madrid, 2010). For Ireland, the most important collection of fragments are those of the ‘Additamenta’ to Tírechán’s collection in *The Patrician Texts in the Book of Armagh*, ed. and trans. L. Bieler, *Scriptores Latini Hiberniae X* (Dublin, 1979), pp. 166-79; but note the further fragments mentioned in W. Davies, ‘The Latin charter-tradition in western Britain, Brittany and Ireland in the early mediaeval period’, in *Ireland in Early Mediaeval Europe*, ed. D. Whitelock, R. McKitterick and D. Dumville (Cambridge, 1982), pp. 258-80, at pp. 261, 269, 273; reprinted as Essay XI in W. Davies, *Welsh History in the Early Middle Ages: Texts and Societies*, Variorum Collected Studies Series (Farnham, 2009).

⁹ For a good overview, see *A New History of Ireland, I, Prehistoric and Early Ireland*, ed. D. Ó Cróinín (Oxford, 2005), especially the essays at pp. 331-548, by T. Charles-Edwards, D. Ó Cróinín, P. Russell, J. Carney and W. O’Sullivan.

¹⁰ *Excavations 2006. Summary Accounts of Excavations on Ireland*, ed. I Bennett (Dublin, 2009); <http://www.ucd.ie/archaeology/research/researcha-z/emap/>. The rate of excavation declined after 2006, and very sharply from 2008.

cases rather than thousands. So, there are considerable problems of evidence and of comparing evidence. Notwithstanding these problems, in what follows I shall consider five themes: the persistence of tradition, transaction language, cereals, valuation and silver.

Before that, a word on basic geography: Ireland is smaller than northern Iberia, an island with many waterways, with a wetter, very moderate climate. Northern Iberia has a much more varied terrain and more extreme climates; it has high mountain ranges, a central plateau which is hot and very dry in summer (the *meseta*), although the west – Galicia – is wetter and greener. But both are in some sense ‘Atlantic’ and both lie west of Francia and beyond the direct sphere of Frankish influence. For northern Iberia I include Galicia (including northern Portugal), the far north, the Duero basin, Castile, Navarre and Aragón, but not Catalonia; the land to the south was Muslim al-Andalus.

THE PERSISTENCE OF TRADITION

I borrow the phrase from H. M. Chadwick, who, in the preface to *Studies on Anglo-Saxon Institutions*, wrote: ‘the persistence of tradition, popular as well as ecclesiastical, is a force which seems to me to have been underrated by writers on ancient English institutions’.¹¹ The insight can well apply elsewhere. The force of tradition is familiar in Ireland, where the copying of and commenting on earlier law texts, for centuries, is well known.¹² Perhaps not so well known is the fact that Visigothic law, that is law deriving from the sixth and seventh centuries, continued to be cited, summarized and evoked in court cases of the tenth and eleventh centuries in northern Spain. Charters which record the settlement of disputes can make vague comments such as ‘as *lex gotica* provides’, but can also specify book, title and chapter of the law (often known as *Liber Iudicum*) and quote them. In a record of a property dispute of 952 the law on freedom of alienation of property was quoted from book 4, title 2, chapter 19, declaring that every free man and woman who left no children should have the freedom to do whatever he or she wished with his or her property; this was followed by a quotation from book 5, title 2, chapter

¹¹ H. M. Chadwick, *Studies on Anglo-Saxon Institutions* (Cambridge, 1905; reprinted New York, 1963), p. viii.

¹² See F. Kelly, *A Guide to Early Irish Law*, Early Irish Law Series III (Dublin, 1988), pp. 225-31.

6 on post-mortem donation.¹³ These writers of the tenth and eleventh centuries could abbreviate or massage the texts, as well as quote in full; although it was associated with a distant Gothic past, it was still deemed relevant – its antiquity gave it both authority and relevance. One important manuscript of Visigothic law was written by a practising judge, Judge Bonushomo, in 1011. It is heavily glossed, the glosses occupying 164 pages of the modern edition, a fact which clearly emphasizes the continuing use and relevance of this ancient tradition but also indicates some comparability with approaches to written Irish law across a similar period.¹⁴

There are other kinds of ancient notion with continuing relevance. Take the *quinta*: this is an extremely common word in Iberian charters and refers, in the tenth century, to ‘our portion’, ‘our share’ of property rather than a strict fifth:

placuit mihi atque convenit ut facerem vobis scriptura venditionis sicut et facio de quinta quam abeo de marido meum Illallo in ipsa sua villa ubi dicent Carioga.

‘I have agreed to give you a record of sale and I do so with regard to the *quinta* I have from my husband Illallo in his farm called Quiroga.’¹⁵

Quinta is a word which also derives from Visigothic law and it originally referred to that portion of family property that could be alienated (in other words, over which there were free powers of disposition). It clearly did not retain its strict legal meaning in subsequent centuries but it was often used in the second half of the tenth century to refer to portions that were given away or sold – an appropriate word because of the connotation of free disposability (rather like ‘bookland’ in England).¹⁶ Interestingly, one of the texts attached to

¹³ *proclamaverunt se uterque ambo ad Librum, et qualem ex his Liber mandasset stabilire, abuisset roborem et stabilitatem firmissimam, sicut et de presente mox impletum fuit in libro iiii, titulo secundo, kapitula xviii: ‘Omnis ingenuus vir atque femina, qui filios ... non relinquerit, faciendi de rebus suis quod voluerit indubitanter licenciam abebit, Li256 (1/8/952).*

¹⁴ *Liber iudicum popularis. Ordenat pel jutge Bonsom de Barcelona*, ed. J. Alturo, J. Bellès, J. M. Font i Rius, Y. García and A. M. Mundó (Barcelona, 2003); glosses at pp. 256-70 and 635-785. The judge worked in Catalonia.

¹⁵ Cel163 (932).

¹⁶ For further discussion see W. Davies, *Acts of Giving. Individual, Community, and Church in Tenth-century Christian Spain* (Oxford, 2007), pp. 76-8, and references there to

Tírechán's Irish collection of material about Saint Patrick, the so-called 'Additamenta', of a date no later than the mid-eighth century, uses the same term: *et postquam baptizavit obtulerunt filius Cairthin et Caichan quintam partem Caichain Deo et Patricio*. 'And after he had baptized them, Macc Cairthin and Caíchán offered to God and Patrick the fifth part of Caíchán's estate.'¹⁷ This is one of the fragmentary Irish charter texts, written in recognizable charter language, and records the gift of a *quinta* of Caíchán's property to Patrick, and God, free from obligations to anyone else. It reflects the occurrence of the word *quinta* in the *Hibernensis*, the eighth-century collection of Irish canonical material, where it occurs in a context of making gifts to God, quoting Old Testament Leviticus.¹⁸ Caíchán's property was clearly land, since its boundaries were quoted. In the longer term the 'fifth' (*cóiced*) survived in Irish place-names, just as *quinta*, *quintana* and *quintanilla* survive in the toponymic landscape of Spain.¹⁹

Boundaries are another case of the survival of ancient tradition. In Galicia, especially, boundaries could be expressed as full perambulations, like those attached to English and Welsh charters (e.g. 'it runs from the stream to the tree and up the hill to the crossroads'); they are sometimes called *terminos antiquos*, the ancient boundaries, and they are sometimes marked by stones, *petras*, but also *petras scriptas* and in one text of 988 at least four sets of *petras sculptas et scriptas* (sculptured stones with writing).²⁰ This must mean inscribed stones. They do not appear to survive, but they cannot help but remind us of the very large corpus of early medieval inscribed stones from

the large Spanish bibliography; of the latter, the following are classic treatments: L. G. de Valdeavellano, 'La cuota de libre disposición en el derecho hereditario de León y Castilla en la alta edad media', *Anuario de Historia del Derecho Español* 9 (1932), 129-76; J. Orlandis, "'Traditio corporis et animae". Laicos y monasterios en la alta edad media española', in J. Orlandis, *Estudios sobre instituciones monásticas medievales* (Pamplona, 1971), pp. 217-378, at pp. 277-83.

¹⁷ 'Additamenta' 8, in *Patrician Texts*, ed. Bieler, p. 172.

¹⁸ The precise context relates to the man who has given his house to God and wishes to redeem it; he may do so but must leave a fifth of its value with the church: R. Flechner, *The Hibernensis. A Study, Edition, and Translation, with Notes* (Dublin, forthcoming), 17.2. I am extremely grateful to Roy Flechner for giving me a copy of his forthcoming edition of *Hibernensis* prior to publication.

¹⁹ See E. Hogan, *Onomasticon Goedelicum locorum et tribuum Hiberniae et Scotiae* (Dublin, 1910), pp. 279-80; R. Ruiz Agullo, R. Ruiz Serramalera and A. Ruiz Serramalera, *Pueblos de España*, 15th edn (Madrid, 1997), pp. 576-8.

²⁰ La Coruña 102; cf. the interpolated no. 76 (968).

many parts of Ireland that do survive, as also of the citation of stones as legitimizing boundary markers in a number of different Irish texts.²¹

TRANSACTION LANGUAGE

Iberian texts use the concepts of gift and sale (*donare* and *tradere*, especially; *vendere*; and *cartulae donationis/venditionis*) and to a lesser extent exchange (*comutare*, *concambiare*). Here ‘gift’ refers to a transfer without the necessity to receive something in return; and ‘sale’ to a transfer for price, agreed in advance, its receipt necessary to validate the transfer. Price, *pretium*, is virtually always associated with sale, and cited. There are a few ‘exchanges’, which in practice meant the particular exchange of swapping land for another piece of land. Nearly half of all charters from before the year 1000 record sales and just over half record gifts. Now, it is true that some gifts provoked a counter-gift in return but most of these had a very specific function: to secure the primary gift. When a laywoman, Leodegundia, gave a lay couple a parcel of land in northern Portugal, in 990, the couple gave her an ox and a pelt to confirm the charter of gift – *ad cartam confirmando*.²² These counter-gifts are rare – they occur in 6% of gift records; they appear to have been made when beneficiaries sought extra security because of particular, unstated, concerns, presumably concerns that the gift might revert to the donor or his/her heirs. They are certainly not evidence of some kind of gift-exchange system.

For Ireland we have very few texts recording actual transactions and we are largely reliant on law texts, for the most part recording principles. These are extremely important, but different. However, there is a handful of recorded transactions in the ‘Additamenta’ to Tírechán’s collection. These transactions were mostly gifts but there were a few sales. The language of record is both Latin and Irish. The Latin language of giving uses words like *offerre* (offer) and *immolare* (literally, ‘make a sacrifice of’).²³ The language is again reflected in the Latin of *Hibernensis*: *oblaciones* and *immolare* occur in respect of gifts, as does *testamentum* (as well as *vendere* and *pretium* of land sold,

²¹ R. A. S. Macalister, *Corpus Inscriptionum Insularum Celticarum*, 2 vols (Dublin, 1945-9); cf. Kelly, *Guide to Early Irish Law*, p. 186; F. Kelly, *Early Irish Farming*, Early Irish Law Series IV (Dublin, 1997), p. 409.

²² PMH DC 159.

²³ ‘Additamenta’ 3.2, 5.4, 8.1, 10.1, 10.2; 1.6, 5.1, 5.2, 7, in *Patrician Texts*, ed. Bieler, pp. 168, 170, 172.

citing an Irish synod).²⁴ These Latin giving words have a different flavour from the Iberian Latin words: *offerre* can sometimes be found in Iberian texts but *immolare* not at all; the word is very particular to giving to the church in the north-west of Europe (it also occurs in texts from Wales and Scotland).²⁵

The vernacular language of transactions in Ireland has both gift and sale words.²⁶ Giving words include *imransat* (they entrusted/assigned/bequeathed), *adopart* (he offered) and *tubart* (he gave/brought); *edoct*, *idacht*, usually translated ‘testament’, although its literal meaning is closer to ‘declaration’, a verbal commitment. Selling words include *dirróggel* (purchased), *ríthae* (was sold) and *forlóg* (additional price, in the context of a land purchase).²⁷ As for the law tracts, although there is a heavy emphasis on transmission of land through inheritance, with a possible implication that alienation of land (whether by gift, sale or exchange) was in practice extremely rare, in fact the law tracts and commentaries employ a vocabulary of gift and sale, especially in the context of contract (which does include gift). The principal words are compounds of *berid* (bears, gives, brings), *crenaid* (buys) and *renaid* (sells); and the jingle *reicce na creicce* (selling and buying) occurs quite frequently. Hence, in one of the several cases which specify those who cannot make a contract: *Ní túalain[g] reicce na creice na cuir na cuind(u)ruda sech óen a c(h)enn ...* ‘She is not capable of sale nor of purchase nor of contract nor of bargain without one of her guardians’, that is, a woman cannot sell or buy anything without the involvement of one of her guardians).²⁸ Heptad 50 specifies the purchases a son can make without his father, such as an article of equipment for his farm or joints of meat.²⁹ As in the latter case, many of the sale contexts relate to the sale of movables but transactions in land were allowed for by, for example, *Córus Béscnai*, in the

²⁴ *Hibernensis*, ed. Flechner, Book 17 especially; also 42.6; 2.5; 16, 31.22, 40.4; 16.11, 35.4, 41.7.

²⁵ For this charter language, see Davies, ‘Latin charter-tradition’, pp. 269-70, 273.

²⁶ I am particularly grateful to Thomas Charles-Edwards for discussing this terminology with me.

²⁷ ‘Additamenta’, 11.1, 16.1, 16.2; 16.1; 11.2, 11.4, in *Patrician Texts*, ed. Bieler, pp. 174, 178.

²⁸ *Bandíre*-tract 444.5-6 (*Corpus Iuris Hibernici*, ed. D. A. Binchy, 6 vols (Dublin, 1978), vol. 2, 440.32-444.11, numbering consecutive through the six volumes, by page and line number); see N. McLeod, *Early Irish Contract Law*, Sydney Series in Celtic Studies 1 (Sydney, 1992), p. 71.

²⁹ McLeod, *Early Irish Contract Law*, p. 70.

context of gifts to the church.³⁰ Beyond that, there is also a wide related vocabulary: *cor* (contract), *lóg* (value, price), *tindsrae* (payment), *saíthiud* and *díupart* and *derb-díupart* (overpayment), *imnae* (gift), *ón* and *airliciud* (loan), *ráth* (paying surety).³¹ I emphasize the number and range of vernacular words because this is a native vocabulary, not a borrowed vocabulary; words for contract run through many kinds of law text (for example, *Coibnes Uisci Thairidne*) and are not confined to the text termed *Di Astud Chor* (On the Securing of Contracts).³² These are Irish words for Irish actions. We cannot possibly quantify transactional activity, nor relative proportions of transactions in movables and land, but there is plenty of evidence of the availability of the conceptual apparatus of transacting and some evidence of transacting in practice in early medieval Ireland.

CEREALS

In both areas there is some reasonable evidence of the intensification of cereal production in the ninth and tenth centuries, although this intensification appears to have begun earlier in Ireland than in Iberia. In Ireland there is a good deal of surviving physical evidence of water mills, from the early seventh century onwards, as noted above: there were 38 pre-eleventh-century mills at the last published count, with the important horizontal mill of Kilbegly (near Ballinasloe) added since then.³³ There are also plenty of references to mills and milling in Irish law tracts; these are not confined to the issues arising when running a water course across a neighbour's land, for they also include

³⁰ McLeod, *Early Irish Contract Law*, pp. 84-5; cf. *Hibernensis*, ed. Flechner, 40.4.

³¹ See McLeod, *Early Irish Contract Law*, pp. 124-96, 34, 182, 43-6, 84-5, 84, 16-21, for examples; cf. Kelly, *Guide to Early Irish Law*, pp. 158-72, 120-2, 117-19.

³² McLeod, *Early Irish Contract Law*; see L. Breatnach, *A Companion to the Corpus Iuris Hibernici*, Early Irish Law Series V (Dublin, 2005), pp. 244-6, for important comment on McLeod's edition.

³³ N. Brady, 'Mills in medieval Ireland: looking beyond design', in *Wind and Water in the Middle Ages. Fluid Technologies from Antiquity to the Renaissance*, ed. S. A. Walton, Penn State Medieval Studies II (Tempe Arizona, 2006), pp. 39-68, at pp. 47-9; N. Jackman, 'Early medieval food-processing technology at Kilbegly, Co. Roscommon: the miller's tale', in *Dining and Dwelling: Proceedings of a Public Seminar on Archaeological Discoveries on National Road Schemes, August 2008*, ed. M. Stanley, E. Danaher and J. Eogan, National Roads Authority Monograph Series 6 (Dublin, 2009), pp. 9-18.

references to appropriate shares in mills according to status and to millwrights.³⁴

For northern Iberia the physical evidence is lacking – not one mill – but there are many textual references to individual cases. There are the disputes over water courses to power mills but there are also shares in mills (time shares, as it were); these occur as a normal part of property transactions: a gift of one day in eight in a Castilian charter of 962; or a sale of three portions of two mills on the river Arnoia in southern Galicia in 964; or a gift to the monastery of Piasca of a day and a night's milling every Wednesday (or Thursday) *c.* 980.³⁵ These transactions might be recorded on a scrap of parchment or on the back of an unrelated text; they are treated as normal and unremarkable, and certainly not sufficiently notable to justify a large and elaborate record.³⁶

Now, water mills are about grinding corn, and they imply grinding at some scale. We see it in both regions, through different kinds of evidence. Corn-drying kilns and grain storage pits echo the message about scale, and scale suggests production for distribution. There are some single corn-driers but, for example, the early medieval complex at Raystown, Co. Meath, in the eastern midlands of Ireland, included five 'figure-of-eight' corn-driers, as well as its six early medieval mills, with an increasing volume of wheat processed in phases 3, 4 and 5 (that is, from the seventh century onwards).³⁷ Recently four corn-driers have been found at Roestown, Co. Meath; and another four at seventh- to tenth-century Kilgobbin, Co. Dublin, processing rye, barley, oats and plenty of bread wheat; and there are three at Gortybrigane, Co. Tipperary,

³⁴ For example, the share of the *ócaire* in *Críth Gablach: Críth Gablach*, ed. D. A. Binchy, Mediaeval and Modern Irish Series XI (Dublin, 1941), 4.96. See Kelly, *Early Irish Farming*, pp. 482-5.

³⁵ C102, Cel403, S305.

³⁶ The Piasca record is upside down in the top margin of a long record of a quite unrelated gift: Archivo Histórico Nacional, Madrid, clero Sahagún, carpeta 875 no.16 (published as S305, after 19 April 980); the principal gift on this parchment is S242, of 966.

³⁷ M. A. Monk and E. Kelleher, 'An assessment of the archaeological evidence for Irish corn-drying kilns in the light of the results of archaeological experiments and archaeobotanical studies', *Journal of Irish Archaeology* 14 (2005), 77-114; M. Seaver, 'Through the mill – excavation of an early medieval settlement at Raystown, County Meath', in *Settlement, Industry and Ritual*, ed. O'Sullivan and Stanley, pp. 73-87; M. Seaver, 'Early medieval settlement and burial on the Blackhill. Excavations at Raystown, Co. Meath', in *Death and Burial in Early Medieval Ireland*, ed. C. Corlett and M. Potterton (Dublin, 2010), pp. 261-79, at pp. 268-70, 275.

and two at Sallymount, Co. Limerick.³⁸ Of course, most of these groups of kilns were in successive rather than simultaneous use but the numbers clearly indicate sustained production over the later part of the early middle ages.

So far there are no corn-drying kilns of this period from Spain, although there are some earlier kilns (sixth- and seventh-century) from the Duero basin. Of considerable significance, however, are the grain storage pits from early medieval Spain. Nearly a hundred were found at Villaoreja (Palencia), starting in the tenth century; at Zornoztegi (Álava), in the southern Basque country, there were groups of pits from the eighth to the eleventh centuries (thirty were excavated), and a series of freshly cut terraces for arable cultivation.³⁹ Sopelana and Zapata's graph shows a large volume of winter wheat from the tenth-century pit, but less of this grain from both eighth- and eleventh-/twelfth-century features. New terraces for cereal growing were established at Monte Gaias, just south of Santiago de Compostela in Galicia.⁴⁰ There is, then, some limited but nevertheless very useful archaeology. On the other hand, there is a mass of textual evidence from Iberia of new planting and of extending areas of cultivation: 'the vineyard Diego Muñoz planted [sometime before 963]'; cleared land (*terra calva*); and a host of stories about peasant intrusion into monastic land.⁴¹ Typically, in the latter case, peasants entered a stretch of monastic mountainside, started to cultivate it and take a crop; this provoked complaints and eventually an agreement whereby the peasants were allowed to continue working the land but had to return some of the produce to the monastery. For example, just before 955, on the northern edge of the *meseta*, twenty-one named peasants, from three different settlements, agreed

³⁸ R. O'Hara, 'Early medieval settlement at Roestown 2', in *Places along the Way: First Findings on the M3*, ed. M. Deevy and D. Murphy, National Roads Authority Monograph Series 5 (Dublin, 2009), pp. 57-82; T. Bolger, 'Excavations at Kilgobbin church, Co. Dublin', *Journal of Irish Archaeology* 17 (2008), 85-112, at pp. 95-7, 105-7; P. Long, 'Food for thought: newly discovered cereal-drying kilns from the south-west midlands', in *Dining and Dwelling*, ed. Stanley, Danaher and Eogan, pp. 19-28.

³⁹ J. A. Quirós Castillo, 'Early medieval landscapes in north-west Spain: local powers and communities, fifth-tenth centuries', *Early Medieval Europe* 19 (2011), 285-311, at p. 301; I. Sopelana and L. Zapata, 'Primeros resultados de los estudios carpológicos del despoblado de Zornoztegi (Salvatierra-Agurain, Álava)', in *The Archaeology of Early Medieval Villages in Europe*, ed. J. A. Quirós Castillo (Bilbao, 2009), pp. 437-45.

⁴⁰ P. Ballesteros-Arias and R. Blanco-Rotea, 'Aldeas y espacios agrarios altomedievales en Galicia', in *Archaeology of Early Medieval Villages*, ed. Quirós Castillo, pp. 115-35, at pp. 130-4.

⁴¹ T69, cf. Cel338 (989); Cel398 (963), Cel174 (964).

to pay the monastery of Pardomino a quarter of their produce every year, because they had entered Pardomino's land, had ploughed it, pastured their animals and cut down trees.⁴² This was peasant expansion – literally the cultivation of uncultivated land; stretches of woodland and scrub and grassland form what the texts call *terra indomita* 'untamed land'; these references to untamed land decline across the tenth century. There was action by major landowners too – much accumulation of property, notable from the second quarter of the tenth century by big monasteries and from the last quarter by high aristocrats. The property was acquired in various ways but much was by purchase, with land deliberately bought for deliberate exploitation; some was by exchange, especially of peasant plots, for consolidation of the arable into a larger cultivable space. This was the beginning of farming for profit.

VALUATION

Although primarily interested in social stratification, H. M. Chadwick devoted the two opening chapters of *Studies on Anglo-Saxon Institutions*, with a further 'Excursus', to monetary systems. There has been a vast amount of work on Anglo-Saxon coinage since he wrote, but it is notable that he had a very good grasp of the difference between coin, unit of account and unit of weight and of the importance of differentiating between them – a point one cannot always make of recent comment. I drew attention, at the outset, to the use of a cattle standard in both early medieval Ireland and early medieval Iberia. A cattle standard was used to measure the value of objects exchanged in payment (or to measure the amount of compensation due, for example, for wounding) in northern Spain; and to measure the properties which gave value to land in Ireland (or, again, compensation for wounding or to measure honour price). These were valuation systems, mechanisms for assigning value when it was necessary to make comparisons between unlike things; they did not require cattle to be exchanged, although they could have been, for they were in essence notional systems of value.

Now, in neither case were cattle the only standard of value. In Iberia there was a silver *solidus* unit – a carpet worth five *solidi*, six-*solidi*-worth of wine or a price of nine *solidi*, paid in cattle, grain and cider.⁴³ There was also a

⁴² Li184 (944); Lii290.

⁴³ *uno tapete valente V solidos argenti* (C199 [988]); *sex solidos in vin* (S185 [961]); *in precium in viiii solidos, in bove et cevaria et sicer* (Li143 [941]). *Solidi* were not minted

modius unit, literally a measure, in practice something like a sackful (of grain); hence, a cloak of four *modii*; an ox, a cow and a calf priced at twenty-four *modii*; a goat worth a *modius*, *cabra modiale*.⁴⁴ There were also quarters, which tend to be associated with *modii*, for example, a total value of six *modii* and two quarters (paid in wine, rye, wheat, sheep and cloth).⁴⁵ The cloth in the latter example is valued by *tremissis*, literally a third of a late Roman *solidus*, so *lentio tremisale*, a *tremissis*-worth of cloth. Some of these, like the *tremissis*, are extremely rare; some, like the *modius*, are very common. Some were regionally specific: *solidi* valuations were more common in Castile and cattle valuations in Galicia, although they were not alternatives. Different units of account were used concurrently; for example, horses were valued in cattle and silver was valued in *solidi*, in one transaction.⁴⁶ This is partly because different units were considered appropriate for different kinds of object, but also because there were different cultural habits in different micro-regions.

There were also several units of account in use in early medieval Ireland. Firstly there was the *bó* ‘cow’ and the *sét* (often, though not always, half a milch-cow): land worth twenty-four milch cows (*cumal .iiii. bo fichit mblicht a log*) and ‘three *sét* are his honour price’ (*tri séoit lóg a enech*).⁴⁷ There was the *míach*, like the *modius* both a measure of weight and a unit of value: for Fergus Kelly a bushel of several possible cereals; for Thomas Charles-Edwards a standard measure of malted barley.⁴⁸ Hence, a bullock worth two *míach*: *ag lóige dá míach*.⁴⁹ There is also the unit of the *cumal*, literally a female slave; honour price could be expressed in *cumala*: ‘seven

and they do not appear to have been available as coin; they were simply a unit of account, presumably derived from knowledge of the late Roman gold *solidus* or more probably from the reformed Carolingian currency, in which silver *denarii* were coined at the rate of 12 to the *solidus*, of which there were initially 22 to the pound weight.

⁴⁴ *saia de IIII modios* (Cel410 [987]); *bove et vacca cum sua agnicula preciatos in XX et IIII modios* (Cel402 [961]); Cel451 (942). The word *modius* occurs as a measure of weight as well as a unit of account, hence *modii* of wheat, rye and millet. For much longer discussion of this, see my ‘Sale, price and valuation in Galicia and Castile-León in the tenth century’, *Early Medieval Europe* 11 (2002), 149-74.

⁴⁵ *vinum sestarios II centeno quartario I triigo quartario I ovelia quartario I lentio tremisale sub uno modios VI quartario II* (Cel406 [961]).

⁴⁶ Cel380 (961).

⁴⁷ Mac Niocaill, ‘Tír Cumaile’, 82; *Críth Gablach*, ed. Binchy, 5.120.

⁴⁸ Kelly, *Early Irish Farming*, pp. 560-99, at p. 588; T. M. Charles-Edwards, *Early Irish and Welsh Kinship* (Oxford, 1993), pp. 478-85, at p. 478.

⁴⁹ Kelly, *Early Irish Farming*, p. 588.

cumals are his honour price' (*vii cumala a enechclann*).⁵⁰ And there was the *screpul* (from Latin *scripulum*), a twenty-fourth of an ounce of silver; the value of cows could be expressed in scruples, the more calves a cow had the more scruples it was worth, thirty for a 4-calf cow, forty for a 5-calf cow, fifty for a 6-calf cow, and so on: 'thirty scruples for a 4-calf cow' (*bo ceathramad loig air .xxx.s*).⁵¹ Another unit is the *ungae* (from Latin *uncia*), an ounce: 'half-an-ounce-worth of pigs' (*lóg leith ungae di muccib*).⁵²

Although there is a certain comparability between the two systems, in that silver, sacks and cattle are prominent elements in both, I would not want to push this too far: since there was considerable variation, in both systems, they were not directly parallel. Although lawyers had a tendency to systematize and to look for strict equations, one can find a *cumal* equated to four, five, six and ten cows, as well as the more common three.⁵³ Where there is plenty of evidence of practice, as there is in northern Iberia, there was great variation; the use of these notional units will have varied with local circumstances and we should not expect strict equivalences. What is important is that both cultures used units of account; they both had systems of valuation. The very existence of such systems means that things were exchanged (there is no need for a unit of account unless things which are dissimilar are regularly exchanged), for value systems *necessarily* relate to exchange; that most commonly means commodity exchange, exchange as a system of buying and selling, exchange with a touch of the commercial.⁵⁴ Exchange must have been normal in these societies, as is in any case suggested by the terminology of transactions. We cannot hazard a guess at volume in either case, because of the nature of the evidence, although the large body of Irish archaeological evidence of focused production is suggestive and in both regions more intensive production appears to have been regionally limited. Niall Brady's map of water mills, producing cereals for distribution, shows a regional concentration, in the south, middle and east of Ireland; and there are far more

⁵⁰ *Críth Gablach*, ed. Binchy, 18.450-1.

⁵¹ Kelly, *Early Irish Farming*, p. 506.

⁵² 'Additamenta', 11.3, in *Patrician Texts*, ed. Bieler, p. 174.

⁵³ See C. A. Gregory, *Savage Money. The Anthropology and Politics of Commodity Exchange* (Amsterdam, 1997), p. 8, on the co-existence of multiple value systems; and M. Sahlins, *Stone Age Economics* (London, 1974), p. 279, on the way equivalences swing up and down within a community.

⁵⁴ C. A. Gregory, *Gifts and Commodities* (London, 1982), pp. 19, 47-9: 'commodities are those things that arise as things pass from house to market'; Gregory, *Savage Money*, p. 13.

kilns in the east midlands than elsewhere.⁵⁵ In northern Iberia, as well as evidence of the existence and use of valuation systems, we have hundreds of records of actual transactions. There were hundreds of sales for value, high and low value, especially on the central plateau of the *meseta*. The range of social levels involved in such transactions was wide, from high aristocrats through middle-range people to peasants: a woman and her children sold plots in Rabal for food, valued in *modii*; a peasant and his mother sold a water course on the river Porma (*meseta*) for fleeces valued in *solidi* and wheat valued in *modii*, and so on.⁵⁶ These ideas about value were used.

SILVER

As mentioned above, in neither culture was coin minted in the early middle ages. The first coining in Ireland came round about 997, by Dublin Vikings; that in northern Iberia in the mid-eleventh century, by King Fernando I. By the tenth century, however, there was plenty of silver available in both areas: silver, not gold. There was some gold about – gold objects have been found in Ireland and there are references to gold objects in Spanish lists – but silver appears to have been much more common; there are no references to the (gold) *mancus* in either case.⁵⁷

In Ireland, as we have seen, there were silver units of account in the *screpul* and *ungae*, cited in eighth-century law tracts and later commentaries (and sometimes elsewhere); and there have been finds of finely wrought silver objects, especially from the eighth century onwards (finds such as the Derrynaflan hoard of liturgical vessels or the Tara brooch).⁵⁸ Silver was available and there were some skilled silver smiths from an early date. But, from the mid-ninth century there is some increase in the material evidence of

⁵⁵ Brady, 'Mills in medieval Ireland', p. 46; Monk and Kelleher, 'Assessment of the archaeological evidence for Irish corn-drying kilns', p. 82.

⁵⁶ Cel373 (956); Li124 (937).

⁵⁷ For references to the *mancus* (which occur overwhelmingly in Italian and Anglo-Saxon texts), see M. McCormick, *Origins of the European Economy. Communications and Commerce, A.D. 300-900* (Cambridge, 2001), pp. 323-42, 812-14.

⁵⁸ Derrynaflan: *Journal of the Royal Society of Antiquaries of Ireland*, 110 (1980), 91-148; *The Derrynaflan hoard I: a preliminary account*, ed. M. Ryan (Dublin, 1983); R. Ó Floinn, 'Secular metalwork in the eighth and ninth centuries', in *'The Work of Angels.' Masterpieces of Celtic Metalwork, 6th-9th Centuries AD*, ed. S. Youngs (London, 1989), pp. 72-124, especially pp. 77-108; cf. H. Richardson, 'Visual arts and society', in *A New History of Ireland I*, ed. Ó Cróinín, pp. 680-713.

silver availability, largely from silver hoards; this is part of a much wider, northern, phenomenon – a cultural marker of the Viking world. The silver was of foreign origin (recycled foreign coin and other objects) and the hoards began to be deposited round about 850, coincident with early Viking settlement in Ireland. There is every reason to suppose introduction of this silver was a direct consequence of Viking activity. There has been much important work, on the entire northern corpus, by James Graham-Campbell, and on the Irish corpus by John Sheehan.⁵⁹ The hoards are of bullion or of coin or both; there were initially bullion hoards, deposited from c. 850 to c. 950 – ingots, armrings, hack silver (fragments); there was a smaller group, according to Sheehan's analysis, of bullion and coin hoards, from the early tenth century; and then some coin-only hoards (of foreign coin) from the mid-tenth century onwards, although the latter tend to be very small. Interestingly, most of the bullion hoards were found in areas not controlled or settled by Vikings; in other words, even if the Vikings introduced the silver, it was being collected and by implication used as bullion by Irish people.

The hoard evidence from northern Iberia is not remotely comparable. There is a small hoard from Roncesvalles (of six Anglo-Saxon pennies of c. 990, on a pilgrim route) and a hoard of 205 eighth- and ninth-century silver dirhems from San Andrés de Ordoiz (Navarre) but that is all; Carolingian coins are said to have been found in Santiago.⁶⁰ I do not know of anything comparable to the Irish bullion hoards. There are very few chance finds, since, as in Ireland, metal detecting is illegal. Contrast the south – al-Andalus – where there have been finds of thousands of tenth-century Arabic dirhems:

⁵⁹ J. Sheehan, 'Early Viking Age silver hoards from Ireland and their Scandinavian elements', in *Ireland and Scandinavia in the Early Viking Age*, ed. H. B. Clarke, M. Ní Mhaonaigh, R. Ó Floinn (Dublin, 1998), pp. 166-202; J. Sheehan, 'Ireland's Viking-Age hoards: sources and contacts', in *The Vikings in Ireland*, ed. A.-C. Larsen (Roskilde, 2001), pp. 51-59; J. Sheehan, 'The form and structure of Viking-age silver hoards: the evidence from Ireland', in *Silver Economy in the Viking Age*, ed. J. Graham-Campbell and G. Williams (Walnut Creek CA, 2007), pp. 149-62, at pp. 149-54, updates his earlier figures and introduces a new classification. J. Graham-Campbell, *Viking Artefacts: a Select Catalogue* (London, 1980); J. Graham-Campbell, *The Viking-Age Gold and Silver of Scotland (AD 850-1100)* (Edinburgh, 1995).

⁶⁰ F. Mateu y Llopis and R. H. Dolley, 'A small find of Anglo-Saxon pennies from Roncesvalles', *British Numismatic Journal* 27 (1955), 89-91; J. M. de Francisco Olmos, 'El nacimiento de la moneda en Castilla: de la moneda prestada a la moneda propia', in *I Jornada Científica sobre Documentación jurídico-administrativa, económico-financiera y judicial del reino castellano-leonés, siglos X-XIII* (Madrid, 2002), pp. 303-46, at pp. 311, 308.

6,800 from Haza del Carmen (Córdoba), 3,632 from Fontana, and so on.⁶¹ That might suggest that the north was coin- and silver-free. However, we have seen silver *solidi* (*solidi argenti*) as units of account; these were commonly cited in some areas in the tenth century, especially in and around the city of León on the *meseta*. Now, while textual references to *solidi* are usually to the valuation system, there is reason to think some texts refer to the use of metal. As already mentioned, silver artefacts were sometimes used to make payments, silver *scalae* especially, but also silver bowls and silver-decorated saddles and bridles. Some descriptions of prices paid are explicit that silver was used by weight: a payment in 935 of forty *solidi*, twenty in silver and twenty in cloth (*viginti in argento et viginti in panno*); a payment in 980 of 160 *solidi* ‘in pure silver’ (*argentum purum*).⁶² There is another expression which also implies the use of something with silver content: some payments (and occasional valuations) were made in units called *argenzos*, *arienzos*, *arenzos*, *argenteos*, *argencios* and other variants. So, a price of twenty-one and a half *argenzeos*: *in precio argenzeos XXI et medio*; a price of four *solidi*, paid in cloaks and *arenzos*: *in pretio IIII solidos in saiale et in arenzos*; a price for an arable plot on the river Cea of four bags of spice and two and a half *argenzos*: *in precio pro ipsa terra III folles zumakes, argenzos II et medio*.⁶³ The manner of reference to these *arienzos* suggests that they were objects, presumably pieces of silver, presumably used by weight; they could have been bullion – hack silver, foreign coin, cut coin. The precision of the references (especially the halves) suggests the possibility of a standard weight (or at least a notional standard weight): dirhems were regularly cut to a quarter and a fifth weight in the Muslim south.⁶⁴ Now, references to *arienzos* are very restricted regionally. They are common in León material from 910, common in Sahagún material (to the south east of León, also on the *meseta*) from 930 – precisely the point when sales became more common – and extremely rare in Galicia; they are also rare in Castile and Navarre and in the far north. León was a city.

⁶¹ See A. Canto, ‘Al-Andalus: sus monedas’, in *El Zoco. Vida económica y artes tradicionales en al-Andalus y Marruecos*, co-ord. D. R. López Guzmán (Barcelona and Madrid, 1995), pp. 35-41; E. Manzano Moreno, *Conquistadores, emires y califas. Los Omeyas y la formación de al-Andalus* (Barcelona, 2006), pp. 62-3, 311-16; on chance finds, see below, n. 65.

⁶² Li103; S309.

⁶³ S82 (942), Li193 (946), Li197 (947).

⁶⁴ For much fuller discussion of these units, see Davies, ‘Sale, price and valuation’, pp. 160-5; for cut dirhems, Canto, ‘Al-Andalus: sus monedas’, p. 37 (p. 169 for an illustration of a fragment) and Manzano Moreno, *Conquistadores*, p. 316.

It must be likely that silver was available as bullion, and used in transactions in the city and its hinterland, for example in places like the market at Cea. It is exceptionally frustrating that we have not so far found the physical evidence in the ground but it must surely be there. Indeed, a couple of years ago, four tenth-century andalusí dirhems were turned up by an illegal metal detectorist in Álava, the southern Basque country. These were cut dirhems, precisely the sort of things one would expect to be described as *arienzos*.⁶⁵ Meanwhile, the Scandinavian analogy is very helpful. Cut dirhems occurred in southern Scandinavian hoards of the tenth century; some silver, of whatever origin, was cut to standard weights in Scandinavian contexts, although the weight standard (in the order of 25 grams) is arguable; silver was clearly used in transactions as bullion. I can envisage something comparable to the Scandinavian practice in and around León, using, especially, cut coin from the south, but also hack silver. Indeed, it is worth considering if some of the references to silver *scalae*, in payments, could be to ingots (i.e. something to put on the scales): normal practice is to translate this word ‘dishes’, as is clearly the meaning in some lists of church treasure, but ‘ingots’ would make much sense in transactional contexts.

CONCLUSION

There are many differences between early medieval Ireland and early medieval Iberia – differences in scale, climate, cultural and political background, neighbours, and so on. But there are some real similarities. Both societies were conceptually prepared for exchange, and particularly commodity exchange, that is sale and purchase; and the richness of the vocabulary in the one case and the richness of the written evidence of transactions in the other suggests active exchange economies in both. Secondly, in both regions there was intensification of production – production of cereals on some scale in the south and east of Ireland and on the *meseta* in Iberia, which must have been for distribution (the disputes over water courses near León presumably arose in the context of milling grain to feed the city). Niall Brady made a perceptive comment, when considering the distribution of Irish water mills, that one could begin to see the rational mind at work – just as one can see the beginnings of farming for profit in Spanish texts. All this was well underway by the tenth century, the Irish take-off beginning at least

⁶⁵ J. A. Quirós Castillo, personal comment 26/3/2009, for which I am very grateful.

two centuries earlier.⁶⁶ Thirdly, the availability of silver bullion in some parts (again south and east Ireland and the Iberian *meseta*), from the mid-ninth in the one case and early tenth century in the other, suggests exchange at a volume worth facilitating with silver. Silver could easily be a medium of exchange, without being coined. In the northern world ‘bullion’ and in some cases ‘metal-weight’ economies were practical. Finds of balances for weighing silver are widespread in northern archaeological contexts, and there are lead weights too.⁶⁷ There is no need to suppose these practices were confined to the north – one tenth-century Beato (that is, an illustrated copy of the work of Beatus of the Liébana), the Beato of Valcavado, from the *meseta* (Palencia), clearly shows a very standard balance in its representation of one of the four horsemen of the Apocalypse. While this must ultimately depend on the biblical comment that the third horseman carried a balance (Revelations 6:5), as is indeed cited on the folio, the artist could hardly have drawn so convincing a balance if he was completely unaware of its characteristic features.⁶⁸

Further, in northern Spain and Portugal rich people, lay and ecclesiastical, amassed goods in the tenth century – goods of liturgical use for ecclesiastical corporations (chalices, vestments, bells, books) but household goods for both those and the laity (bedrolls, bedspreads, feather mattresses, furs, rugs, table cloths, cups, cauldrons, dishes, flasks, bowls, jugs, table service). The latter could be silk, highly decorated, silver, gilded or ivory; and they could come from the andalusí south, from ‘Iraq’, or from the Greek (i.e.

⁶⁶ The Irish take-off point looks to have been the earlier (because the greatest numbers of mills are from eighth and ninth centuries) but this may be an issue of the uneven availability of evidence, rather than a substantive difference, given the very few written texts from eighth- and ninth-century Iberia and the limited archaeological record. However, ploughs with sock and coulter do not appear to have been used in Ireland before the tenth century and Brady argues for increasing landlord control of resources in the eighth and ninth centuries and increasing production for an increased population in the tenth: N. Brady, ‘Food production in medieval Ireland, aspects of arable husbandry’, *Ruralia* 8 (2011), 137-43.

⁶⁷ For illustrations of a discovered balance, lead weights and cut Arab coins from Viking contexts, see Graham-Campbell, *Viking Artefacts*, nos. 306, 345, 346, pp. 83, 264, 99-100, 274.

⁶⁸ Beato de Valcavado, Library of the University of Valladolid; page reproduced in *In Principio Erat Verbum. El reino de León y sus beatos*, co-ord. M. Sartori Mana (León, 2010), p. 79. I am extremely grateful to Professor Jill Mann for making me think about this and pointing me to the appropriate Revelations verse: ‘And I beheld, and lo a black horse; and he that sat on him had a pair of balances in his hand’.

Byzantine) east.⁶⁹ These goods clearly circulated, for they were used to make payments; so, for example, a monastery would buy land with a carpet or a mattress or a Moorish bedcover. Goods moved from churches to lay people, lay people to other lay people, lay people back to churches, and so on. These transactions were not confined to the aristocracy – saddles, bridles, linen, cloaks, tunics, blankets and fleeces passed from lay party to lay party in small-scale transactions, from quite early in the tenth century; there are cases from 923. There is also a little evidence of the circulation of really low-value goods: in an interesting study of excavated pottery from the Basque country, J. L. Solaun has demonstrated that in ninth- and tenth-century Álava, although there was some domestic production in and for the household, pottery was also supplied by itinerant vendors and, importantly, was made in local workshops for limited distribution. For example, in a zone near Vitoria, in the two hundred or so years to c. 950, 19% of the ceramics came from domestic production, 30% from itinerant traders, 25% from local workshops and 8% from supra-regional sources; in the following hundred years those proportions changed so that proportions from domestic and itinerant sources dropped while those from local workshops increased nearly three-fold. There seem to have been regional zones of market activity for low-value goods.⁷⁰

There are then some real similarities between Ireland and northern Iberia in the early middle ages. Both areas had active, growing economies (or complexes of economies) and shared in wider western European trends. It clearly was not necessary to mint coin to participate in those trends. Indeed, the absence of coin is probably more to do with the absence of sustained fiscal demands than with the absence of production or of surplus. The circulation of material goods suggests that there was some demand for them.⁷¹ In Iberia the desire for things is demonstrable across social strata. It is more difficult to demonstrate this for Ireland but when the mass of recently excavated material is analysed, it will be surprising if one cannot detect local distribution patterns of low-value goods such as iron and bone objects (knives, hooks, awls,

⁶⁹ See further W. Davies, 'Notions of wealth in the charters of ninth- and tenth-century Christian Iberia', in *Les élites et la richesse au haut moyen âge*, ed. J.-P. Devroey, L. Feller and R. Le Jan, Collection Haut Moyen Âge 10 (Turnhout, 2010), pp. 265-84.

⁷⁰ J. L. Solaun Bustinza, *La cerámica medieval en el País Vasco (siglos viii-xiii)* (Vitoria, 2005), pp. 380, 310, 316.

⁷¹ For the significance of demand, see C. Wickham, 'Rethinking the structure of the early medieval economy', in *The Long Morning of Medieval Europe. New Directions in Early Medieval Studies*, ed. J. R. Davis and M. McCormick (Aldershot, 2008), pp. 19-31.

needles, keys, pins, combs, beads) – the Irish analogue for Basque pottery from local workshops. There is, after all, plenty of evidence of stone-working, bone- and antler-working and ironworking.⁷² The butchering of relatively old (three-year old) cattle to provision settlements, on a suggested semi-commercial basis, as at tenth- and eleventh-century Clonmacnoise, Dublin and probably Knowth, clearly shows a different kind of demand.⁷³ For higher value goods the closest one can get to indicators of demand are the many lists in the *Book of Rights*. This is a later text (probably twelfth-century) but it includes lists of goods either distributed or required – horses, silver-decorated bridles, saddles, cloaks, tunics, rings, bracelets – many of which are similar to those listed in Spanish texts (although with a stronger military flavour overall).⁷⁴

Let me end by returning to the persistence of tradition. As I hope I have shown, both societies were societies in which ancient things were valued and had a continuing relevance. But these were not societies that were bound by tradition, much less were they ‘traditional societies’. They were changing and rapidly evolving. They had complex economies, sharing European trends. For all their differences, they were similar in having active exchange economies without using money. And recognizing that is a useful lesson.

⁷² E. g. M. Comber, *The Economy of the Ringfort and Contemporary Settlement in Early Medieval Ireland*, British Archaeological Reports, International Series 1773 (Oxford, 2008), pp. 173-80, 187-92.

⁷³ F. McCormick and E. Murray, *Excavations at Knowth, 3, Knowth and the Zooarchaeology of Early Christian Ireland*, Royal Irish Academy Monographs in Archaeology (Dublin, 2007), pp. 51-8, 116.

⁷⁴ *Lebor na Cert: the Book of Rights*, ed. and trans. M. Dillon, Irish Texts Society XLVI (Dublin, 1962), e.g. pp. 84-5, 88-9, 104-05.

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