How can we Understand Researcher's Perceptions of Key Research Developments? A case study focusing on the Adoption of Agriculture in Ireland.

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1. Abstract

Understanding how researchers perceive key research developments in their fields is not straightforward. This paper reports on a project focusing on perceptions of key developments in the adoption of agriculture (Mesolithic-Neolithic transition) in Ireland. The project involved over 60 interviews with active researchers, generating qualitative data that provide overview of these perceptions. Despite much diversity, several areas emerge as having been particularly important: including methodologies and wider developments in archaeological practice. Variation between Ireland and other areas of north-west Europe is suggested by some aspects of the data.

1. Key Words

Mesolithic-Neolithic transition

Adoption of Agriculture

Research Developments

Ireland

Perceptions

1 Introduction

The adoption of agriculture is one of the most dynamic areas of archaeological research, with substantial contributions from many individuals across different disciplines. In fact, it has been argued that the study of Neolithisation provides a window into the history of archaeology (Fischer & Kristiansen 2002). As such, understanding research developments in the field is of interest beyond the immediate community of specialists. The presence of so many different specialist contributions creates real analytical possibilities, with different data sets operating at varied scales and providing insight into different processes. At times, however, this ideal of integration is not achieved, and as Cooney has argued:

"... approaches to the problem sometimes seem to run on parallel tracks, rather than informing and being informed by other strands of the discussion. This has resulted in a fragmentation of the discourse and the presentation of very different and partial views of the transition, even in the consideration of particular regions or dimensions of the evidence" (Cooney 2007a: 543-4).

This is true when examining different the interface between disciplines, such as the sometimes difficult relationship between genetics and archaeology (for discussion see e.g. Pluciennik 2006; Richards 2003) but is also true within sectors of archaeology – as for example in the case of the structural problems between the development led and university sectors in Ireland (e.g. Anon 2006; Cooney 2007b; see below for further discussion).

The last twenty years have seen transformations in the nature of our analyses and our models of the adoption of agriculture and every individual researcher could list the key developments - analytical, theoretical, methodological or other - that have changed their understanding of what happened in the past. Given this variety of opinion, and potential for discord, gaining some over view of what active researchers consider the key developments in our understanding of the adoption of agriculture would seem to be important. And yet

gaining such overview is difficult. This paper reports one set of results obtained by a project aiming to identify key research challenges for the adoption of agriculture in Ireland. Ireland is a particularly interesting case study in this regard due to the rapid expansion of development led archaeology during the economic boom which is widely perceived to have had a transformative impact on our understanding of the past. Despite the wealth of evidence uncovered during the boom, a pervasive 'disconnectivity' has been argued to characterise the structure of archaeology in Ireland (Anon 2006), implying that perceptions of key developments might be especially disparate. (The project was executed in 2007-2008, and as such provides a review of perceptions in advance of the economic crash: as discussed below, the perceptions now might be very different.)

But how should one assess key developments in our understandings of a research field? Citation indexes are often used as a way of establishing the 'value' or 'signifcance' of a piece of research; but this can only capture a very partial picture of the ways in which a whole discipline (and related disciplines) are changing in a worldy, social context. This project involved interviews with active researchers from which I gathered qualitative data on perceptions of the status of research on this topic in Ireland. This included perceptions of the contribution Irish data offered to the European understanding of the transition, preferred explanatory frameworks as well as perceptions of key developments and the key challenges. The challenges themselves were the primary focus of the project, and they, along with a broader background and methodology are presented elsewhere (Warren in prep). This paper focuses on the evidence obtained for perceptions of key recent developments in the field.

In a European context, the adoption of agriculture is generally associated with the Mesolithic-Neolithic transition, although this elision obscures significant debates as to the precise nature of this transition and the role of domesticates within the processes of change. It is not necessary to review this discussion in detail here, and the two terms are used interchangeably. It is interesting that for many people interviewed as part of this project the

two terms were clearly equivalent: some, at least, of the latest theoretical debates are not being widely recognised. More broadly, many of the interviewees also tended to discuss problems in the archaeology of the Mesolithic *and* the Mesolithic – Neolithic transition (possibly because interviews were conducted by someone known as a Mesolithic specialist); to a lesser extent this is also a review of perceptions of key developments in the archaeology of hunter-gatherers in Ireland.

Initially the aims of the project had been to establish consensus, to attempt to see what the key perceptions were, and to provide a synthetic statement outlining this. In conducting the interviews it rapidly became apparent that there was no consensus across all of the interviewees; that significant differences of opinion existed and should not be averaged out in the creation of a 'consensus'. As such, my anticipated reporting of the results of the interviews has changed, and I have ended up allowing the interviewees to 'speak for themselves' to a greater extent than I had originally supposed.

1 Methodology and Data Set

All interviewees were asked a series of questions focused on key contributions, developments and challenges (Table 1). Interviews were conducted in person, on the phone, or very rarely through completion of an emailed list of questions. They normally lasted about 45 minutes. Over 100 people or organisations were contacted. Significant attempts were made to contact commercial archaeological units in Ireland and one respondent from this sector commented that it was nice to be asked to be involved. Sixty-six formal interviews were conducted from September 2007 to April 2008. Following the interview, a summary report was returned to the interviewee for edit and approval; three interviewees did not return an approved report on their interview, and the final sample is therefore 63 (Table 2).

Thirty one (49.2%) of the interviewees were based on the island of Ireland. A distinction was made between those who had worked ‘substantially’ in Ireland (more than one research project), done ‘some’ work in Ireland (one project) and those who hadn’t. Nearly half had done ‘substantial’ work in Ireland (47.6%) and many ‘some’ (20.6%). The data set is skewed towards those who work in the universities. Nine interviews were conducted with commercial units (14.3%) compared to some 44 (69.8%) representatives of universities, with state bodies, museums and miscellaneous categories making up the remainder. This is clearly at odds with the fact that the vast majority of archaeological work carried out in Ireland is exectured by commercial units and not universities. Restricting the data set to Ireland (31 interviews) gives a little more balance: with eight (25.8%) commercial and 17 (54.8%) university of whom nine are primarily archaeologists (as opposed to geneticists, palaeoenvironmentalists etc), suggesting a broad numerical equivalence with the commercial units. In any case, an overwhelming sense from the interviews is that the experience of commercial units with regard to the transition is relatively limited.

It is hard to see how a formally representative sample of opinion across such a diverse body of researchers could be constituted but the large number of interviews conducted, and the general diversity of viewpoints reflected, suggests that the sample is valid as a snapshot. Any patterns identified should be considered to require further work to substantiate statistically – even if some of those patterns appear inherently to have logical, and interesting, explanations in the character of archaeological practice in different regions and indeed different communities within regions. It is also essential to note that the dominant perspectives are those of archaeologists, not palaeoenvironmental researchers and not those of geneticists. The overview is constrained in this regard.

1 What were the Key Developments?

Fifty-seven interviewees identified key developments in the study of the transition over the last 15-20 years (broadly defined). Responses ranged greatly, even when simplified to facilitate comparisons, with 21 different developments discussed by interviewees and a total of 205 developments mentioned (allowing for respondents citing multiple developments): six developments were cited by a quarter or more of the interviewees (Table 3). Detailed attention here focuses on these dominant responses which are often related to some of the less frequent answers. Brief discussion of responses made by 10-25 per cent of interviewees is also given. Some interesting variation between regions is apparent (Table 4), and this is discussed as appropriate. Sampling problems created by the small number of interviewees in different geographical areas and a greater representation of the commercial sector in the Irish sample than that from other European countries may be significant in assessing these differences.

2 Dating

The most frequently cited development was dating – which was also perceived as a key challenge. This emphasis covered a range of topics, from the near-routine use of AMS dating of single entity samples, through best practice in dating and understanding of taphonomy, through to specific research projects of varied kinds. Continued reductions in sample size, and the dating of 'new' materials, such as cremated bone or ceramic residues were stressed.

The application of Bayesian statistics to archaeological sites of this period, as demonstrated by Bayliss, Whittle and colleagues (e.g. Bayliss et al. 2007; Whittle and Bayliss 2007), has clearly caught the imagination in Ireland and the UK. The Bayesian revolution, however, is not universal: some respondents had not heard of the techniques, whilst others expressed concerns about the application of these models in areas without sites with good sequences. The much lower levels of emphasis on dating from Continental colleagues suggest a very important difference (Table 4), especially in terms of Bayesian analysis. In contrast,

researchers in Britain and Ireland repeated reiterated Whittle's argument that the new levels of temporal resolution possible opened up entirely new kinds of questions about historical processes (for discussion, see Whittle 2007a). The application of strong dating policies in the commercial sector on a regional level in Southern England and especially Cornwall was cited by a number of interviewees, and this strength is apparent in recent reviews (e.g. Hey and Barclay 2007). The importance of dating many more of the features identified on sites discovered by the commercial sector than is currently the practice was highlighted, with the unexpected discovery of Mesolithic cremations at Hermitage, Co. Limerick (Collins and Coyne 2003) a key example of challenges to our expectations of the ages of features. Projects focusing on establishing the date of older, archival material were stressed as a key development, including Marion Dowd's work on human remains from Irish caves (Dowd 2008) or the Irish Quaternary Fauna Project (Woodman 1997).

Very few respondents discussed dating techniques other than radiocarbon in strictly archaeological contexts. Palaeoenvironmental specialists often mentioned tephra but the potential use of a wider range of dating techniques in archaeology, such as OSL, is apparently not widely appreciated. Many palaeoenvironmental specialists argued that temporal control for environmental change is significantly better than for the archaeology. In part, the use of continuous sequences for palaeoenvironmental work facilitates greater statistical modelling of age (see e.g. discussion in Parnell et al 2008; Telford et al 2004); but the increased use of records of much greater sensitivity (varves, ice records etc) is also significant in this regard.

2 Isotopes

Nearly half of all respondents stressed isotopic analyses as a key development, in terms of diet, migration or both. Researchers in Ireland are much less likely to have stressed this than colleagues from the UK or Europe; and this difference continues when we compare those who have done research in Ireland (35% of 37 people mentioned isotopes) to those who

have not (65% of 20 mentioned isotopes). Whilst this may be caused by a higher proportion of commercial sector archaeologists in the Irish sample of interviewees it also reflects the low levels of application of isotopic analysis in Ireland (results discussed in Woodman 2004) and the lack of publicity of those analyses that have taken place. In Ireland, it appears that isotope research is yet to make a high impact contribution to the Mesolithic-Neolithic transition.

Elsewhere, this high level of response undoubtedly reflects the significant impact of these analyses over the last decade (e.g. Richards and Hedges 1999; Schulting and Richards 2000). Used in conjunction with dating, and especially with corrections to dates based on marine calibration curves, these analyses have challenged our understanding of the timing, and nature of the transition itself; perhaps most clearly in analyses from Western Scotland (Richards and Mellars 1998; Schulting 1998). The apparent evidence for sudden dietary change has been very significant, and it is not too dramatic to say that these analyses have put the revolution back into the Neolithic revolution, at least for some commentators. Attempts to use dietary analysis to examine territoriality, marriage patterns, and the links between regions are also important (e.g. Schulting and Richards 2001; Schulting and Richards 2002; Schulting et al 2008). More recently, the use of isotopes, especially strontium, to examine migration has caught the imagination, partly with dramatic individual studies such as the Amesbury Archer, but also, in a specific transition context through remarkable work on the composition of early Linearbandkeramik communities (Price et al. 2001; Bentley et al. 2003; Bentley 2007). Some caution about isotopes was also raised by a small but significant number of interviewees, but the general lack of appreciation of the well publicised critiques of aspects of this methodology (e.g. Milner et al 2004; 2006; and response, Richards and Schulting 2006) is surprising.

2 Environmental archaeology

Seventeen people identified changes in the environmental/palaeoenvironmental fields, including palaeoclimatology, as a key change; specific aspects of these developments included the rise of high resolution analyses and the integration of environmental techniques into standard archaeological practice. The significance of high resolution models of climate and palaeoenvironment, with the potential for quantified models of change, was seen as important by specialists in these fields, but also by archaeologists more generally, with the broad synchronicity of environmental change and the transition to agriculture in Ireland (for broader discussion, see Bonsall et al 2001) highlighted by a small number of interviewees.

The increased integration of environmental evidence into archaeological discourse was also stressed. This included the maturation of environmental techniques, the relationship between data and theory, the use of proxies, and the greater integration of ecological models into palaeoecology. Debates on the character of Holocene forest structure (Vera 2000) were particularly significant. Some respondents argued strongly that some aspects of environmental archaeology in Ireland lag behind practice in other countries (see also Monk 2007; Murphy and Whitehouse 2007), and that we are not always using the latest techniques to contribute to much wider debates. Further development of environmental archaeology was identified as a clear challenge for the transition in Ireland.

2 Developer-funded archaeology

The impact of developer-funded archaeology is poorly reflected in any quantification of results to a specific question, not least because it was explicitly identified as a topic for discussion in interviews and therefore may not have been discussed in every response where it was relevant. Developer-funded archaeology may also be embedded in broader recognitions of transformations in the nature of archaeology over the last 20 years; especially in terms of the number of archaeologists in all sectors and the quantities of information available. Given that the overwhelming majority of archaeological work in Ireland

is carried out in a commercial context, it is initially surprising that it should have been identified as a key development less frequently than the use of isotopes, for example. Sites of the Mesolithic period are very rare in the commercial context (for extensive discussion, see Warren in prep), and this may provide a simple reason for people not to have mentioned it as a key development in our understanding of the transition. In contrast, the extensive evidence for early Neolithic houses was often discussed (see below).

That said, nearly a third of all interviewees explicitly stated that developer-funded archaeology was a key development; with adjectives such as 'explosion', 'boom' and 'wealth' frequently used to describe the Irish situation. Many interviewees, however, expressed caveats of varied kinds: that the data, for example, was fantastic, but problems in dissemination existed; or that field standards were excellent, but may not be very sensitive to sites of the transitional period.

Colleagues in Belgium and Holland stressed the transformative impact of development-led work in their regions in recent years, notably in the importance of major wetland excavations of sites of this period, on a scale that could not have been financed in a research context; half of Continental European colleagues also stressed the impact of wetland excavations, but no Irish colleagues saw this as a key development in Ireland. Dutch wetland research in a developer-funded context is associated with rapid and standard setting publication - for example, Schipluiden (Louwe Kooijmans and Jongste 2006) or Hardinxveld (Louwe Kooijmans 2001a; Louwe Kooijmans 2001b) – and has had a major impact on understandings of the transition at a European level. Their development of standardised prospection techniques and fieldwork methods for early prehistory (e.g. Rensink 2006) also provides an important comparison to current Irish practices.

2 DNA

Over a quarter of respondents identified DNA work as a key development, and the importance of the technique is highlighted in recent reviews of the transition globally by Denham, and in a specific NW European context by Whittle (Denham 2007, 13-5; Whittle 2007b). Judging from the interviews, there remains considerable scepticism in the archaeological community about use of analyses of modern human DNA distributions to model the Mesolithic-Neolithic transition (e.g. Chikhi et al. 2002). Critiques focused on the scale and generalisation of explanation, the historical depth of identified phenomena, and levels of specificity in interpretation and analysis. The use of aDNA is seen as much more interesting (e.g. Haak et al. 2005). Many respondents also stressed the importance of work on animal migration and/or domestication, and in particular the contribution of the Trinity College Dublin research team led by Dan Bradley (e.g. Bollongino et al. 2005; Larson et al. 2007; Edwards and Bradley 2009). DNA is slightly less likely to have been mentioned by British than Irish or Continental colleagues (Table 4). This may be related to debate in popular Irish archaeological publications about the use of DNA as well as the wider application of such analyses in the context of 'Celtic' identities (Bradley and Hill 2000; Cooney 2000; Hill et al. 2000; Woodman 2000a; McEvoy et al. 2004; Nash 2006). The complexity of DNA analysis, especially in its statistical presentation, was noted as a barrier to communication between the fields. Without revisiting old debates about the relationships between genetics and archaeology, it is clear that issues of scale and analytical practice continue to provide potential for disagreement.

2 Dichotomies in interpretation

A quarter of all respondents identified the development of 'dichotomies' over the last 15-20 years. This included people criticising naïve oppositions of hunter-gatherer and farmer; the terms Mesolithic and Neolithic; economy and culture or more broad concerns that humanistic and scientific understandings were not being drawn together. The dominance of transition studies by Neolithic specialists was noted by one respondent, and the old problem of the Mesolithic and Neolithic being dominated by different models of humanity was stressed more

frequently. Opinions on the value of polarisation varied, with some noting that it led to ferocious and productive debate, others proposing that it led to a loss of potential synergy. One person characterised the transition as suffering from 'indoctrination and inflexible disciplinary approaches'. In general the existence of dichotomies was seen as a problem, and 15 per cent of interviewees identified resolving dichotomies as a key challenge.

No Continental European interviewees identified the development of dichotomies as a development (Table 4). They were much more likely to discuss the development of particular interpretative models that integrated the available data. This striking distinction is probably related to the theory dominated character of debate on the transition in Britain and, to a lesser extent, Ireland. Gronenborn argues that:

"Contrary to the often generalised Anglo-American approaches, particularistic traditions, based methodologically and theoretically on culture history and environmental archaeology, have continued, notably in the German speaking countries, but also in France. These have been substantiated by an ever increasing body of meticulously collected detailed data." (Gronenborn 2007: 74).

It is a sad reflection of how much genuine progress has been made in understanding the transition in Britain and Ireland that the existence of dichotomies should form such a strong theme in interviewee's perceptions, rather than an emphasis on interpretations based on hard-won data. This emphasis on ideas, not data, may not occasion surprise. In 2000 Woodman characterised the state of research in rather bleak terms: "In the case of Britain and Ireland changes from a hunter-gatherer to a farming lifestyle have been written about with a prolific frequency. Any objective assessment of the problems must emphasize the fact that opinions are much more easily discovered than information based on the observation of actual archaeological data" (Woodman 2000b: 219). It would appear that nearly 10 years on from Woodman's article the general perception has changed little.

2 Other themes

Ten interviewees stressed general changes in our analytical models. Key emphases here included a stress on the active role of hunter-gatherers in these processes, of starting with local developments and placing these in broader contexts, and understanding the transition as a time characterised by changes rather than a singular event of change.

General developments in theory over the last 15 - 20 years were also highlighted by ten of interviewees. As might be expected, opinions of exactly which theories had changed, and to what benefit, varied, but these responses might generally be glossed as describing the influence of interpretative archaeologies. Changes in our understandings of the Mesolithic, specifically, were noted by six people, mainly focusing on shifting interpretative frameworks including the rise of a more 'interpretative' Mesolithic archaeology, but also noting the contribution of fieldwork and data generation. No-one in Ireland mentioned this. Developments in methodologies more generally, mainly in terms of fieldwork standards, were also noted. Seven people noted specific sites as having made a key contribution (see below).

Material culture studies were discussed by seven people, mainly pointing to advances with the application of new techniques, particularly in the field of ceramic studies and residue analysis. This response was very rare in Ireland and Britain in comparison to Europe (Table 4) and concern about a decline in artefacts studies in Ireland and Britain was noted by some interviewees (see also discussion in Stoddart & Malone 2001: 3-5). The development of reliable national databases was stressed by Continental colleagues as a critical facilitator of research. Such databases do not exist in Ireland and are perceived as a key challenge.

Several Irish sites were mentioned in interviews as being important at a European level: notably Ferriter's Cove with the presence of early domesticated cattle bone (Woodman et al 1999), the surprisingly early dates for a causewayed enclosure at Magehraboy, Co. Sligo (Danaher 2007) and the evidence for Neolithic farming landscapes at the Céide Fields (Caulfield 1981; Caulfield et al 1998) as well as the 'boom' in Neolithic houses found in recent years (e.g. Smyth 2007). One can anticipate that the recent excavations of late Mesolithic fish traps at North Wall Quay, Dublin, and fish traps and a Late Mesolithic/Early Neolithic sequence at Clowanstown, Co. Meath will be added to this list (McQuade & O'Donnell 2007, Mossop 2009). Given the frequently stated argument that the period of intensive developer funded archaeology in Ireland has led to an explosion of data, one might have expected rather more. In fact, it is surprising that six respondents (over 10% of the sample) argued there had been little or no development over this time period. Specific comments in this context included that the only book on the Mesolithic in Ireland is 30 years old (the book in question being Peter Woodman's 1978 *The Mesolithic in Ireland*), or that new theories had emerged, but were not adequately supported by the data. This answer was disproportionately common in the island of Ireland (5 of the 6 who argued that there were no developments) and may be linked to the lack of Irish respondents identifying developments in Mesolithic archaeology (see above). These high levels of negative responses from Ireland cannot easily be explained in any simple way by sample bias.

1 Discussion

This short paper has shown how a qualitative approach can provide some overview of researcher's perceptions of developments in a specific field, in particular, the Mesolithic-Neolithic transition in Ireland, in its broader European context. Key developments are perceived to have been dominated by changes in analytical methodologies including dating, isotope analysis or the increasing integration of environmental archaeology. Awareness of these techniques is clear, but understanding of a broader critical framework is somewhat less developed. The exception is DNA analysis, where awareness of the critique is

demonstrably present, but at times one cannot escape the feeling that detailed knowledge of what is being claimed by genetic analyses, and how these arguments are constructed, is weaker. Specific sites and particular interpretative frameworks appeal to individuals, but their is significantly less consensus in this regard. To my mind, the often pessimistic tone regarding the extent and character of developments in the field is surprising. Although it was not one of the intentions of this project, in retrospect, it clearly took place at a time of significant change in Irish archaeology. As the Irish economy moved from boom to bust so too did Irish archaeology in the development sector. Funding cuts are now having impacts across the profession, and it is likely that, even following an economic recovery, Irish archaeology in every sector will never be the same again. Any future review may see more of a stress on key developments in contemporary economics as having an influence on how we understand the transition.

As argued in the introduction, our ways of understanding the adoption of agriculture can be seen as a microcosm of wider archaeological developments, and it is hoped that the summary of developments in this specific field is of interest to colleagues more widely as a point of comparison and contrast. The methodology, flexible and loosely defined as it ended up being, may in itself be useful. To the best of my knowledge, this kind of approach has not been applied to archaeological research in this way, and the normal approaches to consensus building utilised in the development of research frameworks are very different in character: starting from a small panel and building out. The more integrative, open approach to definition of relevant ‘researchers’ and the inclusion of multiple perspectives here cannot offer certainty and consensus, but can highlight areas of significant interest, especially comparatively. Alongside this, some interesting gaps in perceptions of developments are also very revealing.

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Table 1: questions asked in interview

Table 2: sample of interviewees used in analysis

Table 3: Key developments, as identified by all interviewees

Table 4: Key developments, with variation based on country of employment

The individual	What is your position?
	Describe your main research interests and study areas
The transition in your study area	What were the main processes involved in the transition in your study area?
	What have been the most important recent developments (analytical/methodological/theoretical etc) in studying the transition in your region?
	What are the key data sets for understanding the transition?
	What are the key strengths and weaknesses of research on the transition in your region?
	What are the key challenges for the next 20 years?
	What have been the most important developments elsewhere in Europe?
Ireland (if not covered by the above)	What are the key challenges for Ireland for the next 20 years?
	What, if any, is the contribution that the study of transition in Ireland makes to the study of the transition elsewhere?
Developer-funded archaeology and the transition	To what extent has developer-funded archaeology impacted on understandings of the transition in your study area?
	Has this impact been as substantial as one might expect? Why?
	What are the most significant transition sites your company have been involved with?
	How were these identified?
	Are there any especial challenges for your organisation in dealing with these sites in the field and/or in write up?
Other questions	What have been the most important recent developments (analytical/methodological/theoretical etc) in your field, in terms of their impact on this period?
	What are the key challenges for your field in terms of this period for next 20 years?
	What are the key recent publications in your field?
	How might inter-disciplinary communication and collaboration be facilitated?
	Any other comments?

Table 1

Surname	First Name	Institution	Country
Amkreutz	Luc	University of Leiden	Holland
AYIA	AYIA	Association of Young Irish Archaeologists	Ireland
Baillie	Mike	Queen's University, Belfast	Northern Ireland
Barton	Kevin	Landscape & Geophys. Serv./Earthsound Assoc.	Ireland
Bayliss	Alex	English Heritage	England
Bogaard	Amy	University of Oxford	England
Bonsall	Clive	University of Edinburgh	Scotland
Bradley	Dan	Trinity College, Dublin	Ireland
Bradley	Richard	University of Reading	England
Carroll	Judith	Judith Carroll & Co Ltd	Ireland
Cobb	Hannah	Manchester University	England
collective		Margaret Gowen Ltd	Ireland
Collins	Tracy	Aegis Archaeology	Ireland
Conneller	Chantal	Manchester University	England
Cooney	Gabriel	University College, Dublin	Ireland
Crombé	Philippe	University of Ghent	Belgium
Cummings	Vicki	University of Central Lancashire	England
Danaher	Ed	National Roads Authority	Ireland
Davis	Stephen	University College, Dublin	Ireland
Dowd	Marion	Sligo IT	Ireland
Driscoll	Killian	University College, Dublin	Ireland
Edmonds	Mark	University of York	England
Edwards	Kevin	Aberdeen University	Scotland
Edwards	Robin	Trinity College, Dublin	Ireland
Finlayson	Bill	Council for British Research in the Levant	Jordan
Fredengren	Christina	Discovery Programme	Ireland
Garrow	Duncan	Liverpool	England
Hallgren	Fredrik	Uppsala University	Sweden
Johnston	Penny	Eachtra Archaeology	Ireland
Kador	Thomas	University College, Dublin	Ireland
Lewis	Helen	University College, Dublin	Ireland
Lillie	Malcolm	University of Hull	Scotland
Louwe Kooijmans	Leendert	University of Leiden	Holland
Mallory	Jim	Queen's University, Belfast	Northern Ireland
Marchand	Grégor	University of Rennes	France
McCartan	Sinead	Ulster Museum	Northern Ireland
McClatchie	Meriel	University College London	England
McCormick	Finbar	Queen's University, Belfast	Northern Ireland
Milner	Nicky	University of York	England
Mitchell	Fraser	Trinity College, Dublin	Ireland
Mithen	Steven	University of Reading	England
Monk	Mick	University College, Cork	Ireland
Mullins	Clare	Byrne Mullins & Associates	Ireland
O'Connell	Michael	National University of Ireland, Galway	Ireland
O'Neill	John	University College, Dublin	Ireland
Price	Douglas T	University of Wisconsin – Madison	USA
Reimer	Paula	Queen's University, Belfast	Northern Ireland
Rowley-Conwy	Peter	Durham University	England
Saville	Alan	National Museum of Scotland	Scotland
Scarre	Chris	University of Durham	England
Schulting	Rick	University of Oxford	England
Sheridan	Alison	National Museum of Scotland	Scotland
Smyth	Jessica	Heritage Council	Ireland
Stirland	Jon	ACS Ltd	Ireland
Stuijts	Ingelise	Discovery Programme	Ireland
Sturt	Fraser	University of Southampton	England
Tipping	Richard	Stirling University	Scotland
Vanmontfort	Bart	University of Leiden	Holland
Waddington	Clive	Archaeological Research Services Ltd	England
Walsh	Fintan	IAC Ltd	Ireland

Whitehouse	Nicki	Queen's University, Belfast	Northern Ireland
Whittle	Alasdair	Cardiff University	Wales
Zvelebil	Marek	University of Sheffield	England

Table 2

	N	% of respondents
Dating	29	51%
Isotopes	26	46%
Developer-funded Archaeology	17	30%
Environmental Archaeology	17	30%
DNA	15	26%
Dichotomies in interpretation	14	25%
theory, general developments	10	18%
Nature of analysis/models	10	18%
data, generate more	8	14%
Methodologies	7	12%
material culture studies	7	12%
sites, importance of	7	12%
what developments?	6	11%
research, context and character of	6	11%
wetland/underwater archaeology	6	11%
mesolithic archaeology	6	11%
Databases	4	7%
regions/network/contact	3	5%
specific interpretative themes	3	5%
landscape archaeology	2	4%
nature of early farming	2	4%
Total N of responses	205	
Total N of respondents	57	

Table 3

	Ireland	% of 25	UK	% of 24	Europe	% of 6	Other	% of 2	Total
data, generate more	1	4%	4	17%	1	17%	2	100%	8
databases			2	8%	2	33%			4
dating	12	48%	15	63%	1	17%	1	50%	29
Developer-funded Archaeology	8	32%	6	25%	3	50%			17
Dichotomies in interpretation	5	20%	8	33%			1	50%	14
DNA	7	28%	4	17%	3	50%	1	50%	15
Environmental Archaeology	8	32%	7	29%	1	17%	1	50%	17
isotopes	6	24%	15	63%	4	67%	1	50%	26
landscape archaeology	1	4%	1	4%					2
material culture studies	2	8%	2	8%	3	50%			7
mesolithic archaeology			5	21%	1	17%			6
methodologies	2	8%	4	17%	1	17%			7
Nature of analysis/models	2	8%	3	13%	4	67%	1	50%	10
nature of early farming			2	8%					2
regions/network/contact	1	4%	2	8%					3
research, context and character of	4	16%	2	8%					6
sites, importance of	5	20%	2	8%					7
specific interpretative themes			2	8%	1	17%			3
theory, general developments	4	16%	4	17%	2	33%			10
wetland/underwater archaeology			3	13%	3	50%			6
what developments?	5	20%	1	4%					6
Total N. of responses	73		94		30		8		205
Total N of respondents	25		24		6		2		57

Table 4

1. Appendix 2: Generic Themes used for Collating Information on 'Developments' and 'Challenges'

Generic responses
communication, DFA and academic
data, generate more
databases
dating
Definition of questions
Developer-funded Archaeology
Dichotomies in interpretation
DNA
Environmental Archaeology
Fieldwork: more
Ireland is different
Ireland's ecology
isotopes
landscape archaeology
landscape change
linguistics
material culture studies
mesolithic archaeology
methodologies
Nature of analysis/models
nature of early farming
neolithic package
peripheral location in Europe
preservation
profile, public and profession
proxy evidence
regions/network/contact
research, context and character of
site location/distribution maps
sites, importance of
size
specific interpretative themes
story, has its own
Synthesis of extant data
terminology/definition of periods/material
theory, general developments
training
wetland/underwater archaeology
what developments?